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Diagnostics of the Stability States of Enterprises and the Limits of their Tolerance

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Abstract

Introduction. *The concept of sustainable development has become the basis for the study of trends in enterprise development in terms of economic, environmental and social components with the focus on achieving sustainable pace of dynamics. An important issue in the diagnostics of the stability states of enterprises and the limits of their tolerance is providing the opportunity to anticipate the threat of sustainability and to avoid crises and minimize negative consequences.* The purpose *of this article is the synthesis of scientific and methodological approaches to studying the dynamics of the development of enterprises, as well as the justification of the procedure for determining the type of stability on this basis.* Results. *There has been conducted the typology of the stability states of the enterprise development. Determining the sustainability of an enterprise is important for further substantiation of the competitive strategy and the choice of the company's behavior model. The comparison of the concepts of management of business processes in the context of ensuring sustainable development made it possible to distinguish those that are characterized by lower adaptation costs. There has also been proposed an adapted algorithm of the main components method, which allows comparing the positions of companies with respect to competitors and quantify the achievements in the field of sustainable development.*

Keywords: *sustainable development; stability states of enterprises; competitive strategy; field of tolerance; concepts of business process management.*

1. Introduction

Faster informatization of the life of society causes rapid changes in the economic environment as well. Although scientists investigated the conditions for achieving economic balance before, providing enterprises with continuous sustainable development with anticipated rates, which is especially complicated, taking into account the fact that modern economy is a complex non-linear system is an urgent task nowadays. Consequently studying the experience of ensuring the desired pace of development, especially concerning foreign enterprises, will be the basis for systemizing and choosing managerial tools of ensuring sustainability. The information base for the analysis will be created on the suggested methodological guidelines for determining the state of stability, which will allow ranking enterprises in comparison with the optimal model characteristics and competitors' positions. Provisions of the theories of self-organization, sustainable economic management and synergetics will be used as the theoretical basis for conducting typologies of the stability states of the enterprises. Application in the process of the synthesis of the multidisciplinary approach theoretical provisions will allow to substantiate the best set of optimal tools for managing business processes considering modern conditions for its practical use.

2. Brief Literature Review

The issues of ensuring sustainable development of the enterprises are reflected in many scientific works including those which are written by scientists who represent various fields of science. Particular look at the mentioned issues from different perspectives deepened the understanding of investigated processes and provided a combination of contradictions in development and sustainability. Thus, the issue of ensuring sustainable development from the standpoint of the theory of self-organization and open systems thermodynamics was investigated by V.V. Artiukhov [1]. Cybernetics approach to managing complex systems is presented in the works of W. Ashby [2] and Yu.V. Husarov [3]. The principles of organizing synergetic management for enterprises in the conditions of instability and dynamism of the external environment are used in the works of G. Haken [4], H.Z. Shevtsova [5], S.M. Popov [6]. The fundamentals of sustainable economic management, sustainable development control tools and practical examples of their implementation in the company's policy were formed by B. Kolsman [7].

The scientific search for managerial tools in the field of sustainability was made in several areas: firstly, the reengineering of corporations from the point of view of organizational

changes and improvement of the company's strategy (M. Hummer and D. Champi [8], H.Yu. Varneke [9] and V. E. Voitsekhovych [10]); secondly, ensuring the transfer of knowledge between universities and enterprises which are represented by small and medium-size businesses (S. Rabbe and A. Schultz [11]); thirdly, effective management of business processes in the context of sustainable development (D. Stark [12], T. Ono [13], E. Penrose [14], V. Ramses [15] and Yu.L. Vasylchenko [16]).

However, unsufficient attention has been paid to the issues of sustainable development management taking into account the state of enterprise sustainability as a prerequisite.

3. The Purpose

The Purpose of the article is the synthesis of scientific and methodological approaches to studying the dynamics of the development of enterprises, as well as the justification of the procedure for determining the type of stability on this basis. This will provide the opportunity to anticipate the threat of sustainability and to avoid crises and minimize negative consequences, which will be the basis of finding tools for an effective business process management.

In this context, it is necessary:

❑ to carry out the typology of the stability states of the enterprise development through the use of an integrated approach to the generalization of the theoretical basis;

❑ to adapt the existing methodical tools for the studying the processes of dynamics to the needs of the analysis of the company's sustainable development;

❑ to conduct the testing of the proposed algorithm on the example of real enterprises;

❑ to highlight key adaptive positions of companies, competitive strategies and models of company behavior;

❑ to propose tools for improving the efficiency of sustainable development management.

4. Results

The concept of sustainable development originally formulated for solving problems of society has eventually become the basis for the study of trends in enterprise development in terms of economic, environmental and social components with the focus on achieving sustainable pace of dynamics.

Understanding the laws of the enterprise development dynamics including comparison with competitors allows searching for tools to ensure procyclicality even at the early slowdown stages. Thus, there is a need in studying trends in the enterprise development and its competitors from the standpoint of dynamics and types of sustainability. It is important to consider the interpretation of the term stability to substatiate approaches to the classification of enterprises according to the states of stability. Stability in statics means immutability and in dynamics – stable violation of the stable state [1, p. 87]. Enterprises are dynamic systems operating in the changing environment, so identifying the features of their response to change is a prerequisite for further classification of sustainability and development management.

Naturally, the system stability means preserving its state at the time after the influence of internal or external factors. Simultaneously, such obviousity is one of the reasons for the lack of a clear definition of the stability. Despite the fact that the term of stability is found in physics, mathematics, socio-economic sciences, ecology, engineering and synergy, it does not have a clearly defined content as a subject of study. Another reason is the multiplicity and universality of the sustainability phenomenon. At the same time, despite the difference in the interpretation of the term "stability", the fact of the existence of systems regardless of the domain indicates itself the existence of the single concept of stability.

From the point of view of the general theory of systems, stability is a fundamental property of the system that ensures its ability to exist and is an inalienable physical characteristic [1, p. 97]. The process of forming this concept started in the 60s of the XX century when the study of related structures and contents of concepts, models and laws began in order to distinguish the principles that are common to different sciences, in order to find the solution of current problems. So there are common features and mechanisms as characteristics of various forms of sustainability.

The development of the general theory of systems contributed to the creation of a new interdisciplinary branching – synergetics that studies the patterns of formation and destruction of the ordered complex systems. During the development of the theory of dissipative structures, which is the foundation of synergetics, the Belgian scientist I.R. Prigogine [17], studying the nonequilibrium thermodynamics of open systems, has concluded that they react to the random deviations of characteristics from the mean values. High sensitivity of the systems leads to the launch of internal regulatory processes. Later, as the interdisciplinary dissipative structures were established, the stability phenomenon was defined as the fundamental property of any system to remain unchanged or to become more stable.

According to synergy terms, economic processes are viewed as dynamic, and enterprises – as systems aspiring to stability rather than to equilibrium. Steady development at the micro level is characterized by the bifurcation mechanisms, which mean a consistent change in the qualitative states of the system (of a separate enterprise). The moment when the system completely loses stability is the point of bifurcation. This concept and the choice of the further development option (attractor) are the basic subjects of the study of synergetics. G. Hacken [4] introduced modern understanding of synergetics as a science of dynamic behavior of systems. The peculiarity of such systems lies in their nonlinearity, which means the changes in the structure and organization of their functioning are not proportional to their actions, although their nature is different from chaos.

F. Nayt [18, p.40] defines the existence of a modern enterprise as a "direct result of the fact of uncertainty". However, enterprises as open and nonlinear systems can be systematized using synergetic approaches to the following groups [6]: stable (the structure and principles of functioning remain unchanged); adaptive (the structure and principles of functioning may vary in order to adapt to external conditions); evolving (the structure and principles of functioning are approaching to a qualitatively new level).

The synergetic approach is based on the understanding that open systems are characterized by self-organization. Due to the ability of self-organization of the system under the influence of the environment and changes in it according to the given attractor, companies move from one state of stability to another.

Based on the synthesis of synergetic approaches and general system theory, four classes of stability can be distinguished. In the generalized form, four states of enterprise stability (steady stable, unsteady stable, unsteady unstable, steady unstable) are given in Table 1.

The first type is characterized by the absence of factors of influence, which means the changes do not occur. The parameters of the system itself and the environment remain unchanged. Sustainability is ensured by the invariance of external and internal parameters. The second type is characterized by the state of the system, in which a number of external and internal factors do not affect it. This stability class is inertial and buffer; it has critical boundaries of influence, under the conditions of which the system enters the area of instability. The third type is the lack of the set of factors in the event of changes. Therefore, the individual properties of the system remain unchanged. The fourth type means that the influence on the system of a large number of external and internal factors, the

Situation	The limit of tolerance	State
The negative influence of external factors is minimal, the pace of the recovery of the processes is higher than the pace of the change of the negative factors	Strong position	Steady stable
There is a negative influence of negative factors; instability factors do not exceed the strength of the company; the pace of the change in instability factors does not exceed the pace of the recovery processes	Bifurcation point, possible rollback	Unsteady stable
The strength of the volatility of external factors is twice stronger than the potential of the company; the pace of the change in instability factors does not exceed the pace of the recovery processes	Bifurcation point, on the verge of the stability loss	Unsteady unstable
The strength of the external factors of instability is very significant; the pace of the changes in the instability factors significantly exceeds the pace of the recovery processes	Loss of stability	Steady unstable

Table 1. Typology of states of enterprise stability
Source: compiled by the authors according to [1, 19]

impact of which is sufficient for changes inside the system and beyond it.

The stability of the enterprise as a system is also based on the phenomenon of homeostasis. This means it has the properties of maintaining the immutability of the state of key indicators in the specified limits. The basic principle of homeostasis (the need for constant adaptations) also determines the need for transformation to the transition to another homeostatic state.

A brief description of the states of enterprise stability:

❑ steady stable state (the company is on the market for a long time, maintaining its integrity. As a system it is characterized by a point attractor, a constant increase in profitability and minor technological changes. As a rule, a steady stable state is inherent in enterprises from inelastic branches of the economy, so their stability is ensured at the expense of the traditions and specifics of the markets or the absence of alternatives. This category mainly includes energy and mining companies);

❑ unsteady stable state (environmental sustainability is observed at shorter time intervals than in a stable state. The company as a system has a cyclic attractor as its characteristic. This category includes the majority of business entities that are characterized by the ability to restructure under the influence of innovative technologies, the volatility of profitability and the slow pace of a fundamentally new qualitative change);

❑ unsteady stable state (in comparison with the unsteady stable state, the instability of the environment prevails in the duration periods of stability. The company as a system has a thoric attractor as its characteristic This category includes companies from high-tech areas with high elasticity to the impact of innovative technologies);

❑ steady unstable state (the stability and integrity of the system can be lost due to the fact that the external environment affects the internal state of the system for a long time, which brings it into chaos and collapses or becomes a fundamentally new structure. The company as a system has a chaotic attractor. This category includes venture companies as the most elastic to innovative technologies, the most profitable and the most risky at the same time).

It is important to note that the company may not have the necessary capacity to move to a qualitatively different state. In addition to this, the enterprise passes in stages all four states in order to achieve a steady stable state the transition from a steady stable to an steady unstable state in the event of critical changes in the external environment (for example, liquidation of markets, loss of principal competitive advantage, etc.) takes place rapidly.

While investigating the state of sustainability of enterprise, it is appropriate to use W. Shelford's "law of tolerance" extrapolated by F. Rutner [20], according to which the system does not develop if the factors of influence are insufficient or there are too many of them. This law does not contradict the general theory of systems. At the same time, its application in the context of business structures needs to be complemented. When applying the law of tolerance at the micro level, it should

be noted that such state of stability, when the external environment does not have a negative impact, does not occur in the economy. Therefore, it is appropriate to take the starting point of the moment of the system appearance as its base state. Accordingly, the enterprise, unlike other systems, depends largely not on the state of the factors that determine its equilibrium state but on the factors influencing its further development.

For each enterprise, there is an interval of values of the parameters of these factors, within which it is capable to be sustainable. The range between the minimum and maximum values is the field of tolerance for these factors. In addition to defining the field of tolerance, determining the state of stability of the enterprise can justify the strategic development benchmarks. According to the law of the necessary diversity by W. Ashby, if the functional system (enterprise) is complex and unpredictable, the complexity of the management system must not be less [2]. Therefore, a complex management system is a reflection of the functional system (enterprise) and the speed of decision-making should correspond to the rate of change in the functioning environment.

Identifying the company position in the field of tolerance allows choosing options for sustainable development. If it was found that the results of the company activity for a certain period were positive (performance indicators in terms of the components of stability show the dynamics of improvement), which allowed the company to become more stable (except steady stable state), then it is worth pursuing the chosen development strategy. If the changes did not take place or they were negative and, as a result, the company turned into a less stable state (besides the unsteady stable one), then measures should be taken to adjust the chosen strategy to achieve sustainable development.

An important element of the sustainability management system is the choice of mechanisms for responding to changes in the operating environment. Applying the approach suggested by T.V. Vashchalova [21] to distinguishing reaction mechanisms in the natural environment, one can adapt it to the conditions of the business environment, highlighting the following main components: 1) unaltered to the state of the system; 2) unaltered to the type of system operation; 3) unaltered to the structure of the system; 4) unaltered to the change of system's targeting. The launch of one or another stabilization mechanism is determined by the reaction time of the elements of the system, the level of its organization and spatial characteristics.

The first group includes the following mechanisms: inertia, feedback, limitation of exchange with the environment. Inertia is the slowing of the reaction to the factors of influence, which allows the system to maintain a number of properties unchanged. Feedback provides system stabilization. The limitation of the system exchange with the environment serves as a mechanism for maintaining the system vital functions in critical states.

The mechanisms of the second group, which ensure the maintenance of the type of operation, should be applied to enterprises, for which it is more important to maintain the order of processes (type of operation). The main means of achieving

this goal is the duplication of elements (subsystems) that perform the same functions.

Mechanisms of the third group ensure the preservation of the structure through the implementation of an alternative strategy and characteristic of systems with advanced self-regulation. Another way is to change the environment (which means entering new markets).

Mechanisms of the fourth group are aimed at increasing the stock of stability. The stability stock characterizes the difference between the current state of the system and the critical one or the difference between the actual and the maximum permissible state of the system.

After passing the critical state (bifurcation points) there comes the transition period of the system to the "new stability" (stability with the other characteristics of the system). Therefore, after passing the bifurcation point, the system can move to a new equilibrium state with better orderliness or there will be a rollback to a chaotic state, it is important to track the moment of exit from the state of balance in time.

The basic principles of organizing business process management take into account the mechanisms for responding to changes in the functioning environment.

In other equal conditions in the competitive struggle, those companies have benefits, whose product competitiveness (its technological, socio-economic and environmental characteristics) are higher. Depending on the trends and changes in the functioning environment, the positions of the company adaptation will be different. In this case, none of the positions of adaptation of the enterprise to changes (inactive, reactive,

preactive and interactive) is not used in its pure form, so companies can combine them.

The inactive position of adaptation is passive from the orientation on the changes in the interaction with the external environment at present; the reactive position focuses on the analysis of changes that took place in the past; the preactive position means preparation for change and readiness for them; the interactive position is in interaction.

Those companies that adapt to the cure the values of correlation coefficients for the variables that characterize sustainable development (inactive) position in their reaction to change show a low adaptation efficiency. This is due to the use of a minor interval or market specifics to analyze. The adaptation with the current orientation is the characteristic of monopolies.

Adaptation with the orientation to the past (reactive position) means the response of the enterprise to changes in the external environment postfactum. The reaction to changes in companies with this type of adaptation may also be ineffective, since its speed will be less than the pace of change in the economic environment. This type of adaptation is typical of enterprises with low speed of decision-making procedures.

Enterprises that adapt to future orientation are reacting to changes in one of the two ways: managing changes or out-stripping them (a preactive position). The first method involves active influence on the external environment, the second – preparation for future changes.

The position of the company in the operating environment and the type of adaptation affect the choice of competitive strategy and behavior of the company (Table 2).

Stability state	Competitive strategy	Characteristic of the competition strategy	The position in the environment functioning	Adaptation strategy
Steady stable	Violents	orientation towards the mass production and uncommon change of technologies; are characterized by the elevated inertia and low adaptation level to the environment	Passive	Orientation to the present
Unsteady stable	Violents / patiences	patiences are more specialized, their advantage is a short-term planning cycles; are characterized by the average adaptation level to the environment	Reacting	Orientation to the past
Unsteady unstable	Explorers	experimental structures are characterized by the flexibility and the high adaptation level to the market	Leading	Precedence changes
Steady unstable	Commutators	universal, often risky, flexible and well-adapted to the market	Interactions	Management changes

Table 2. Competitive strategy and behavior of the company
Source: compiled by the authors according to [7, 8, 11]

Depending on the chosen competitive strategy, the following models of the company behavior are possible: violents, patiences, explores, commutators. However, for each model one of the main tasks for sustainability is the management of changes and the development of the ability to change, being ahead of changes in the environment.

Adaptation of enterprises to dynamic changes in the market takes placedue to changing organizational forms or methods of managing business processes. The following main factors contributing to the transition to new organizational forms can be emphasized [22]: the need to increase the flexibility of production and management processes; the need to save labor costs; development of information technologies and their commercial distribution; reduction of the possibilities of the mass production system.

In the conditions of sustainable development, changes in organizational forms provide an increase in the speed and efficiency of information exchange between the units of the enterprise, so the coordination of the entire volume of efforts on the basis of the principle of a "fractal factory" works better, being consisted in structuring the division of the enterprise into blocks of rapid response [9, p. 270].

The idea of dividing into fractals originally comes from the theory of chaos. Fractals are called unsteady and unstable independent components of the system. The peculiarity of the fractal structure of the system is in the fact that the system is in a chaotic state between two stable and the ordered ones. In

addition to this, the system, divided into fractals, consists of parts, which are similar to the whole [10, p.9]. This similarity allows the system to reproduce itself. Accordingly, the viability of the system is directly dependent on its fractality.

Using the principle of fractal architectonics in the process of selecting the organizational structure, which should provide enhance stability, can be seen in all basic concepts of business process management because they provide the exclusion of a clear hierarchical subordination and separation of powers, which contributes fractals, operating on the principle of focusing on sustainable development in one of two ways: managing changes (or interacting with them) or outstripping them (a preactive position). The first method involves active influence on the external environment, the second – preparation for future changes.

In general, the combination of changes in organizational forms and the search for optimal conceptual approaches to sustainable development has a place in the theory and practice of the operation of many enterprises.

The scientific literature [8, 13, 15, 23, 24] presents a number of basic concepts for managing business processes, which in modern terms are used by companies in practice, in particular: continuous improvement process and the Deming cycle, the concept of total quality management, Kaizen, lean production.

The essence of Continuous Improvement Process (CIP) is to manage on a process-based approach. The idea of this concept belongs to E. Deming [23] who defines the system as a

sequence of functions or activities (subprocesses) within an organization that promotes the goals of the organization. Later it was called the Deming cycle or PDCA. This cycle contains four components: Plan, Do, Check Action.

Total Quality Management (TQM) concept arose as a refinement and rethinking of the principles of Deming combining the organization of control over the quality of products and the active involvement of staff in controlling the quality of work for the benefit of the organization and society. It was based on the standards of the International Organization for Standardization (ISO) series 9000 [25].

The TQM is to improve continuously not only the products and management but also the qualifications of the staff. Indicators of the financial condition of the enterprise and the degree of satisfaction of consumers and employees are used in order to evaluate the listed components.

The Kaizen concept as the business philosophy of improving all business processes is aimed at positioning the firm on the market as improving business processes in order to ensure their gradual change to meet better consumer needs [15]. The difference between the concepts of TQM and CPI is the focus on human capital, self-discipline and economy [16]. Kaizen is used by Nissan and Honda for the efficient management of business processes.

The concept of Lean Production (LP) arose because of the generalization of the experience of the production system and management approaches of Toyota [13, p. 36-37]. However, her fundamental ideas were formed by Henry Ford and embodied in the system of successive execution of technological operations (Ford Production System, FPS). The essence of LP is to maximize the use of resources with minimal waste and loss of working time. The concept of lean manufacturing combines features of TQM and Kaizen.

All these concepts correspond to two approaches to the restructuring of the enterprise in modern conditions: evolutionary and revolutionary. The first is characterized by gradual improvement of business processes; it is typical for such concepts as CPI/PDCA, TQM, Kaizen, Lean Production. The revolutionary approach consists of radical changes in business processes; BPR concept belongs to it. Considering in more details the evolutionary principle, it should be said that as practice shows, changes in business processes in an enterprise on an evolutionary basis allow to reduce production costs to 40%, labour expensesss – up to 45% and to increase production volumes up to 50% [24].

Those concepts which are based on an evolutionary approach are more suitable for implementation at enterprises because the revolutionary principle may require additional automation of the production process which is rather costly. Therefore, the Business Process Reengineering (BPR) concept means a complete redesign of business processes in order to improve their performance and re-equip production through the transition to advanced equipment [8]. Therefore, the advantages and disadvantages, as well as the costs of their adaptation are considered while comparing the concepts of business process management in the context of sustainable development (Table 3).

Parameters Concept	Connection with the sustainable development	Adaptation costs	Advantages	Disadvantages	Companies as examples
CPI	Understanding the activities of the companies as the process of achieving the goals and interests of all stakeholders; preservation of natural resources and conditions taking into account the needs of future generations; involvement of employees in management processes and improvement of safety and conditions of their work	moderate	Attracting management to quality control, a motivation of the staff	Effect of implementation is possible in the long term	Toyota, Nissan, General Motors
TQM		moderate	Standardization of production processes and product quality improvement as a consequence, an involvement of employees into the management	Emphasis on the attitude of employees to the work but any control tools are provided	Chrysler Group, Nissan, Toyota
Kaizen		low	Involvement of employees into the quality control, an increase of labor productivity.	Long period of time to get the results of implementation	Honda, Nissan
Lean Production		moderate	Increasing the efficiency of using resources in production, a long-term competitiveness, a reducing downtime in working time	Possible reduction of employees	Ford Motors, Toyota
BPR		high	Ability to use as an anti-crisis tool, a reduction of a production cycle duration	Redistribution or reduction of the staff, a significant costs of finance and time	Volksvagen, Ford Motors, General Motors

Table 3. Comparing the concepts of business process management in the context of sustainable development
Source: compiled by the authors according to [3, 19, 26]

Critical analysis of the most common concepts of business process management in terms of sustainable development, both in scientific sources and in practice, shows that they have several advantages in terms of improving economic, environmental and social efficiency of production.

Whereas the analysis of stability in practice within the limits of this research is conducted on the example of the leading enterprises of the automotive industry, Tab. 3 provides the concepts that are used by these enterprises.

The assessment of stability involves analysis of the state and dynamics of systems in comparison with the optimal characteristics. Automobile companies are constantly faced with increased state regulation, growing demands of stakeholders and a dynamic market. Adapting to changes in the environment is a key condition for the sustainable operation of the enterprise.

For the investigated enterprises, adaptive capacity is more important than as adaptation, which means rapid response to future changes in the environment.

The influence of external factors can be one of the main causes of the crisis phenomena. Crises arise due to incorrect assessment of the possible negative impact of external factors. The stages of the crisis for the enterprise appeared in [27, p. 66]:

deteriorated performance indicators (stage I); loss-making (stage II); the exhaustion of reserve and fixed assets (stage III); threat of bankruptcy (stage IV).

In this case, crises may arise at any level of stability. Under conditions of a steady stable state the emergence of a crisis situation in the first stage is possible; unsteady stable – the first and the second stages; unsteady unstable – the first, the second and the third stages; steady unstable – all four stages.

It is possible to prevent a crisis by developing effective managerial decisions based on the qualitative analytical information and the indicators selected for research as well as methods of their processing.

The peculiarity of the analytical study of such multi-faceted phenomenon as the sustainable development is the use of both quantitative and qualitative indicators. Therefore, the indicators were compared for this principle.

In general, there are two approaches to the development of indicators of sustainable development: the construction of the system of indicators and the creation of an integrated (aggregate) indicator. The first approach is to select an optimal system variant (problem indicator, pressure-state-reaction, target-subtarget-task-indicators, etc.). Regarding the generally

accepted aggregate indicator of sustainable development, it does not exist on the micro level. So S. Rabbe and A. Schultz [11] single out such indicators and characteristics as sustainability policy, sustainability goals and activities, sustainability measurement, sustainable development communication, and action oriented towards the future. B. Colsman [7] identifies such elements as individual definition of corporate sustainability, identification and analysis of driving forces for sustainability, corporate sustainability strategy and its full integration into the main business strategy, involvement of key stakeholders, measurement and management of the effects of sustainable development policies.

The definition of methods for their processing is equally important for the analysis of indicators that characterize stability because the measurement and indication of sustainable development of separate enterprises, among other things, should reflect both temporal and spatial dynamics.

The adaptation of the systems of sustainable development indicators for the company management can take one of two methods: by selecting or ranking. The advantage of the first method is the ability to determine the selection criteria (for example, the requirements may reflect the environmental, economic and social aspects of the functioning of subsystems, comparability, uniqueness of interpretation, the possibility of use for various types of economic activity). Advantage of the second method is in ranking of the indicator systems by priority levels. For example, at the macro level the indicators are divided into baseline group (for country comparison), additional group (regional) and specific group (for specific territories). The disadvantage is in the complexity of application at the micro level. Therefore, there is a need for using indices that are not common (for example, energy consumption and capacity per unit of territory or evaluation of material (including raw materials) streams).

The process of forming a group of indicators of sustainable development should take place taking into account the industry affiliation of the enterprise.

The theory of company growth constraints [14] and Berch method [28] are used to determine the level of the adaptation of enterprises to the change of external conditions. The use of the Berch method in our study will allow us to distinguish companies that have demonstrated not only the high growth rate but also the sustainability of such growth over time. A change of more than 20% means that the company is developing faster than other enterprises. However, taking into account only the company's revenues over the last five years (by the Berch method) is insufficient. Accordingly, it is necessary to supplement the analysis with additional indicators.

The modern paradigm of sustainable development is because there is a need to achieve a balance between limited resources, environmental interactions and a number of non-physical characteristics (technologies and innovations, lifestyle, etc.). No less important is the role of investment in the system is presented in [29]. Therefore, in practice, all aspects should be taken into account.

Car manufacturers are profit oriented companies. Therefore, the ultimate corporate goals are long-term viability and a strong competitive position [26]. However, environmental technologies and new forms of mobility play a key role too.

Areas, which quantitative and qualitative changes of indicators characterize the current state of the enterprise are: 1) efficiency of activity; 2) market position; 3) potential. A generally accepted approach to the first sphere of efficiency of a company is considered a ratio where the gain of net profit exceeds the increase of net income, which exceeds the increase of assets. However, in today's conditions immaterial assets which cost change is disproportionate to the change in the value of tangible assets are becoming increasingly important. Therefore, we have

Indicator	Company			Years	Indicator	Company		
	Ford	Nissan	Toyota			Ford	Nissan	Toyota
Net profit, billion dollars	7.16	4.14	18.77	**2013**	Consumer loyalty, %	44.1	34.7	43.3
	1.23	3.89	19.07	**2014**		48.2	49.2	44.6
	7.37	4.16	19.25	**2015**		66.7	61.1	63.5
	4.60	4.35	17.12	**2016**		51.0	48.1	65.0
	7.60	6.17	21.49	**2017**		49.8	65.0	67.5
Revenue, billion dollars	146.92	116.52	234.60	**2013**	Consumer satisfaction, %	71	78.7	78.8
	144.08	104.83	256.92	**2014**		73	77.0	79.0
	149.56	103.51	247.83	**2015**		75	73.9	75.9
	151.80	101.17	235.75	**2016**		73	81.3	80.9
	156.70	109.00	256.65	**2017**		72	82,2	81.5
Capital, billion dollars	26.38	49.30	135.42	**2013**	Employee satisfaction, %	75	84	74.0
	24.44	46.72	136.57	**2014**		76	84	72.0
	28.64	47.75	143.49	**2015**		76	86	71.9
	29.17	42.67	148.69	**2016**		77	86	73.9
	34.89	48.05	168.50	**2017**		72	88	74.0
Cash, billion dollars	14.47	9.66	18.27	**2013**	Number of fatal cases	3	2	2
	10.76	8.33	20.41	**2014**		4	2	3
	14.27	7.30	20.79	**2015**		4	3	1
	15.91	8.23	24.40	**2016**		3	1	2
	18.49	11.54	27.85	**2017**		2	1	1
Total assets, billion dollars	202.03	154.94	386.14	**2013**	Fuel economy (USA), m/g	29.5	32.1	35.5
	208.62	147.03	391.07	**2014**		30.1	32.0	35.4
	224.93	155.12	406.06	**2015**		30.0	32.0	35.3
	237.95	144.20	413.66	**2016**		29.8	32.0	35.3
	257.81	171.32	436.02	**2017**		29.6	32.1	35.4
Global market share,%	6.0	6.2	12.0	**2013**	Quantity of waste products, mln kg	14.5	34.87	47.7
	7.1	8.6	11.0	**2014**		14.0	34.01	46.0
	6.9	8.0	11.0	**2015**		13.3	30.63	45.3
	6.5	5.4	9.2	**2016**		12.7	28.11	45.0
	7.3	8.0	11.7	**2017**		11.8	30.10	45.0
Sales volumes, thousand units	6.354	5.188	8.871	**2013**	BGG Brands (2013-2014) and Green Ranking Global (2015-2017), position	2	5	1
	6.323	5.318	9.116	**2014**		1	4	2
	6.635	5.423	8.972	**2015**		-	-	35
	6.651	5.626	8.681	**2016**		-	-	-
	6.607	5.830	8.971	**2017**		79	81	16

Table 4. Output data to determine the field of tolerance
Source: compiled by the authors according to [31-36]

expanded the list of indicators for analysis, taking into account not only the growth of net the profit/income/production capacity or the particularities of interaction with employees, as it is done in the studies [14, 19, 30] and also indicators of relations with stakeholders and the environment.

At the next stage of the study, it is advisable to use the main components method, elaborated in details by Hoteling, which is used to simplify the interpretation of information or to compare multidimensional objects under study. This will reduce the amount of output data, determine the relationship between them, quantify and rank.

Analyzing the sustainable development of automotive companies based on reporting we can identify a number of indicators that characterize the components of their sustainable development and in aggregate, it can serve as a characteristic of stability (Tab. 4).

The object division consists in the distribution of indicators for economic (net profit, revenue, capital, cash, total assets), environmental (fuel economy, quantity of waste products), social (consumer loyalty, consumer satisfaction, employee satisfaction, number of fatal cases) and organizational-management ones (share of the global market, sales, place in the rating). The time division is to characterize the current state and dynamics of the indicators.

Indicators used by enterprises can be divided into the following groups: 1) y_1 – financial indicators (net profit, revenue, share capital, cash, aggregate assets); 2) y_2 – market indicators (global market share, sales volume, consumer loyalty); 3) y_3 – indicators of relations with stakeholders (customer satisfaction, employee satisfaction, number of fatal cases in production); 4) y_4 – indicators of interaction with the environment (fuel economy, quantity of waste products, position in the global ratings of "green" companies).

The traditional algorithm for calculating the main components involves the transition from the original matrix of observations X to the correlation matrix S between the initial signs, then – to the calculation of eigenvalues.

Estimation of the level of firmness stability as a latent sign with the help of the adapted method of the main components will be carried out in three stages (Fig. 1).
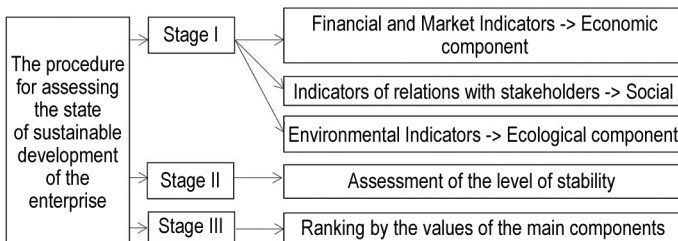
Figure 1. The adapted algorithm of the main components for determining the state of sustainable development of the enterprise
Source: compiled by the authors

At the first stage, the components of sustainable development are the main components; at the second – the level of stability; at the third they are ranked by the values of the main components.

The first stage. Output data that form a set of observations satisfies all the requirements [37, p. 11-16]: qualitatively and quantitatively homogeneous and have sufficient volume (by the Berch method – for five years).

Mathematical processing of data in the application of the method of the main components was carried out using the package GRETL.

An enterprise is a multidimensional object characterized by a vector of functions a = $(y_1, y_2, y_3, y_4)'$, where each element of the vector y_i – the main component (with the largest contribution), determined by a set of output characteristics a…n. Eigenvalue λ_i, appropriate to each yi (i = 1..4), is the rating of the

enterprise in the corresponding area and the average arithmetic value of the indicators will be a generalized indicator (rating) of sustainable development of the enterprise.

So the main component method is based on the correlation of the original features, before the construction of the main components it is necessary to check the existence of a correlation between y_1 ... y_p for each component of sustainable development. The constructed matrices of correlations of Pearson are given in Figure 2.

The second stage. There are zero correlation indices and those that have a negative value, so the construction of the main components will be carried out without their consideration. The obtained simulation results are presented in Table 5.

According to the overall sustainability rating, Ford Company has the highest indicator in the period chosen for the study period, and the lowest has a Nissan company.

The third stage. Because a five-year time-lag has been selected, it is necessary to add an adjustment factor for the effectiveness of the activity. The method of its definition is as follows:

1) a steady stable state is characterized by the maximum value of all indicators of sustainable development or their negative growth (except for the number of fatal cases in the production in both cases), so the range of the indicator is 1;

2) an unsteady stable state is characterized by the negative growth of the indicators of sustainable development, so the range of the indicator is from 0 to 1;

3) unsteady unstable state is characterized by conditions which may have negative increments, but not more than once in the period under study, so the range of the indicator is from -1 to 1;

4) a steady unstable state is characterized by the maximum positive and negative increments of all the indicators are possible to be more than once during the period under study, so the range of the indicator is from -2 to 2.

Companies selected for research are unsteady stable, as none of them has demonstrated a negative growth rate. At the same time, sales volumes tended to be steadily rising have Ford and Nissan companies. Thus, the indicators of the overall stability rating after the application of the correction coefficient are Λ_{CPF} = 2.331925+1; Λ_{CPN} = 2.0306+1; Λ_{CPT} = 2.193+0. Accordingly, each of the companies can move to the next state of stability – steady stable. However, this may require a revision of traditional approaches to the economic foundations of nature and to ensure the efficiency of production.

5. Conclusions

In the article, based on the application of the integrated approach, the authors generalize the theoretical basis of stability states, compare approaches to the effective business process management in the context of ensuring sustainable development through the prism of their advantages and disadvantages, as well as suggest tools for improving the management of sustainable development.

The conducted research allows to state that the process of adaptation of enterprises to changing environment conditions takes place in the dynamically changing economic conditions. The generalization of the theoretical basis shows that the need for systematization and the choice of management tools for ensuring sustainability remains relevant. The typology of the stability states of the enterprise development makes it possible to distinguish the following: steady stable, unsteady stable, unsteady unstable and steady unstable state. Determining the sustainability of an enterprise is important for further substantiation of the competitive strategy and the choice of the company's behavior model. The comparison of the concepts of management of business processes in the context of ensuring sustainable development makes it possible to distinguish those

Financial indicators

Ford   Nissan   Toyota
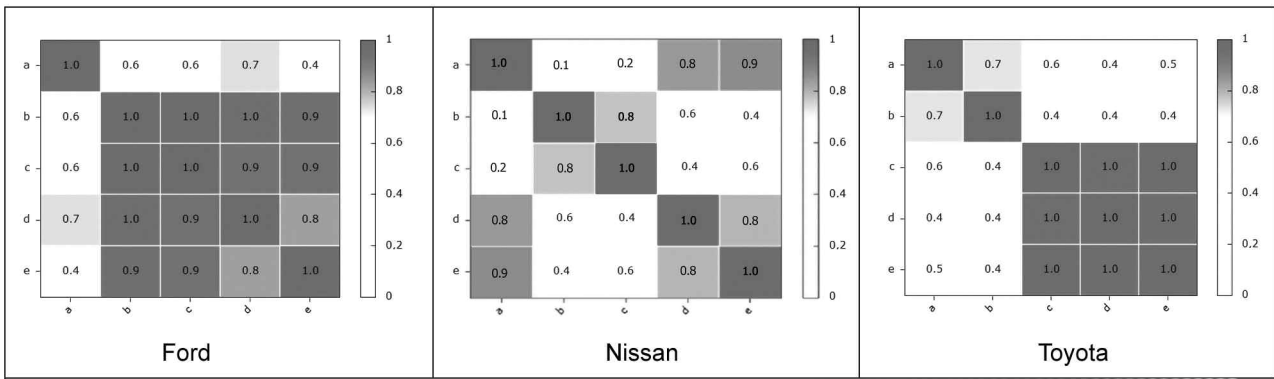
a = y_{11} (net profit); b = y_{12} (revenue); c = y_{13} (share capital); d = y_{14} (cash); e = y_{15} (aggregate assets)

Market indicators

Ford   Nissan   Toyota
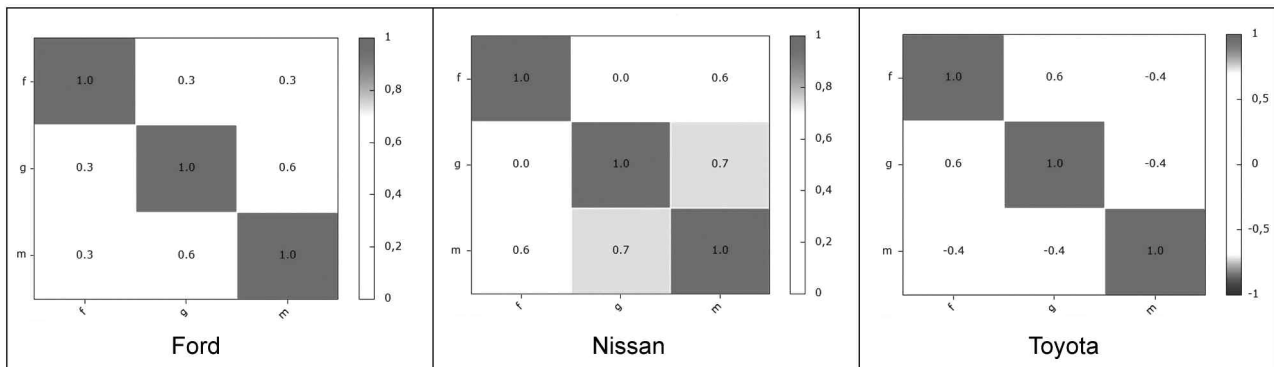
f = y_{21} (share of global market); g = y_{22} (sales volume); m = y_{23} (consumer loyalty)

Indicators of relations with stakeholders

Ford   Nissan   Toyota
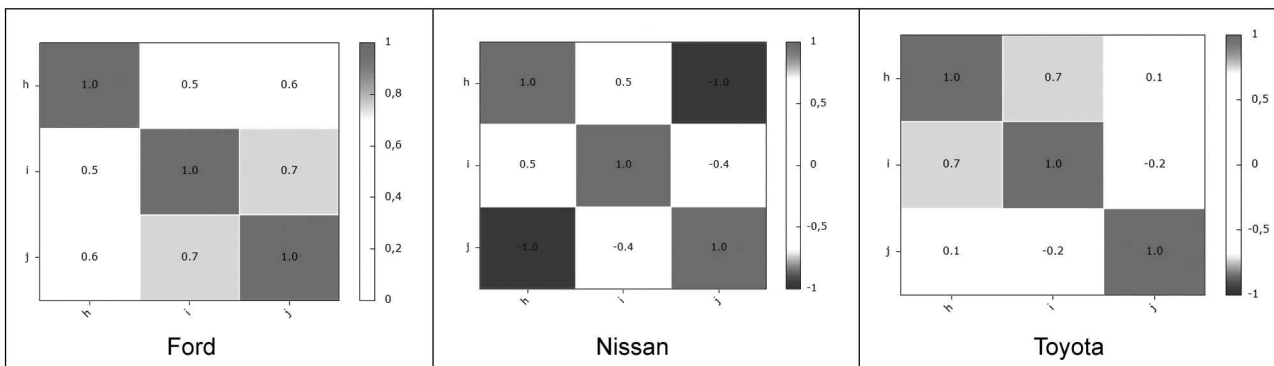
h = y_{31} (customer satisfaction); i = y_{32} (employee satisfaction); j = y_{33} (number of fatal cases in production)

Indicators of interaction with the environment

Ford   Nissan   Toyota
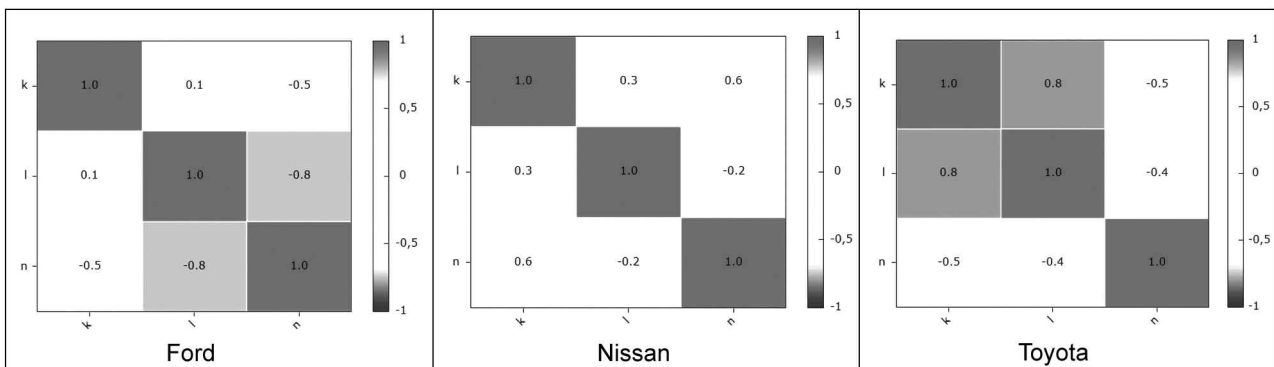
k = y_{41} (fuel economy (USA)); l = y_{42} (quantity of waste products); n = y_{43} (position in rating)

Figure 2. The values of correlation coefficients for the variables that characterize sustainable development
Source: compiled by the authors

Company	Element of the vector "financial indicators"	Element of the vector "market indicators"	Element of the vector "stakeholders"	Element of the vector "environment"	Total rating
	rating	rating	rating	rating	
Ford	$y_1 = 0.331a + 0.49b + 0.467c + 0.476d + 0.454e$	$y_2 = 0.452f + 0.621g + 0.641m$	$y_3 = 0.535h + 0.572i + 0.623j$	$y_4 = 0.707k + 0.707l$	$\Lambda_{CPF} = 2.331925$
	$\lambda_1 = 4,1256$	$\lambda_2 = 1.8258$	$\lambda_3 = 2.2381$	$\lambda_4 = 1.1382$	
Nissan	$y_1 = 0.432a + 0.386b + 0.384c + 0.501d + 0.515e$	$y_2 = 0.707g + 0.707m$	$y_3 = 0.7007h + 0.707i$	$y_4 = 0.707k + 0.707n$	$\Lambda_{CPN} = 2.0306$
	$\lambda_1 = 3.2831$	$\lambda_2 = 1.7360$	$\lambda_3 = 1.4566$	$\lambda_4 = 1.6467$	
Toyota	$y_1 = 0.392a + 0.923b + 0.510c + 0.486d + 0.496e$	$y_2 = 0.707f + 0.707g$	$y_3 = 0.7007h + 0.707i$	$y_4 = 0.707k + 0.707l$	$\Lambda_{CPT} = 2.193$
	$\lambda_1 = 3.5886$	$\lambda_2 = 1.5971$	$\lambda_3 = 1.7461$	$\lambda_4 = 1.8402$	

Table 5. Construction of the main components
Source: compiled by the authors

that are characterized by lower adaptation costs.

The stability conditions are also studied based on the a-dapted algorithm of the main components method, which allows comparing the positions of companies with respect to competitors and quantify the achievements in the field of sustainable development. Approbation of the suggested algorithm on the example of the real enterprises proves the companies selected for research to be unsteady stable but each one can move to the next state of stability – steady stable.

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Intelligent Tool to prevent Economic Crisis – Fractals.
A Possible Solution to assess the Management of Financial Risk

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Abstract

The research identifies and presents the existence and connections between financial decision, financial performance and fractals patterns. A fractal appears as a geometric object that repeats itself in the same structure on different scales and/or timings, showing reduplicate patterns. Fractals are everywhere around us. The research presents how fractal patterns can be easily linked with economic events, in our case economic growth. Price movement in the market is very complex and appears to be randomly. The financial economists believed that this complexity is built up from self-similar patterns of trader behavior. That means that the whole structure is not random but follows a model that can be measured – fractals. A multidimensional analysis of financial data provides a clear picture of decision makers at macroeconomic level. Economic data are very useful and they can be classified according to different decision maker criteria and taking into consideration accordingly. However for a better performance of economic and financial forecasts, predictions and the impact of any decisions throughout the economy, we argue those fractals patterns are more than helpful to be taken into account. The research uses fractals to evaluate the economic growth of Romania and to present possible solution of assess risk of possible economic recession.

Keywords: fractals; economic growth; financial decisions; economic recession.

1. Introduction

This work paper aims to demonstrate that repeating patterns can lead us to anticipate the future events and take pro-active financial and economic decision to assess any possible risks. In particular, based on the Mandelbrot's studies, (Mandelbrot, 1997) taken up and applied by the economist Taleb (Taleb, 2007), it has been possible to hypothesize the occurrence of improbable events, which may have a devastating impact. A fractal is a geometric object that repeats itself in the same structure on different scales and/or timings, showing repeating patterns. It does not change its appearance even if it is viewed with a magnifying glass. Objects with such behavior could appear as artificial constructions, although they are frequent in nature such as: the arrangement of the branches of a tree, the shape of a cauliflower, the surface of the clouds, the path of a river, the structure of the galaxies, the shape of lightning.

Since its Mandelbrot's discover, fractals are becoming a powerful new mathematical language, thanks to which it is possible to describe natural phenomena and solve the real natural problems that had once been set aside. The Mandelbrot's crucial aim it was to find a comprehensive way to explain the chaos. This modern mathematics makes use of the information technology (Mandelbrot used to work at IBM for decades). Mandelbrot sustain, and the research underlines his theory about fractals, which is a geometric figure more efficient to represent the complexity of nature (Mandelbrot, 2005). The term *fractal*, which he invented, it comes from the Latin word *fractus* (broken, fractionated). Fractals are geometric figures that may seem irregular because they cannot be traced back to the classical figures of Euclidean geometry. A fractal is a geometric object with internal homothetic, which it repeats his shape in its same form on different scales. Enlarging any part, it is possible to obtain a similar figure to the original. It is therefore called *fractal geometry*, the Non-Euclidean geometry that studies these structures, recurrent for example in the engineering design of networks, in Brownian motion and in galaxies. In this way the fractal can be used in the description of real natural events or objects. Moreover, the fundamental characteristic of the fractal figures is *self-similarity*: if the details are observed on different scales, it is always possible to notice a certain resemblance to the original fractal.

2. Research methodology

This research is proposed to be a qualitative and quantitative exploratory research, because it is starting from the recognized fractal theory and extrapolating it in the economic and financial area to prevent any future economic turmoil, using macroeconomic data, finance programs and linking it to the public finance and economic risk management. The research started from the obvious existence of fractals in everything that surrounds us and wishes to show and confirm that patterns exist in economic life and may help, even may become an important tool for financial decision makers. Fractals can let financial experts to be aware or prepared for periods of cyclical recession. The research will use fractals to evaluate the economic growth of Romania and to present possible solution of asses risk of possible economic crisis.

3. Literature review

Karl Friedrich Gauss' mathematic formulas and everything that is behind the mathematician is known to a few of us, however its general meaning and usefulness is known to many. *Gaussian curve* is a curve with a classic bell shape that has a

maximum around the average of the measured values and can be more or less narrow depending on the dispersion of the values around the average. The dispersion is measured with the standard deviation: practically one of the properties of the Gaussian is that 68% of the measurements differ from the average less than the standard deviation and that 95% less than two standard deviations. Therefore, the greater the standard deviation, the more the Gaussian it is *open* and there is the possibility that the average (the highest point) is not re-presentative of many cases. In the case of the Gaussian bell curve, the events that are found on the highest peak of the curve represent those with the highest frequency (and then with the highest probability), while the events with lower probability, closer to the asymptotes, according to this theory are con-sidered negligible, only because of the fact they are rare, regardless of their importance in terms of damage they can produce (figure 1).
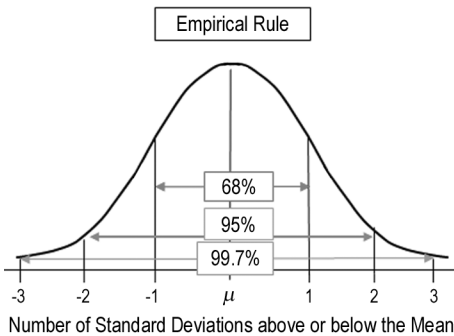
Figure 1.
Gaussian Bell –
Normal Distribution

Source:
https://mathclasshylton.weebly.com/unit-5---statistics.html
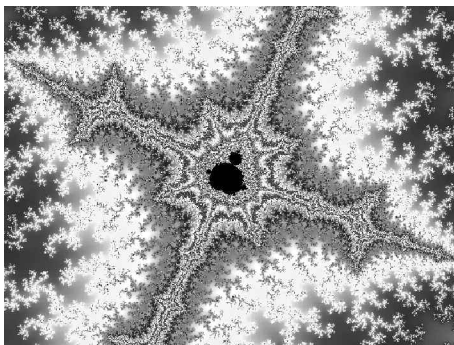
Figure 2.
The Mandelbrot's
Set

Source:
https://www.nsf.gov/pubs/2002/nsf0120/nsf0120_man.html

Fractals have always there, part of our day-to-day life, just waited to be discovered. Despite the simplicity of the definition, the function has a complex shape whose contour is a fractal. It possible to view and draw it only by using a computer. At the beginning of the twentieth century, some mathematicians had created very strange curves and figures that subverted the rules of classical geometry violating the characteristics of harmony considered natural for objects in the scientific field. (Figure 3 – *Koch's snowflake*, a line which link all corners; *Peano-Hilbert*
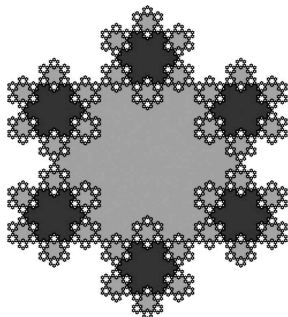
Figure 3. Koch's Snowflake

Source:
https://www.topsimages.com/images/fractal-snowflake-83.html
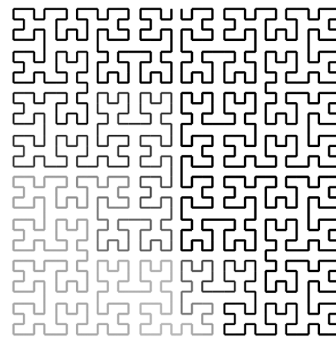
Figure 4.
Peano-Hilbert curves

Source: https://en.wikipedia.org/wiki/Moore_curve

curves, a line that unfold a labyrinth which it covers a square, figure 4; Figure 5 – pitted figures, like the *Cantor's set*; and, the Sierpinski's carpet, figure 6). At that time, these structures were considered not appropriate and relevant.

Thanks to Mandelbrot, the *mathematical monsters*, previously set aside, were finally considered, assuming a new role of ancestors of modern fractal figures. Fractals were therefore born by recovering pre-existing separate pieces, but conceived in limited and distinct contexts. The mathematicians were sur-prised and pleased to discover that their pathological figures had become the key to the complexity chased for so long. In the last twenty years, fractal models have been investigated, acquiring the role of the key structure in financial modeling. Mathematic in all sectors is constantly growing: from natural sciences to economics and social sciences, from physiology to technology, advanced logistics and their field of application.
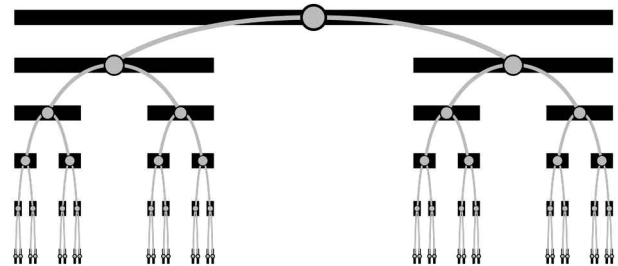
Figure 5. 3D Cantor's set
Source: https://en.wikipedia.org/wiki/Cantor_set
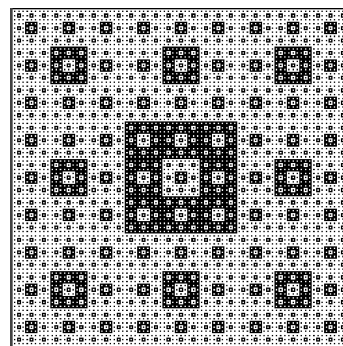
Figure 6. Sierpinski's carpet

Source:
https://math.stackexchange.com/questions/7412/variant-on-sierpinski-carpet-rescue-the-tablecloth

4. Findings and discussions

Beyond fractals apparently very complex figures, secret of extreme simplicity is hidden. This is perhaps the most surprising aspect of the whole fractal theory. With fractals the rules are precise and the result is predictable. This contrasts with tra-ditional science which instead includes the irregular aspects of nature and non-similar events such as chaos theory.

Nevertheless, sometimes reality overcomes that the chaos theory exists, in the sense that the unpredictable is realized.

This is the collapse of the stock exchange in 1929, or the unfortunate financial events of August 1998, and financial crisis from 2008. According to the standard models, studied by the traditional economy, the sequence of these events was so unlikely as to be impossible. Technically it was called *erratic value*, that is, very far from the normal expected value in the financial world. Yet it happened. This, according to the fractals, means that the traditional economy may have error. Studying of financial markets risk, using fractal theory applicators, it can be offered a new tool to perform better quantitative control and take a better qualitative financial management and investment decisions. The goal is therefore to study the risk, even if Mandelbrot himself admits that nothing can be predicted accurately. It is true that observing the behavior of those who play on the financial market there is something illogical. We observe the stock exchange phenomenon: prices are very variable, movements have an irregular trend (figure 7).
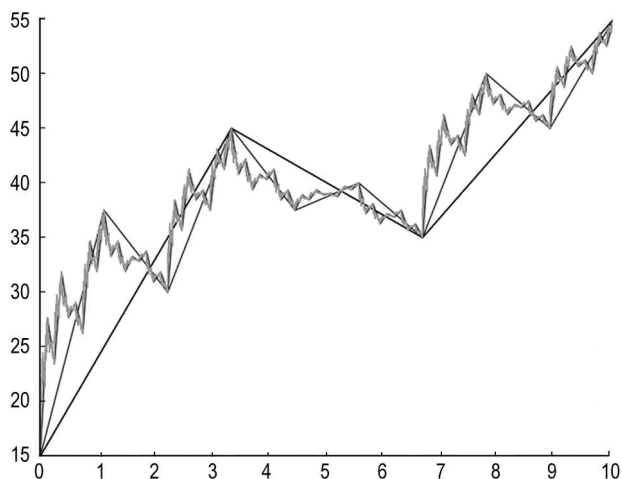
Figure 7. Fractal stock price simulation

Financial markets are risky, everyone knows, but a thorough study of risk, according to fractal theory applicators, can offer a new understanding and one can hope to have quantitative control.

Those who bet on these tendencies to accumulate wealth, they usually put us back because the changes are valued without order. Similar things can be observed, yearly basis, on economic growth. Apparently there is a chaos movement, but it is cyclical, means fractal.

A fractal is a given geometric model that is repeated along all time frames. From this concept was created the fractal indicator. The indicator generates potential turning points on the chart. Bearish fractals are marked by an up arrow and the bullish fractals are shows with an arrow (figure 8). In case of macroeconomic indicators, a fractal signal shows the signal that the GDP might decrease.

Figure 8. Scenarios' tree for financial decision making
Source: Mosteanu, Faccia, et al., 2019

The financier Bill Williams has developed the fractal indicator it and can be used in all financial arena and in all times (Williams, 1998). When there is a low point with two bars or candles, a bullish fractal occurs. Moreover when there is a high point a downward fractal occurs. When the arrow is located above or below the center, there is no possibility that a trader can enter the world also if the model is five bars. If someone is exchanged fractal signals, the voice would be the right price of the third bar after the arrow.

Moreover, fractals are frequently used, and sometimes they can be very inaccurate entry points. Fractals can be very inaccurate entry points because they are frequently used. Williams is the one that has fundament a new indicator, the *Aligator*, among the classical known indicators of the financial markets. This is an indicator of the combined approach of the direction of travel assessment and filtering market periods of trends absence. The Alligator takes into account the combined analysis of three lines of balance (jaw, teeth and lips). Its interpretation is made as follows: in periods of consolidation, the lines are braided together (sleeping alligator), the more this process lasts, the stronger is this movement of the price (becomes more hungry alligator). Along the trend development, the alligator opens its jaws and follows its prey. As it is more than enough, he squeezes its jaws and falls asleep again (Kagitci, et al., 2012).

The research studies the economic growth in Romania, to see if there is a pattern. In case of macroeconomic indicators, it shows that the GDP could move higher and a fractal signal shows the signal that the GDP might decrease (figure 9). When comes about macroeconomic position of a country, fractals, based on data, helps the economics to see what was the amplitude of the tools used. Fractals will visually show you the results of the actions taken to meet the economic objectives outlined in each country's national budget strategy. Thus, we can observe the actions that led to economic growth, as well as those that did not give the expected result. The failures can help us in the future, as experience, not to repeat the same measure in the same socio-economic conditions, to avoid the negative result.

We try to explain what was happening before each financial and economic crisis/recession. 1989-1992, Romania faced a transition period from socialism to capitalism. After *1989 revolution*, there was a *chaos in legislation*. However, more than this, the political regime was changed. Taking this as an indicator, we can see that all election years can be underline as a fractal. Every time when there was a fiscal reform and the taxation system was changed in favor of lower tax rates and fiscal facilities, the economy recorded growth. When credit conditions were relaxed, the economy recorded growth too. However, on the other side, when the eligibility for loans it is not well assess than, loans without a real guarantee can create a fake economy growth (as happened in financial crisis 2008-2009, in USA, and propagated all over the world).

Every time where there is a stability of the financial system (after the elections, as a rule), a relaxation of the tax and the credit system, it is clear that there is a period of economic growth, on the condition of the stability of the international financial markets of the exchange rate. Here is the time to put more accent on credit risk and political stability. In times of economic growth, we can see a relaxation of the risk management in the banking system. This can be an alarm signal. The low interest rate lending rate helps to impoverish the economy by relaxing the cost of capital, but vigilance on lending needs to be increased, exactly in this period. Unclaimed lending leads to a jam. As a result, consumption and production will reduce, implicitly, the private profit and the public budget revenues. This is the moment when tax changes, in the sense of increasing quotas and reducing facilities, will certainly not have a positive long-term effect, and will lead to a defeat of economic growth across the country. This is the case of Romania in the last years (figure 9).

5. Conclusions and points of views

A fractal pattern is a model repeated that shows the same configuration throughout the structure, on different scales. Outside, in nature we may see many fractals pattern such us the
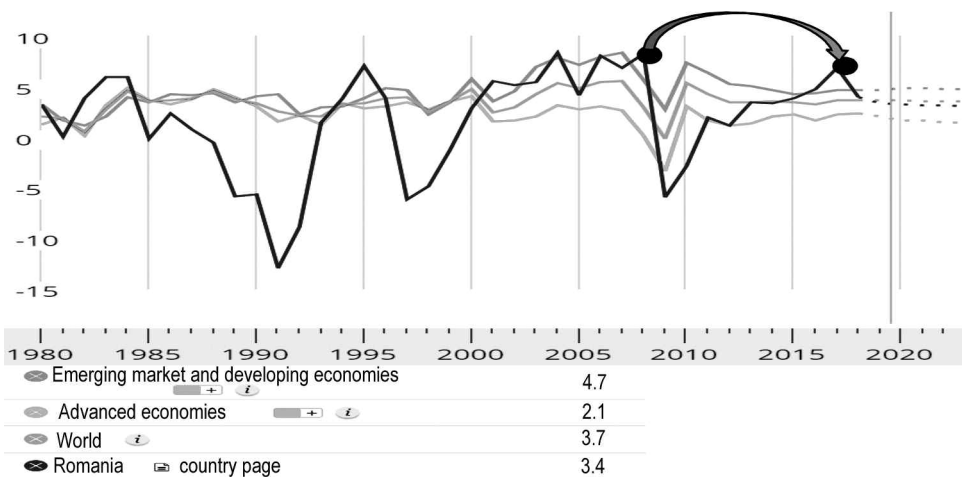
Figure 9.
Fractal economic growth
in Romania, 1980-2020

Source:
https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD/ROU

Emerging market and developing economies	4.7
Advanced economies	2.1
World	3.7
Romania country page	3.4

twigs linked to the tree or snowflakes, these reinforce the properties of being self-similar. No matter how complex is the whole situation, the fractal patterns are recursive, since it is built from many repetitions of the same process. If you look at a small section of the pattern, they are self-similar, there is no difference to a much larger section of the pattern, or even the whole.

The author reduces the scale of observation and detects the phenomenon by applying the vision of fractal on macroeconomic level, case of Romania. The irregular tendencies of the economic growth are grouped by size: the large variations arrive in rapid succession followed by sequences of small variations. The behavior of the economic growth is therefore a fractal structure. In the same way it is possible to proceed with the description of the *bubbles* of the investments, that is the abnormal expansion of a value. The bubbles, however calamitous they may seem, are very common in the general market and in the individual activities (Shiller, 2000). Despite this, traditional economic models consider the bubbles to be aberrations, or irrational deviations of the norm, caused for example by an avid speculator. Why it is not considered as a combined result of many wrong financial decision? Using data and visual economic trend (figure 9) it is obviously that, despite international factors, there were internal wrong decision. This experience can be used in the future, with fractals. When it can be seen that some behavior its repeat, than, using past experiences, avoid the same mistakes.

The most famous and most general pricing model of the options was developed 46 years ago (Black, Scholes, 1973). Originally, this model was developed to price European-style financial options. Starting from that first early version it has contributed and influenced all subsequent pricing models. An important contribution to the development of the model of Black and Scholes undoubtedly goes to Merton who made changes and improvements (Merton, 1973). According to their binomial model, the basic hypothesis is the possibility of creating a portfolio equivalent to the option, consisting partly of units of the underlying and partly of risk-free bonds. The main difference with respect to the binomial model is that in this case the hypothesis foresees that the yields are distributed among infinite states of nature. The Black and Scholes model represents the limit in the continuum of the binomial model, which is discrete (figure 10).

The intention and suggestion of the research is to apply an innovation to the Black and Scholes method, basing the analysis of the pricing of the real options (financial, taxation and economic decisions) no longer on the normal distribution, but on a fractal approach. According to present research' opinion, this method, despite all evidence, definitively can be the one which represents all possible states of nature and all scenarios, without neglecting any event, not even those that are unlikely to be happened. Since decision-making strategies should be based on the most detailed analysis possible of all scenarios, the normal distribution therefore appears to be a limit rather than a foundation, as it excludes unlikely events. Moreover, it has
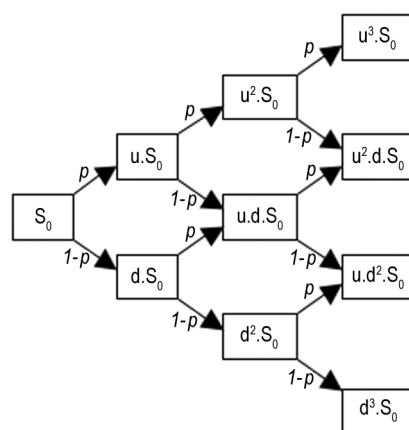
Figure 10. Binomial option pricing model Decision tree approximation

Source:
https://en.wikipedia.org/wiki/Binomial_options_pricing_model
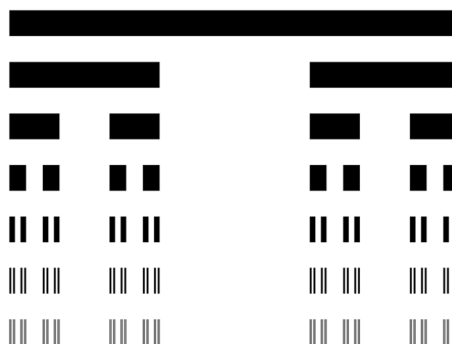
Figure 11. Candor's set. The repercussions of financial, tax, monetary and economic decisions and actions on all economic actors of a country

Source: https://en.wikibooks.org/wiki/Fractals/Cantor%27s_Set

been shown that the most improbable events are the most dangerous, or the one that represent the most important opportunities, therefore they are not negligible (Mosteanu et al., 2019).

Moreover, the research goes further and underline that, in Romania's case (or in any other case), fractals can be seen through Black and Scholes binominal option model, combined with the model of Cantor (figure 11), which can be expressed in both directions from bottom to the top and reverse. In this way, financial and economic decisions and their implementations should be addressed from both directions. Any financial or momentary decisions should be analyzed from their impact and interconnectivity effect, from the government-businesses-individual, reverse, and from business-to-business (e.g. bank-client relation). And, all the time is better to take a look of the pattern (fractals) of previous years.

Economic performance of every country is a constant issue of the present normal or turmoil economic, however it is insufficiently explored, without taking into consideration all aspects, like fractals patterns. The present research comes to emphasize that fractals patterns can predict a certain economic
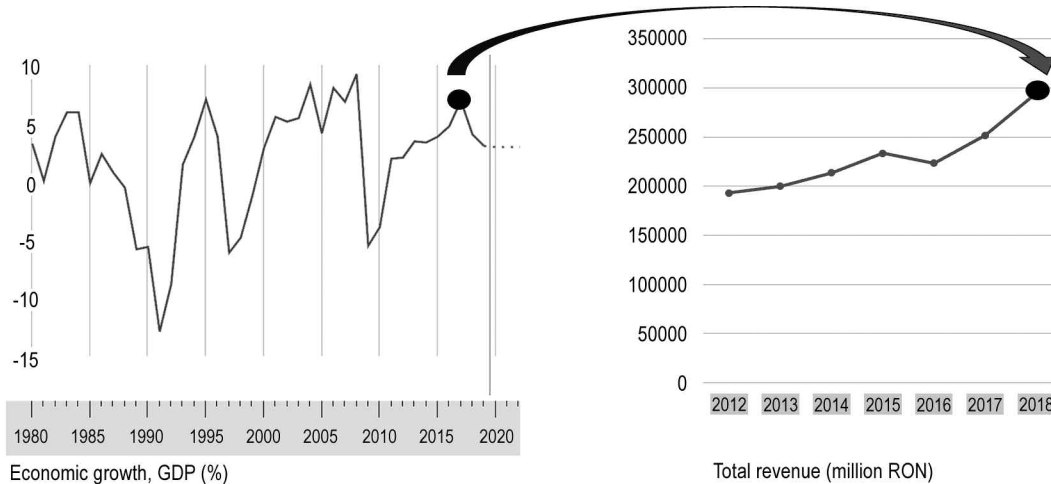
Figure 12. Using fractal to prevent economic growth recession in Romania, 2019

Economic growth, GDP (%)

Source: IMF database

Total revenue (million RON)

Source: Ministry of Finance website, and Eurostat

trend for each type of transaction or economic behavior, under the circumstances of the action of the same type of external factors (Mosteanu, et al, 2019).

Fractals reflect visually economically reality verified by data. A multidimensional analysis of financial data provides a clear picture of decision makers at macroeconomic level. Economic data are very useful and they can be classified according to different decision maker criteria and taking into consideration accordingly. In case of Romania, looking on economic growths, a fractal pattern, in 2019, the study can observe that we are in that point where taxation policy is stable (figure 12), but still on a long run we are in a recession point. Even, the research proposes to reduce the VAT quota, from 19% to 16%, to give a fiscal relaxation. However, this is better to be correlated with cost of capital. This is a time to give more attention to monetary policy tools and risk management on loans. We are coming to underline that this is a good moment to revise a be more vigilant on loans policy, especially for individuals (helping them to avoid monetary jam in the future), and small businesses, but keeping the cost of capital, interest rate for loans, on a low level. In the same time, more attention should be given to the country's citizens. They have to be informed, warned that it is possible to go through a recession, and be much more keen on personal spending. In the same time, education and access to information should occupy an important place in the country's economic and social development policy objectives. An educated and informed population will better understand the effects of economic measures and will be able to plan, knowingly, future incomes and activities. In the end, this will help the whole country to face and to pass faster and without adverse effects over periods of economic recession.

The research showed and natural life confirm that patterns exist in economic life too. These patterns may help, even may become an important tool for financial decision makers. However, for a better performance of economic and financial forecasts, predictions and the impact of decisions throughout the economy, we argue that fractals pattern are more than helpful be taken into account, fractals can let financial experts to be aware or prepared for periods of cyclical recession and take better and less risky business decisions (Mosteanu, et al, 2019).

The research believes that the complexity of fractals is built up from self-similar patterns of individuals, business and eco-

nomic decision makers' behavior, in the same time, taking into consideration the international financial market trend. That means that the whole structure is not random but follows a pattern. In Romania's case, the pattern it is given by the same financial, taxation and monetary actions, which was taken in the same socio-political environment. The research encourages the use of fractals for macroeconomic forecasts, and national economic and financial strategies settings.

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The Model of Innovation Development Metasystem

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Abstract

Different fields of science from philosophy and institutional theory to theories of management, technological development and economics explore innovative transformations – mainly in terms of technical and institutional changes. However, since the relations concerning innovative transformations are meta-relations uniting the entire society and do not entirely fit into one of particular disciplines, it is necessary to create a unified meta-scientific theoretical and methodological basis for the theory of innovation development. This paper suggests an approach to the analysis of innovative transformations and shows that innovative development in the economy largely depends on the development effectiveness of the innovation development metasystem. The proposed model of the latter develops disciplines comprising a management component and involving innovative transformations in society. It can be used as a theoretical basis for analyzing the historical process and improving the innovative institutions that ensure the manageability and effectiveness of innovative processes.

Keywords: innovative development; economic model; economic cycles; partner innovative demand; partner innovative supply; consumption values.

1. Introduction

Most researchers, even the Schumpeterians, suggest their evolutionary models based on technological and industrial dynamics. Some of those models encompass the role of demand for technology development (Aghion, 2014; Ciarli, 2010). Recent studies have revealed a positive relationship between human capital and the probability of innovation (Aristizabal-Ramirez, 2017; Cinnirella, Streb, 2017). Thus, the problem of managing innovation processes does not arise in a simple act of technical introduction of innovations and financial assistance. It is due to relations of subjects of innovation to the ongoing processes and each other.

The economy is one of the society metasystems. Its metafunction is the economic activity ensuring the material reproduction of society, relevant to the stage of its historical development. Since the innovative transformation of society is a qualitatively different metafunction, it must be implemented by a different metasystem. Despite the criticism of Schumpeter's theoretically innovative-based conception of economic change (Foster, 2015), it has already been empirically proven that financial injections can both accelerate the development of the economy and have no impact or even slow it down (Aristizabal-Ramirez, 2017), provoking the growth of corruption and inefficiency of institutions responsible for innovation. The purpose of the innovative development metasystem is the initiation and support of innovative transformations in society, which ensures the social progress. Innovation is the primary source of economic growth (Dosi, 2017); therefore, the economy is a "user" of the innovative transformation of society metafunction, initiated and supported by the metasystem of innovation development. This leads to the conclusion that the innovative cycles of economic development are a "reflection" of the cyclical dynamics of the innovation development metasystem.

The research questions: which organizational mechanisms allow the metasystem of innovative development to initiate and accompany the innovative transformation of society? How can one use the models characterizing the internal organization of the innovation development metasystem to improve the innovative institutions? Apart from scientific value of the theoretical model, the study may be useful to politicians and business people for understanding of their position concerning the innovation and sequencing of appropriate management strategies, because simple appealing and encouraging people to become innovators and entrepreneurs do not always promote the economic growth. Venture capitalists, business incubators and start-ups, directly concerned with promotion and implementation of innovations, require a completely different positioning.

2. Methods

Human-centered systems (Manokhina, 2014) constitute a special type of social systems, the artificial formations resulting from conscious or unconscious design both from the outside and from within. Society consists of the human-centered metasystems of a lower level, the metafunctions of which are necessary and complementary. The study comprises two stages. The first is the development of concepts that provide an opportunity to investigate the meta-substance of innovative transformations of society using the discrete-event, network, and logical analysis. Typically, the researchers apply the concepts of outstripping and catching-up innovative development accordingly to advanced and latecomer economies (Fagerberg, Godinho, 2009; Castellacci, 2006; Sedlyar, 2014), sometimes opposing the actual innovation to the catching up development (Didenko, 2011). In the present study, based on the neo-Schumpeterian long wave theory (Castellacci, 2006), they are presented as separate moments of a single innovation cycle. The modern perspective of "micro-meso-macro" is the basis of the proposed metho-

dology to explain the innovative development and its fluctuation (Foster, 2015).

The second is an interdisciplinary characteristic of the organization of the innovative development metasystem using the agent-based modeling and the modeling of system dynamics instead of the industry analysis (e.g. Taalbi, 2017), since the industry functions overlap and coincide, especially in the role of communities in the innovation process. The authors go beyond traditional institutional analysis, as the institutions depend on the size of the economy and other historical variables (Acemoglu, Robinson, 2012) and change in the course of evolution. The simulation method was used to develop *a relational model* of the innovative development metasystem core at various stages of a long cycle of innovative development in the form of two-dimensional tables. The authors describe agent groups of the innovative development metasystem based on the idea of delineation between the core and the periphery (usually applied to political and economic systems at the global, national, and regional scales, where the nature of innovation differs) (Rogut, Piasecki, 2016; Acemoglu, Robinson, 2012; Kalantaridis, 2016).

Moreover, the authors rely on the idea of heterogeneity of the subjects of innovation, which emerge and operate, because of their socio-economic and personal characteristics (Block, 2016).

3. Results

The innovative development metasystem initiates and supports innovative transformations of all the metasystems of society. The duration of one long cycle of innovation development approximately corresponds to the cycle of innovation development in the economy for all open economies, but in terms of the concrete situation. The periodization of a long cycle of innovation development is close to the periodization of the innovation development cycles of the economy and its industries (Malerba, Nelson, Orsenigo, Winter, 2016). Figure 1 highlights some of the Schumpeter's economic cycles (Schumpeter, 1939) and Kondratieff's long waves and shows the corresponding sequence of a long cycle of innovation development.

Figure content:

Volumes of innovative updates in society the LCID

$LCID_0$ $LCID_1$ $LCID_2$

4th Kondratieff / Schumpeter cycle   5th Kondratieff / Schumpeter cycle

1940 1950 1960 1970 1980 1990 2000 2010 2020

The most critical areas of scientific and technological development (1940-1980)
- Petroleum and nuclear energy
- Management automation
- Computers and informatization
- Quantum electronics and laser technology
- Chemicalization and a green revolution in agriculture
- Aviation industry and space exploration
- Automotive industry

The most critical areas of scientific and technological development (1980-2020)
- Oil and gas energy
- Microelectronics
- Personal computers and the Internet
- Biotechnology of microorganisms
- Information technologies
- Robotic technology

The most critical areas of scientific and technological development (2020-2060)
- Alternative energy, including hydrogen energy
- Nanotechnologies
- Global telecommunication networks
- Biotechnology of plants, animals, drugs, genetic engineering
- Photonics and optoinformatics

Legend: the sequence of long innovative development cycles – $LCID_0$ (taken as the basis for analysis), $LCID_1$, $LCID_2$

Long cycles of innovation development observed during the 20th century indicate that each of the cycles consists of two periods, significantly differing in the essence of ideas of innovative transformations and innovation development processes in metasystems. The first period is a period of dominance of outstripping type of innovative development. The second period is a period of dominance of catching-up types of innovative development. The initial growth usually slows down once the catch-up economy receives the results of technology import and urbanization. At this stage, innovation becomes an increasingly important source of technologies for developing countries to catch up with global frontiers (Shi, Wu, 2016). High opportunity and low opportunity innovations predominate at different stages (Corrochera, Malerba, Montobbio, 2007). It is obvious that the periods of outstripping and catching-up innovative development are also inherently heterogeneous in quality, i.e. the beginning of outstripping innovative development differs significantly from its completion, the same with the catching-up innovative development. This suggests that within these significant periods of a long cycle of innovative development – in outstripping and catching-up types of innovative development – comprise separate stages and therefore, the innovative transformations need to be considered in stages.

Innovative transformations are most vividly reflected in changes of the paradigm of innovative development, focusing

society on the progress through innovative development in the form of ideas, attitudes, approaches, forms, ways, methods, models and tools of innovative development to continue the long cycle of innovative development. The paradigm comprises the ideological component, determining the direction of modernization of social and individual consciousness (Lukmanova, Sirazetdinova, 2016), human capital, the principles of social integration and social hierarchy; the scientific and technological component, defining the ideas and principles of scientific and technological transformations; the consumer component, defining the principles and mechanisms of consumption organization, the essence of the consumer values of goods, services, and forms of social care. The innovative development paradigm is a single complex implemented throughout the entire cycle of innovative development, while normally losing its relevance at the end of the cycle. Table 1 provides an integrated description of changes in the innovation paradigm of development over a long cycle.

The structure of the metasystem of innovation development *at the macro level* is formed by significant elements interacting through systemically important functions; *at the meso-level* – by the interaction of the meso-elements, which are the structural elements of the system-forming elements. Table 2 provides a consolidated structure characteristic of the metasystem of innovative development at the macro and meso-levels.

Stages	General Context of Changes in the Paradigm of Innovation Development of the metasystem of innovative development (MSID) and its Impact on Society at the stage of the LCID
OID-	Formation of a framework for the paradigm of innovative development at the level of the MSID and introducing the fundamental ideas of the paradigm to society
OID-2	The final, including the methodological and instrumental formation of the paradigm of innovative development at the MSID level; formation of society's willingness to transform in accordance with the paradigm
CID-	The widespread use of the MSID paradigm of innovative development and the "innovative impulse" from the core to the periphery; the massive shift of society to the innovative paradigm
CID-2	Obsolescence of the paradigm of innovative development of the current LCID; the loss of its relevance to society, the formation of the pockets of institutional destruction and ideas, the formation of the paradigm framework for the innovation development of the next LCID

OID-1,2 – stages of domination of the outstripping type of innovative development,
CID-1,2 – stages of domination of the catch-up innovation development,
MSID – the metasystem of innovative development,
LCID – the long cycle of innovation development.

Table 1. Periods and stages of one long cycle of innovation development

Macro-level: System-Forming Elements		Meso-level: Elements of the System-Forming Elements	
IDCC[1]	A set of socially and institutionally co-evolving social groups. The evolution proceeds through the synchronization of its innovative development, forming a collective mindset and a place in the social hierarchy, a typical human capital and the need for its development	SIDG[4] – social groups of synchronous institutional development evolving over the LCID	Large social groups simultaneously evolve in relation to values, lifestyle, social adaptation, opportunities and needs for self-realization in work and self-development
CDPT[2]	A system of technological packages of society materially, informationally and energetically stitches the system of social anthropospaces into a single multidimensional innovatively developing space	TP[5] – technologies that evolve synchronously throughout the LCID	A package of synchronously evolving technologies at the level of essential technologies and technologies of the package periphery
CDVC[3]	An institute of complementary values of society, intended for the group and individual consumption	PECV[6]	Packages of complementary consumer values consumed in production and non-production areas. Those evolve at the level of values and the package structure

[1]IDCC – Institute for the development of collective consumer;
[2]CDPT – Complex development of production technologies;
[3]CDVC – Complex development of consumption values;
[4]SIDG –Synchronous institutional development group
[5]TP – Technological packages
[6]PECV – Package of evolving consumer values in a metasystem of innovation development. It is formed by the need to accumulate partner innovative demand and partner innovative supply to ensure the best interaction between agent groups.

Table 2. Consolidated structure characteristic of the metasystem of innovative development at the macro and meso-levels

The *technological package* consists of three elements: complementary technologies, their infrastructure support and human capital, and is formed during the evolution of technologies at the appropriate levels: techno-genetic (the level of use of physical principles), functional (the level of organizational and institutional architecture of technologies and the opportunities they form), personal and social. *The basic technologies of the core technology package* are the leading technologies of the innovative scientific and technological paradigm of the current LCID. They rely on a genetically, structurally and functionally connected set of physical and organizational principles, thus "uncovering" the interdisciplinary space and identifying fundamentally new opportunities for innovative development. Technologies of the periphery technology package are "driven" by the core technologies.

3.1. MSID dynamic structure model

The described structure and dynamics of the innovation development metasystem indicate that it belongs to the class of anthropomorphic evolving systems. Consequently, this system exists in the flow of changes of its phase states. Being a coevolutionary process (Malerba, 2006), the dynamics of the innovation development metasystem is formed through partnership innovative consumption of its elements at all levels. Partnership innovative consumption is a mutual, balanced satisfaction of each other's needs with the elements of innovative development metasystem with for innovative development through partnership innovative demand and

partnership innovative supply. Table 3 shows the consolidated characteristic of partnership innovative consumption.

The analysis of partnership innovative consumption of the system-forming elements during a long cycle of innovative development resulted in a conceptual model of structural organization of the innovative development metasystem (Figure 2).

The core of the metasystem is formed of the most innovative meso-elements at this stage of the partnership innovative consumption; the periphery of the system is less active than its core. Partnership innovative consumption at the meso-level is implemented in the form of triumvirate interaction of the meso-elements at the macro- and meso-levels constituting *the agent group.* Partnership innovative interaction of the innovation development metasystem at the meso-level (within agent groups) will be referred to as the *agents' interaction*. The figure shows the dynamic nature of the core of the innovative development metasystem – changing its composition over time. It consists of three components and comprises three most innovatively active agent groups. The level of innovation activity corresponds to *the innovative potential of the agent group* – its readiness for innovative development, which is determined by the accumulated complementary set of resources for innovative development, taken within the needs for innovative development of motivation of the agent group meso-elements. The innovative potential is limited by the development of the agent group, determined by the ceiling for improving the meso-elements based on physical and organizational principles used in this long cycle.

Each stage of the long cycle of innovation development comprises three types of such agent groups: the dominant – the

IDCC's partnership innovative supply		
Partner elements	**CDPT**	**CDVC**
Partnership innovative demand	Innovative resources and motivation in the field of scientific, technical and innovative ideas, interpretations, development of human and social capital created in IDCC-CDPT collaboration and ensuring the innovative CDPT development	Innovative resources and motivation in the field of complementary values created in IDCC-CDVC collaboration that provide CDVC innovative development
CDPT's partnership innovative supply		
	IDCC	**CDVC**
Partnership innovative demand	Innovative resources and motivation to increase the attractiveness of labor based on its increasing content, social importance and the ability to ensure the well-being of subjects and social groups created in CDPT-IDCC collaboration and ensuring IDCC innovative development	Innovative resources and motivation of increasing consumer value of goods and services created in CDPT-CDVC collaboration and ensuring CDVC innovative development
CDVC's partnership innovative supply		
	IDCC	**CDPT**
Partnership innovative demand	Innovative resources and motivation formed based on innovative values of private and industrial consumption, contributing to the development of the individual and collective human capital created in CDVC-IDCC collaboration and ensuring IDCC innovative development	Innovative resources and motivation of technology development and production created in CDVC-CDPT collaboration and ensuring CDPT innovative development

Table 3. Essential components of the partnership innovative consumption
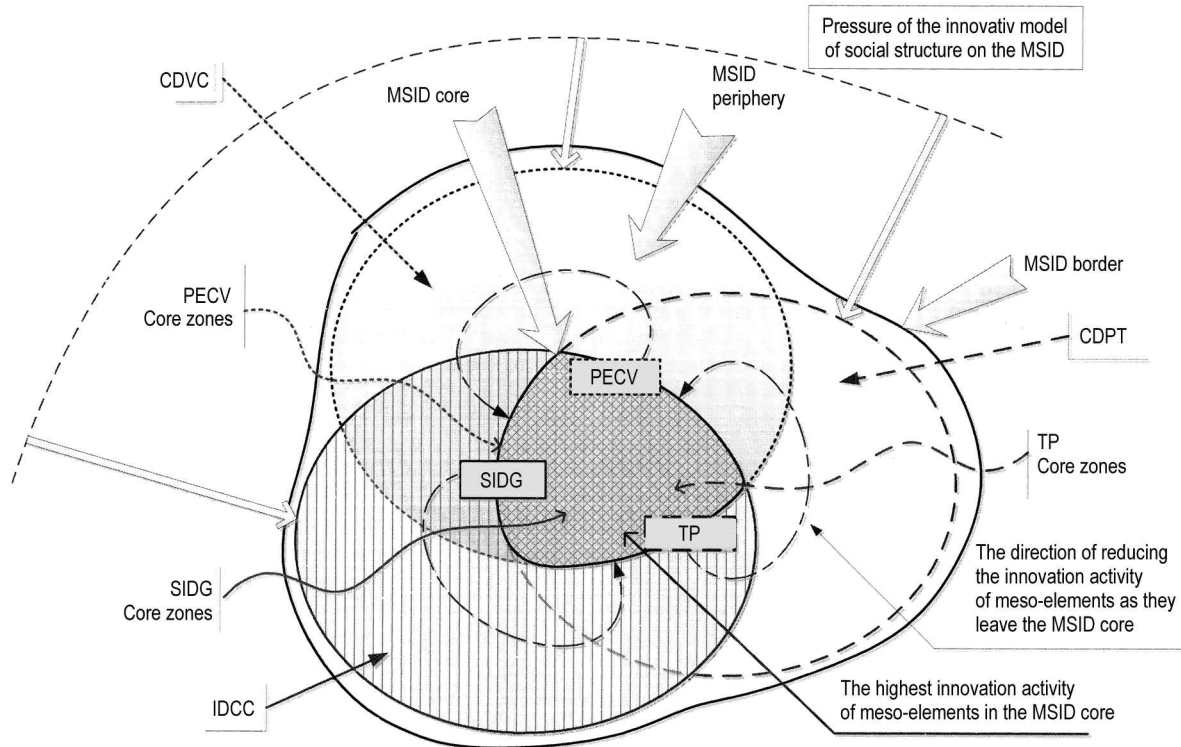
Figure 2. Conceptual model of the structural organization of the innovative development metasystem

leader in generating an innovative impulse; the outgoing dominant – a leader who is still generating an innovative impulse but is already weaker than the new leader; the evolving dominant – the emerging leader, still weak in creating an innovative impulse, but with the most robust strategic prospects. The drop in the innovation activity of agent groups results in their elimination from the core. Those with the necessary conditions for increased innovative activity replace them.

The core of the innovative development metasystem, having the most significant evolutionary potential in the system, generates innovative impulses spreading from the core to the periphery. *The innovative impulse* is the transition of the increased innovation activity zone, generated by the core agent groups with the highest *evolutionary potential*, towards the periphery agent groups with a low evolutionary potential. That is the process of leveling the innovative activity of the core and the periphery of the innovation development metasystem. The innovation impulse is determined by the difference in the evolutionary potentials of core and the periphery, as well as the efficiency of the innovation activity zone transfer from the core to the periphery.

The induction of innovation processes in society, including in the economy, is a process of excitation in society metasystems, in a separate human person and/or a group of people on a resonant basis (without direct coercion, often based on imitation,

copying), the desire to do something, strong enough to start participating in innovative development by means available. In this case, the motives are generated by the subject itself. For example, the desire to avoid danger, to benefit or receive admiration, or otherwise, with no direct coercion. To do a qualitative analysis of the innovative transformations in society, to evaluate prospects for innovative changes, it is necessary to understand the essence of organizational changes in the core of the innovative development metasystem. To solve this problem, we have developed a model of a three-component agent core structure (Table 4).

The model illustrates the core structure of the innovative development metasystem for each stage of a long cycle of innovative development. Table 5 shows an example – the expected optimal composition of the core agent structure at the first stage of a long cycle of innovative development – at the stage of outstripping innovative development OID0-1.

Let us describe the meso-elements components of the collective consumer development institute. A *particular consumer* is represented by elements 1.1 and 1.2. A "toxic consumer" is a newly formed core element, its potential is increasing. 1.2 SIDG – a *cohesive elite consumer* – is highly structured in terms of organization and is highly homogeneous, formed by the representatives of the "elite" social classes. It is based on a representative function as a resource for its inno-

Recessive core meso-element group (outgoing)	Dominant core meso-element group	Recessive core meso-element group (evolving)
SIDG (recessive) — TP (recessive) — PECV (recessive)	SIDG (dominant) — TP (dominant) — PECV (dominant)	SIDG (recessive) — TP (recessive) — PECV (recessive)
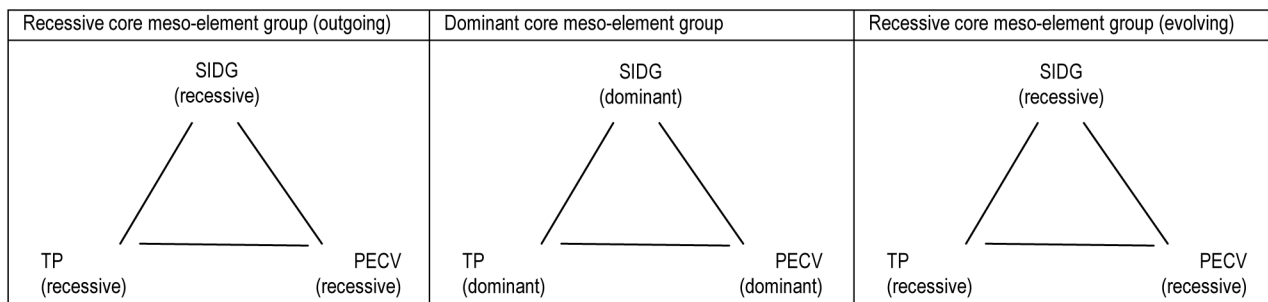
Table 4. Model of the agent structure of the core of innovative development metasystem

Core meso-elements type	Recessive meso-elements (outgoing[1])	Dominant meso-elements	Recessive meso-elements (evolving)
IDCC: SIDG	1.1. Toxic consumer	1.2. Cohesive elite consumer	2.1. Qualified eclectic consumer
CDPT: TP	1.1. OC-TP	1.2: BC-TP	2.1: EK-TP
CDVC: PECV	1.1. OP–PECV	1.2. BP–PECV	2.1. PER-PECV

[1] – Elements, the formation of which started during the previous long cycle of innovative development.

Table 5. Core agent structure of the innovative development metasystem at the OID0-1 stage, formed by meso-elements

vative development. 2.1 SIDG. A *qualified eclectic consumer* is a heterogeneous social group formed by the innovative leaders (professional individuals and organizations) with exclusive qualifications. 2.2. SIDG. A *qualified cohesive consumer group* consists of professionals and organizations that are both innovative leaders and their closest innovative followers. All of them can benefit from exclusive achievements in the field of innovative development, despite the high cost in the period of outstripping innovative development.

3.2. Technological package classification based on the underlying technologies

Critical technologies include: 1.1. Opportunistic critical technological packages (OC-TP). These technological packages based on "opportunistic" critical technologies "explode" the innovative scientific and technological paradigm that has become irrelevant, destroy and destruct traditional technological chains of development of the innovative development metasystem. In terms of maturity, basic technologies include revolutionary technologies based on the new physical and organizational principles; revolutionary "dead-end" technologies; technologies for the innovative modernization of the mutating transformable technologies; technologies imitating scientific and technological renovation.

1.2. Breakthrough critical technological packages (BC-TP). These technological packages rely on the breakthrough critical technologies. The latter institutionally and technically design the transition to the newly emerging innovative scientific and technological paradigm. In terms of maturity, basic technologies are the recently emerged technologies, developing in accordance with the new physical principles, along with traditional technologies of the previous long cycle of innovative development, the previous innovative modernization.

The second type is the key *technological packages* (K-TP). 2.1. The emerging key technological packages (EK-TP) are technological packages, based on the evolving key technologies, solving the problem of formation of a single innovation and technology platform for the implementation of an innovative scientific and technological paradigm of a long cycle of innovative development. In terms of maturity, the basic technologies are young and rapidly developing with high potential in the field of fundamental and applied development.

3.3. Classification of evolving consumer value packages

The first type is presented by packages of institutional birth of an "innovative consumer paradigm".
1.1. OP – CDVC. Opportunistic package (OP), destroying

the outgoing "innovative consumer paradigm" and providing a framework for a new paradigm. It includes a complex of consumer values that have lost its innovation character and sold at dumping prices; fashionable pseudo values destroying the stereotypes of lifestyle and consumption; the newly emerged significant, "cult" innovation benefits, bringing a prototype of values and consumption patterns of the uture. 1.2. BP – CDVC. Basic package (BP), forming the structural basis of the "innovative consumer paradigm" replacing the archaic one. It includes a limited number of critical, highly innovative, and relatively expensive values that are complementary to each other and act as the key consumer values of the entire on-going LCID. Its high cost is associated with novelty and the minimum production volumes.

The second type is presented by packages of the institutional assertion of an "innovative consumer paradigm". 2.1. PER – CDVC. The package with extended range (PER), qualitatively developing and expanding the "innovative consumer paradigm". It includes a wide range of complementary values that are virtually important for the transition of a qualified majority of society to the ongoing MSID "Innovative development paradigm".

4. Discussion

The research results are supported by research on innovation processes in the developing countries. Thus, most recent studies refer to a certain country or industry level (Aghion, 2014; Block, 2016). The authors' theoretical model describes the structure and dynamics of the innovative development metasystem, regardless of the economy type and whether the innovations appear in the form of investments in the Research and Development (R & D) or sales of new products. Based on the identified structure – the internal organization of the innovative development metasystem – it is possible to make predictions and more accurately determine priorities of the innovative development of society. Innovation is "an interactive process among a wide variety of actors: firms do not innovate in isolation and innovation is a collective process", and each actor – a researcher, a company or a consumer – plays a specific role (Malerba, 2006).

Based on the proposed models, the authors accessed the current expected model state of the innovation development metasystem along with the tasks of innovative transformations in relation to the Russian Federation.

Let us assume that the global metasystem of innovative development is at its final stage of the $LCID_1$, and in the short time should proceed with the $LCID_2$. The innovation development metasystem undergoes a period of systemic transforma-

tion (Figure 1). Although these are rough estimates that should be adjusted to a particular country, the Russian society is an open one and one should proceed from the fact that the global periodization of a long cycle of innovative development is applicable to Russia.

The dominant element of the core of the innovative development metasystem on the part of the IDCC at the current stage of a long cycle of innovative development is the element 4.2. SIDG – a diffuse cohesive consumer. At the same time, it should be noted that the transition to the next stage of a long cycle of innovative development will make the influence of the 1.1. SIDG – a toxic consumer a dominant one. Let us consider these groups. *The diffuse cohesive consumer* is characterized by an eclectic social composition and a disunity of interests and goals. This creates a tendency to dumping and opportunism, and to a lesser extent – to a fruitful cooperation for the progress of humanity. The innovative strategies of this heterogeneous social group include both rational and irrational. This can lead to disruptive, destructive crisis situations in politics, economics, social sphere, and other metasystems of society. This social group of consumers is resistant to build long-term partnerships with the meso-elements of their agent group, which significantly reduces the innovation impulse of the core and as a result – *the induction of innovation processes in society.*

At the same time, it is worth paying attention to the influence of another heterogeneous social group, 1.1. SIDG – toxic consumer. A special feature of the toxic consumer is its resemblance to a swamp in structure, formed by short-term interactions of finely segmented social groups, including the marginal consumer groups. As a rule, they do not have their strategic innovation trend and tend to easily get involved in strangers, including the irrational strategies of innovation development, built around the idea of primacy in the invention and implementation of irrational strategies. Therefore, turbulence hotbeds formed by the pressure from a "diffuse cohesive consumer" can be enhanced by a "toxic consumer". This can result in a large-scale crisis of innovative transformation of society or a combination of smaller crises of innovative development of its various systems.

The social base of innovative transformations of the Russian society does not contain dominant strategies of any group of the SIDG-qualified consumers, consumers of mass goods, or elite consumers. All of them are present on an equal footing and often adhere to the opposing views and strategies trying to implement their own course of innovative development, using pressure, and forming the appropriate alliances. This confirms that the strongest (dominant) social group in Russia is the 4.2. SIDG – the diffuse cohesive consumer. Large social groups of diffuse cohesive consumers are actively segmented into smaller social groups imposing specific innovative needs. The share of the marginal consumer also increases, which confirms the hypothesis about the growing influence of the SIDG – a toxic consumer.

The economy is a "receiver" of innovations generated by the innovative development metasystem, and is not their source. Innovative processes in the economy are not as balanced as compared to the innovative development metasystem, since the induction of the innovative processes occurs as the innovative impulse goes through the metasystem core, excluding preparedness of certain economic areas, economic spheres to innovative development. The same applies to other metasystems – political, social, cultural, moral. This confirms Schumpeter's position on the adequacy of political institutions with economic institutions (Aghion, Festré, 2017).

Using the developed approach, these tools can be tied to the stages of a long cycle of innovative development, which will significantly increase their effectiveness. Thus, at the current stage, it is necessary to limit the impact of a "diffuse cohesive consumer" on the formation of innovative society's transformation strategies, due to the absence of a common, sustainable, reasonable and constructive agenda leading to positive

systemic transformations. In its turn, this means that the priorities of the innovative transformation of society are to be determined mainly analytically and technologically – based on scenario analysis and projection. In this respect, the role of science, the expert community and the state increases. Different agent groups determine the degree of effectiveness and, therefore, strategic decisions on how to participate in the innovation activities. At the same time, the state at this stage of a long cycle of innovation development should focus on cooperation with the elite consumer and the qualified consumer. However, these groups should act as a consulting resource.

To stop the problems associated with a toxic consumer, the state should develop and implement a range of priorities – relevant, attractive to different social levels and groups and, at the same time, achievable in the long, medium and short term. It is necessary to create the "innovative attractors" capable of directing the energy of small social groups into the creative channel, considering their capabilities. This should "align" the turbulence zones, make the crisis stage of transition to the next long cycle of innovation development smoother. This statement confirms the findings of the recent research by Aristizabal-Ramirez et al. (2017) on the need to improve the distribution of resources between the core and the periphery and investment in strategic sectors.

The agency structure presented in this paper confirms the negative effect of mismatch revealed by recent studies: the agents are often reluctant to interact with each other, being concerned about the disclosure of important information, which determines their success (including intellectual property). This explains a relatively closed character of the innovative practices (Kalantaridis, 2016). *The qualified eclectic consumer* should be able not only to exist in the form of the fast-growing enterprises as a viable agent for increasing employment and generating wealth but also support these young, educated people, since the unforeseen liquidity problems can lead to premature closures of their enterprises, although they can prove their viability over the long term. All this also reaffirms the findings of a recent study by Mets (2016). Dosi et al. (2017) suggest an active fiscal policy to mitigate the volatility of the demand balance for production and investment, on the one hand, and technical changes, on the other hand. Based on the Schumpeterian concept, we support the state initiatives option, similar to existing solutions in the form of supportive creation of credit which may dampen the severity of depression (Legrand, Hagemann, 2017). For example, the simplified scheme should work not only for small and medium enterprises – the legal obstacles impede the remaining innovative enterprises.

Limitations of the study: Schumpeter himself, whose approach the authors used for the development of their model, considered his theory as applicable to business cycles and economic process only of the capitalist era (Schumpeter, 1939). The model suggested is applied to the analysis of innovation processes of any society in the past and the present. Perspectives of the study: the theoretical model can be applied to the study of interdependencies between technologies and industries.

5. Conclusions

The core of the innovative development metasystem at different stages of a long cycle of innovative development should strive for a certain composition optimal for this stage. The presence of the expected core composition allows creating an effective tool for managing innovative transformations. Deviation from the expected core composition might hinder the development of the innovative development metasystem and the effective induction of innovative processes in society.

The developments presented in this study allow understanding and, consequently, improving the functionality of the management tools for innovative transformations of society,

developing the approaches to the improvement of innovative development institutions of its various mesosystems.

Practical implications of the model may include: the development of tools and methods for managing innovations for the science organizers, and for the government agencies interested in the project; structuring and algorithmization of the large-scale interdisciplinary research processes, metadata processing for science and business; building an "objective tree" for the global control of innovative transformations and processes of innovation development, which is essential for the state and its political system; ensuring the effectiveness of decisions made in the field of innovation development, reducing economic risks for the actors involved in economic and financial sectors.

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Application of Total Management of Quality in the Macedonian Hotel Industry

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Abstract

In this paper, we have presented the results from the research in relation to the approach toward the total management of quality in the Macedonian hotel industry. It was analyzed through the four pillars of the house of quality, which are the following: internal standardization, quality control, optimization of the quality costs and education and training of the employees. Our research has determined the "age" or i.e. the level of development of the hotel capacities in accordance to the pillars that we have previously mentioned (from a young and undeveloped system to a mature and developed system). The results from the research have entailed the directions for the process of quality system development in the hotel industry through the application of the TQM (Total Quality Management) strategy, the development of the personnel, and an introduction of a study in the development of quality services as well as the development of the processes.

Keywords: internal standardization; quality control; quality costs; education and motivation of the employees; TQM (Total Quality Management) system; quality of the hotel services.

1. Introduction

In times of enormous competition and the presence of numerous entities on the market, we should emphasize the importance of quality and the overall work of the hotel industry. The expansion of tourism internationally is a result of the development of the various types of work that participate in the process of creating the final product, and one of the most important role is held by the hotel industry. The hotel's service product is defined as a chain of mutually connected services that result from the process of satisfying the needs and the requests of the consumers that are of prime importance and are connected to their temporary stay outside their living area. The chain of services are ongoing in a space that is defined technically, technologically, organizationally and by the processes and the personnel as well. The services are available in a certain time and their quality is influenced by numerous subjects – a large group of different suppliers, employees and the guests of the hotel as final users of those services. In this context, the quality of the hotel's service is observed as the complete process that leads to a certain result. Each link in that functioning chain influences the final result and the opinions of the users about the service and the level of quality. The process of obtaining quality in the hotels is not connected solely with the work of the employees, but also with the methodology, the technology of the production processes etc. Herein it is necessary to have control and to assess the stability and the ability of the business processes.

In the paper, the focus is on the analysis of the key suggestions related to the way in which the hotel's activities should be planned, organized, established and controlled, as well as the continuous improvement of quality in the industry.

The data received by the research should help with the approach toward the management of quality in the Macedonian hotel industry and the abilities of the managers to build a good quality system. The research has determined the "age" or i.e. the development of the hotel's capacities in accordance to all the pillars of the house of quality. It has also given the directions that will help advance the performances of the business processes, also to define the measures of enabling a sustainable business system and to encourage innovation.

2. Literature Review

The elements of the system of quality need to be developed by every hotel, in order to present itself as "a house of quality". The pillars of the house of quality are the following: internal standardization, methods and techniques for non-faulty operations, education and motivation, and quality costs (Balbaster Benavent et al., 2005; Casadesus & Gimenez, 2000).

The basis of the "house of quality" is the measuring, the assessment, the analysis and the comparison of quality and non-quality. We cannot be aware of the quality if we do not measure it, also we can't know what are our resources, what we lack to realize our mission and vision, and also what is our state, regional or international rating. The intensity and the magnitude of the measurement and the control of the characteristics depends on their importance for the quality and their accuracy. All of the business processes need to be organized with the process of measuring as a central basis in the assessment of the realized quality and in the comparison of the results to the business plan. The development of the hotel is an obligation and responsibility of the top management, which is also responsible for the quality of the hotel services.

García-Bernal et al., (2004), sees every company as a specific "value chain". "Value" in the "value chain" represents what customers are willing to pay for the product or service. The

system of quality is as a mosaic, because it seeks a continuous hiring of a large number of people that fill the mosaic, while the top management is responsible for the model of the mosaic and the methods which are used to fulfill it (Garg, 2014; Mitreva, 2011, Mitreva et al., 2017b). If someone does not know how to put the pieces to the mosaic, we need to teach him/her, if he/she does not want it we should relocate him or her to another position in order to give the maximum to the job. The information and the standards of quality are the basis in the development process of the quality of the services.

In order to realize a good quality system, it is necessary to have the appropriate education and training of the employees about the quality of the services, and it is also necessary to learn new techniques and methods for non-faulty working. The employees need to be motivated and attracted to their job position and not to be enforces, in order to obtain and improve the quality. The top management has the main role in the process of finding motivational activities and their realization (Gómez Gómez et al., 2011; Wee et al., 2016; Parker, 2003; Fatemi et al., 2016; Beskese & Cebeci, 2011).

The statistic process control is used to obtain stability and predictability of the production and the services. Every hotel is oriented toward an optimal quality of the products and the services. This means that the quality satisfies the needs of the consumers and the consumer's ability to pay for it (Kaplan & Norton, 2001; Ciampa, 2005; Deming, 1996; Mitreva et al., 2017c).

Nowadays, errors and defects occur that the consumer is not able to pay for and as a result the hotel is at a loss. The overall costs are defined by taking the optimal cost that the hotel should pay in order to acquire quality that is in relation to the consumer's expectations (Beskese & Cebeci 2001; Mitreva & Filiposki, 2012; Mitreva et al., 2016).

In the next section, we will present the results from the research that are in relation to the capacity of the management, the pillars of the house of quality and the measurement, the assessment, the analysis and the comparison of quality/non-quality in the hotel's services (Madan, 2010; Ritchie & Dale, 2000; Saat & Talib, 2015; Shameer & Sing, 2013).

3. Of the Hotel Description Industry in Macedonia

The touristic offer is a complex category that consists of numerous elements that directly or indirectly influence the quality of the services. The most characteristic direct receptor-factors are the following: trade, hotel trade, restaurant trade, traffic, handcrafts, tourist agencies as mediators etc. On the other hand, the indirect factors are the following: public institutions, parks, water supply, electricity etc. Herein it is understandable that it is said that the tourist offer represents basis for the development of tourism. Macedonia has relatively well developed hotel accommodation. The total number of registered hotels of all categories are 140 by 16.01.2018, presented in Table 1.

Type of hotels	Number	%
Superior hotels with 5*	9	6,4
Hotels with 5*	3	2,1
Superior hotels with 4*	10	7,1
Hotel with 4*	46	32,9
Superior hotels with 3*	10	7,1
Hotels with 3*	36	25,7
Superior hotels with 2*	10	7,1
Hotels with 2*	14	10
Hotels with 1*	2	1,4
Total	140	

Table 1. The hotels' structure in Macedonia by 16.01.2018
Source: Ministry of economy, Sector of tourism and hospitality, Review of categorized hotels

From Table 1 we can notice that the most numerous are the four star hotels (32,9%),while the least common are the five star hotels (2,1%). Since 2013, Macedonia has started following the Regulations for hotels' categorization, which lead to giving one more star to those hotels that had improved standards, and they became super-hotels in their category. The obtained certificates for categorizations are valid for three years. As a result of the growing number of hotel accommodations, the number of hotel rooms and beds have increased as well. There is a variety in the current Macedonian tourist offer, and it encompasses all types of basic and additional capacities that give all kinds of services for accommodation. In conclusion with December 2017 from the total number of 28305 rooms and 73168 beds registered in all the tourist capacities, the hotels with three, four and five stars participate with 6777 rooms (24%) and 14.521 beds (19,8%).

In Table 2 we have shown the growth of the hotel rooms and beds in the period from 2015 – 2017. It can be noticed that the total number of rooms with three, four or five stars has increased for 14,4% or i.e. from 5.802 rooms in 2015 to 6.777 rooms in 2017; simultaneously there is an increase of 14,7% in the total number of hotel beds (Table 3), or from 12.390 in 2015 to 14.521 in 2017.

Number of hotel rooms in different accommodating objects in Macedonia according to the structure 2015-2017						
	2015	2016		2016	2017	
	Rooms		%	Rooms		%
Hotels *****	1258	1338	6%	1338	1455	9%
Hotels ****	2588	3005	16%	3005	3321	11%
Hotels ***	1956	2030	4%	2030	2001	-1%

Table 2. Number of hotel rooms with three, four and five stars in Macedonia according to the structure, 2015-2017.
Source: State statistical office (2017)

Number of hotel beds in different accommodating object in Macedonia according to the structure, 2015-2017						
	2015	2016		2016	2017	
	Beds		%	Beds		%
Hotels *****	2513	2739	9%	2739	2867	5%
Hotels ****	5363	6323	18%	6323	6964	10%
Hotels ***	4514	4657	3%	4657	4690	1%

Table 3. Number of hotel beds in different accommodating objects in Macedonia according to the structure, 2015-2017.
Source: State statistical office (2017)

4. Methods in the Research and Analyses of the Results

In the research, qualitative and quantitative methods are used. The qualitative approach includes a review of the literature of many publications that generally deal with the issues of the quality system and its application in practice (Mitreva, et al., 2017a; Mitreva, et al., 2018).

The quantitative approach consisted of an electronic survey designed for hotel managers with three, four and five stars. The survey was conducted in the period March-April 2018, with a reminder of every unanswered questionnaire sent on a weekly basis.

The sample is made according to the list obtained from the Sector for Tourism and Catering within the Ministry of Economy (Table 4). In addition, more than half of the hotels identified for the survey have four stars (48,9%), more than a third have three stars (38,3%), while only 12,8% have five stars.

Type of hotels	Number	%
Hotels with 5*	12	12,8
Hotels with 4*	46	48,9
Hotels with 3*	36	38,3
Total	94	100

Table 4.
Sample
in the survey

Source: Government of the Republic of Macedonia, Ministry of Economy, Sector for Tourism and Catering.
Note: Data as of May 2018.

Although the survey was ambitious and involved a total of 94 hotel managers with three, four and five stars, only 37 of them responded to the electronic survey. The distribution of responses by type of hotel is visually presented in Table 5. The obtained response rate of 39,4% is relatively high given regarding the fact that it is an electronic survey where, due to lack of personal contact, the percentage of answers usually ranges between the 16- 25% (Bohdanowicz 2005a; Medina-Munoz Garcia-Falcon 2000).

Type of hotels	Number	%
Hotels with 5*	10	27
Hotels with 4*	17	46
Hotels with 3*	10	27
Total	37	100

Table 5.
Distribution of
answers by type of
hotel in percentages

The electronic survey consists of a questionnaire structured in four parts:

Part I: General data (open questions based on the type of hotel, years of operation, number of employees, categorization, etc.);

Part II: Total quality management system (thirty-five yes / no questions related to the design and implementation of a quality system);

Part III: Pillars of the house of quality. The House of Quality is held by four subsystems: internal standardization, methods and techniques of quality, education and motivation and cost-benefit analysis, at the top of which is top management, and basically is measuring, evaluating, analyzing and comparing quality / poor quality (thirty-five questions related to the application of the quality system in companies). The third part of the research should determine the "age", that is, the development of hotel capacities on the pillars of the house of quality (from a young and underdeveloped system to a mature and developed system).

Part IV: Indicators for obtaining a European Quality Award (sixty questions for measuring indicators). The current situation was analyzed through the criteria for obtaining the European Quality Award: leadership, policy and strategy, employee management, resources, processes, customer satisfaction, employee satisfaction, company impact, business results and how much is invested in innovation. Through these criteria, it was assessed where Macedonian hotels were positioned if they were competing for the European Quality Award.

Part V: Managerial assessment (twenty-two questions for measuring the managers' estimates of the advantage and limitations in the implementation of the total quality management system). The questions from the second and third part of the questionnaire determined the degree of implementation of the quality system in the hotel industry. The goal is to identify whether higher-ranking hotels use the same or different practices when designing and implementing a quality system, compared to lower-rated hotels.

The questionnaire consisted of one type of questions: Answers according to the 5-degree Liker scale (where 1 = no, do not plan at all, and 5 = have implemented). Thus, in interpreting the average values of the results, in the quantification of the influence factor, the following scheme is applied: 1.00-1.80 (not, they do not plan at all); 1.81-2.60 (activities are planned); 2.61-3.40 (in the initial phase); 3.41-4.20 (advanced); and 4.21-5.00 (have implemented).

5. Analyses of the Results

The aim of the questions in the second and the third part of the questionnaire aimed to define the current degree of application of the system for total management of quality. The house of quality consists of four sub-systems: internal standardization, education, motivation and an analysis on the costs of quality. The aim was to identify if the higher ranked hotels apply the same or similar practices as the lower ranged hotels in the implementation of the system for total management of quality. In Table 6, we have presented the total results derived from the answers in the questionnaire in relation to the indicators for assessment of the level of implementation of the internal standardization in the hotels, as the first pillar of the house of quality.

Indicators for assessment the level of implementation the internal standardization	Hotels with 3*	Hotels with 4*	Hotels with 5*	Total
	Average grade	Average grade	Average grade	Average grade
The quality system has been introduced according to ISO 9001:2015	2,6	3,4	**4,5**	3,5
There is a certificate for the quality system according to ISO 9001:2008 or ISO 9001:2015	2,4	3,3	4,0	3,2
There is a publicly outstanding quality policy	3,3	3,3	3,9	3,5
The quality system has been introduced according to ISO 14001:2015	2,2	3,2	4,1	3,2
The quality system has been introduced according to ISO 22000:2005	2,6	3,1	**4,7**	3,5
There is an ECO sticker	2,4	2,4	2,5	2,4
The HACCP system has been introduced	3,7	4,1	4,4	4,0
The HALAL system has been introduced	**1,9**	2,7	2,8	2,5
The system of health and safety managing practices at work has been introduced ISO 45001:2018	2,9	3,4	3,8	3,4
The information security managing system has been introduced ISO/IEC 27001	3,1	3,4	4,2	3,0
The energy management system has been introduced ISO 50001:2018	3,1	3,4	4,3	3,6
It is planned to introduce some of the international quality systems in future	3,2	3,4	**4,3**	3,6
The tasks, duties and responsibilities of the employees have been defined in details through the standard operative procedures (SOP)	3,7	3,9	**4,3**	3,9
The employees get precise superior orders only for complex activities or specific demands of the customers	3,8	4,1	**4,7**	4,2
There is a manager in charge of the quality system	3,2	4,1	**4,3**	3,9
There is an award connected to the quality of service	3,1	4,2	4,2	3,8
Average value	2,9	3,5	3,6	3,3

Table 6. Indicators for an assessment on the level of implementation of the internal standardization in the hotels

Note: The influence factor is shown in color according to the following legend:

1.00-1.80 (no, they do not plan at all)	1.81-2.60 (activities are planned)	2.61-3.40 (the activities are at start)	3.41-4.20 (the activities are at advanced phase)	4.21-5.00 (They have implemented the activities)

Generally, it was concluded from the research that the analyzed hotels have different views about the researched problems. It should be emphasized that the among the analyzed hotels there are both hotels that have been on the tourist market for only 5 years, but there are also well positioned hotels with more than 15 years of experience. It can be noted from table 6 that regardless of the categories (3*, 4*, 5*), the general notion is that the indicators for an assessment of the process of conducting the quality systems have shown middle or high influence factor. This means that the these hotels are either in the initial phase or in a more advanced phase in the process for projection and implementation of the internal standardization (with mean value of 3,5). The need to enable work in accordance to the international standards and a strategic connection with the west countries has forced certain managers and owners into an implementation of systems of quality, which is confirmed by our research. However we can note in Table 6 the lack of a full implementation and certification of the internal standardization in accordance to ISO 9001:2015 with an influence factor (3,2 mean value). The mean value of the influence factor shows that the hotels are in the initial phase with the activities for the implementation and certification of the quality system. Generally, the managers in the Macedonian hotels have stated that they have certificates for the system of quality according to ISO 9001:2015, but with a mean value of 3,2 which shows that they are still in the initial phase.

The application and the certification of the different standards / systems of: quality, environment, employees' health and safety, social responsibility of the corporation, safety of the alimentary products, information conduct, energy etc; seeks a new and pro-active manager style and systematic orientation, as well as reengineering of the business processes. On the other hand, the hotels with 3* and 4* pose a separate problem, because they are not able to independently fulfill the requests of the systems. From Table 6 can be concluded that (generally for all hotels) the indicators for an assessment on the conduct of different standards / systems are in the following order: have an introduced system of quality according to ISO 14001:2015 (3,2 mean value), have a system for health and safety conduct during work ISO 45001:2018 (3,4 mean value), have a system for conduct of information safety (3,0 mean value). These evaluations show that all of the hotels are in the initial phase.

Also, Table 6 shows that (in all categories) the indicators for an assessment of the implementation of the quality system according to ISO 22000:2018 are in an advanced phase (3,5 mean value) and have an introduced HACCP system (4,0 high value), because of the legal obligation. This is due to the Macedonian legal regulation that obliges all the subjects that are in the cultivation, the production and the processing business with alimentary products to implement HACCP and other standards as well. Table 6 shows that there is a small number of indicators where the implementation of different standards / systems is on a low level, except in the questions related to owning an ECO label (2,4 mean value) and an implementation of Halal system (2,5 mean value). These indicators show that the hotels plan activities related to the implementation of these systems in future. However, the concerning data is that two thirds of the hotels (regardless of the category) have not implemented a Halal system. Macedonia as a candidate for membership in the European Union must put greater effort in fulfilling the international standards. Also large part of the three and four star hotels lack an ECO label.

We are glad that the date shows that all of the three categories of hotels have a 3,6 influence factor, which means that they plan on introducing some of the international standards of quality in a near future and that they are in an advanced phase of the realization of the planned activities. Table 6 shows that the indicators for the assessment of the efficiency of the quality system (in 3,4,5 star hotels) by the conducting of the business processes (identification, documentation and control) and by the documentation for the system's efficiency are in the range from 3,9 - 4,2, which suggests an advanced phase of the activities. In order to have an effective and efficient system of quality, it is important to give the employees clear and precise standard operative procedures (SOP) for every activity, to have criteria for assessing the good results for specific and complicated type of work, specific solutions and specific requests by the buyers / users. The formal certification of hotels in accordance to ISO 9001:2015 standards does not meet the requests of the ISO standards and does not result with the desired advantages on the market.

The quality in the hotels is connected both to the employees' work and the machines, the technology of the production processes as well, herein it is necessary to have a control and to assess the stability and the ability of the business processes.

In Table 7 are shown the total results obtained by the answers of the questions in the third part of the questionnaire that referred to the indicators for an assessment of the system for control of quality in the hotels (%) as a second pillar in the house of quality.

Indicators for an assessment on the level of implementation of the system for control of the quality in the hotels	Hotels with 3*	Hotels with 4*	Hotels with 5*	Total
	Average grade	Average grade	Average grade	Average grade
There are supervisors to control all operations	2,9	3,4	**5,0**	3,8
It uses the technique of a "blind" guest to make self-assessment of employees and operations	3,4	3,4	**4,3**	3,7
It makes a plan to control all the activities of all operations	3,8	3,9	4,2	3,9
It makes reports from the control of all activities of all operations	3,8	3,9	**4,5**	4,0
It makes internal control at the input of raw materials and intermediate goods	4,2	3,8	**4,9**	**4,3**
It makes anonymous questioning of the guests regarding their satisfaction / dissatisfaction with the services	3,4	3,4	**4,9**	3,9
It accepts the objections and complaints from the guests	**4,3**	**4,3**	4,8	**4,5**
Arithmetic mean of values	3,7	3,7	**4,7**	4,0

Table 7. Indicators for an assessment on the level of implementation of the system for control of the quality in the hotels

Note: The influence factor is shown in color according to the following legend:

1.00-1.80 (no, they do not plan at all)	1.81-2.60 (activities are planned)	2.61-3.40 (the activities are at start)	3.41-4.20 (the activities are at advanced phase)	4.21-5.00 (They have implemented the activities)

Generally Table 7 shows that the indicators for an assessment of the conduct with the system of quality control have middle and high influence factor, which means that they are in an advanced phase or that they have an implemented system for quality control. The managers of the Macedonian hotels from all categories have assessed that they have supervisors to control all operations (3,8 mean value), they use a technique of a "blind" guest in order to make a self-evaluation of the employees and the operations (3,7 mean value). Hotels in every category make a plan for the control system of all the operations (3,9 mean value), and they make reports from the control of all these activities (4,0 mean value). The hotels in all category make an internal control on the input of the raw materials and the victuals (4,3 mean value). These values show that they are

in an advanced phase.

Table 7 shows that there is a small number of indicators where the system of quality control is on a low level, and that refers to the hotels with three and four stars. These indicators related to the questions in the anonymous questionnaires given to the guests in relation to the satisfaction and the dissatisfaction of the services (3,4 mean value), also to the usage of the technique of a "blind" guest in order to make a self-evaluation of the employees and the operations (3,4 mean value), as well as to the presence of supervisors that control all the operation (2,9 mean value for the hotels with a 2,9 mean value and 3,4 mean value for the four star hotels. These indicators show that the hotels plan activities related to the development of the business processes.

It is obvious that the five star hotels show a significantly less concern in relation to the questions about the control of the quality system. They have a large number of supervisors that control all operations, also they use the technique of a "blind" guest in order to make self-evaluation of the employees and the operations, they make plan and reports about the control of all the activities and operations, they make anonymous ques-

tionnaires for the guests in relation to their satisfaction and dissatisfaction with the services and they accept the objections and the reclamations, which means that they work continuously on the development of the business processes. The surveyed four star hotels and the low rated hotels with three stars are in a certain advanced phase, although from our own experience we believe they are in some of the initial phases.

Nowadays, the new approach toward quality seeks new activities on the educational field for the employees, an introduction of standardization of all the processes, an introduction of a statistical process control for non-defective work, as well as a new approach in the analysis of costs. This simultaneously means a drastic change in the behaviour toward the employees, radical changes in the organizational arrangement, a clear definition of the rights, the obligations and the responsibilities of each individual in the hotel.

In Table 8 are shown the total results obtained from the responses of the questions in the third part of the questionnaire which refers to the indicators for the evaluation of the system for the analysis of the costs for the quality in the hotels.

The indicators for an evaluation of the system for an analysis of the costs for the quality in the hotels	Hotels with 3*	Hotels with 4*	Hotels with 5*	Total
	Average grade	Average grade	Average grade	Average grade
There are supervisors to control all operations	2,9	3,4	**5,0**	3,7
It uses the technique of a "blind" guest to make self-assessment of employees and operations	3,4	3,4	**4,3**	3,7
The prices of their products and services on the basis of costs and their own business policy	1,8	2,9	4,2	2,96
The prices of their products and services on the basis of comparison with competition	3,8	3,9	**4,5**	4,0
They make an analysis regarding the complaints and objections by guests	1,8	3,8	**4,9**	3,5
It makes financial analysis in terms of losses occurred as a result of objections and complaints	1,9	2,7	**4,3**	2,96
It makes internal control at the input of raw materials and intermediate goods	4,2	3,8	**4,9**	**4,3**
It makes anonymous questioning of the guests regarding their satisfaction / dissatisfaction with the services	3,4	3,4	**4,9**	3,9
It accepts the objections and complaints from the guests	**4,3**	**4,3**	**4,8**	**4,5**
Arithmetic mean of values	3,0	3,5	**4,7**	3,7

Table 8. The indicators for an evaluation of the system for an analysis of the costs for the quality in the hotels

Note: The influence factor is shown in color according to the following legend:

1.00-1.80 (no, they do not plan at all)	1.81-2.60 (activities are planned)	2.61-3.40 (the activities are at start)	3.41-4.20 (the activities are at advanced phase)	4.21-5.00 (They have implemented the activities)

Table 8 shows that the indicators for an evaluation of the conduct with the system for quality costs analysis are rated with a middle and an advanced influence factor, this means that they are in an initial or an advanced phase, or that they have early implemented a system for an analysis of the quality costs. Managers of all types of hotels in Macedonia have assessed that they have supervisors that control all operations (3,7 mean value), they use a technique of a "blind" guest in order to make a self-evaluation of the employees and the operations (3,7 mean value). The hotels in all categories confirm the prices of their products and services in accordance to their costs and the personal politics (2,96 mean value), while the comparison to the competition in relation to the prices is evaluated with 4,0 mean value.

The hotels in every category make an internal control for the input of the raw materials and the victuals (4,3 mean value), and the level shows that they are in an advanced phase. Table 8 is a representation of the large number of indicators where the system for an analysis of the quality costs are in a low level, which refers to the three and four star hotels. These indicators are related to the questions in the anonymous questionnaire for the guests about their satisfaction/dissatisfaction with the services (3,4 mean value), an analysis of the complaints and the objections of the guests (1,8 mean value), an acceptance of the objections and the reclamations by the guests (4,3 mean value), a financial analysis in relation to the losses which resulted from the complaints and the objections (1,9 mean value), a usage of the "blind" guest technique in order to evaluate the employees

and the operations (3,4 mean value), the presence of supervisors that control all the operations (2,9 mean value for the thee star hotels and 3,4 mean value for the four star hotels).

These indicators show that the hotels plan activities related to the development of the business processes. The surveyed four star hotels and the lower three star hotels are in a certain stage of the advanced phase, although our experience makes us believe the contrary.

The five star hotels show an importantly larger care in relation to the questions on the analysis of the quality costs, the implementation of the integral control of the system for quality control and projection and implementation of the total management of quality. They have large number of supervisors for the control of all operations, they use a technique of a "blind" guest in order to evaluate the employees and the operations, they practice anonymous surveys for the satisfaction or the dissatisfaction of the guests with the services, they analyze and accept the reclamations and the objections which means that they continuously work on the development of the business processes. The five star hotels determine their prices on the basis of their personal analysis of the costs and a very small number of them determine the prices by making comparisons with the competition.

Table 9 shows the total results obtained from the responses on the questions in the second part of the questionnaire which refers to the indicators that evaluate conduct of the systems for educating and motivating the employees of the hotels.

Indicators for an assessment on the level of implementation of the system for education and the motivation in the hotels	Hotels with 3*	Hotels with 4*	Hotels with 5*	Total
	Average grade	Average grade	Average grade	Average grade
The work potential corresponds to the needs of hotel facilities	2,6	3,4	4,1	3,4
The educational structure of the employees corresponds to the needs of the hotel	2,4	3,3	3,8	3,2
There are trainings for acquiring additional knowledge among the employees	2,3	3,3	3,5	3,0
Consultancy services are used to acquire knowledge among employees	2,2	3,2	3,8	3,1
They make an assessment of whether employees have the knowledge, skills, and ability to respond to their assigned tasks	2,6	3,1	**4,7**	3,5
There is a policy for rewarding employees	2,4	2,4	2,5	2,4
There are house rules for employees	2,7	4,1	4,4	3,7
Employee satisfaction is assessed through anonymous questionnaires	1,9	2,7	2,8	2,5
Arithmetic mean of values	2,4	3,2	3,7	3,1

Table 9. Indicators for an assessment on the level of implementation of the system for education and the motivation in the hotels

Note: The influence factor is shown in color according to the following legend:

1.00-1.80 (no, they do not plan at all)	1.81-2.60 (activities are planned)	2.61-3.40 (the activities are at start)	3.41-4.20 (the activities are at advanced phase)	4.21-5.00 (They have implemented the activities)

In Table 9 we can note that the indicators for an evaluation of the conduct with the system for employees' education and motivation show a low influence factor. Macedonian managers have assessed that the work potential (3,4 mean value) and their educational structure (3,2 mean value) matches the needs of the hotel capacities, which shows a low influence factor; they have training for gaining additional knowledge by the employees (3,0 mean value) and show that they are in an initial phase; they use advisory services for educating the employees (3,1 mean value in an initial phase); they make an assessment if the employees have the knowledge, the skills and the ability to respond to the imposed tasks (3,5 mean value in an advanced phase); they have a book of regulations for awarding the employees (2,4 mean value in an initial phase i.e. planned activities); they have house rules for the employees (3,7 mean value in an advanced phase); they evaluate the satisfaction with the work of the employees by an anonymous surveys or questionnaires (2,5 mean value in an initial phase, which means planned activities.

Table 9 shows that there is a small number of indicators where the implementation of the system for employees' education and motivation is on a low level, and this is related to the question on the projection and the implementation of the book of regulations for awarding the employees (2,4 mean value in an initial phase) and the assessment of the satisfaction of the employees with their job through an anonymous questionnaires (2,5 mean value in an initial phase) and these indicators show that the hotels plan activities related to the implementation of these systems. Also the total influence factor has a value of 3,1 on a level of all the three categories of the surveyed hotels show that they plan and are in an initial phase in relation to the projection and the implementation of the long-life learning and employees' motivation.

According to the research, it can be seen that most of the trainings are realized by the hotels themselves in order to enable additional skill training or retraining of the employees.

The need to raise the level of qualification of the employees is especially important in conditions when there are investments in the modern technology.

The Macedonian experiences show a necessity of a continuous training of the workers themselves, and especially the training in accordance to the programs in conformity with the needs of the EU.

It can be noted that the five star hotels show a significantly large care about the questions in relation to the life-long learning and the projection and the implementation of the motivation system (3,5 mean value in an advanced phase). If the hotel strives toward success, it is necessary to create a recipe for sustainable development. The surveyed four-star hotels are in an initial phase, which is not true for the low rated three star hotels. The three star hotels make the first steps toward the development of the human potential, simultaneously with the organizational culture that will mean larger value of the capital in future. In this way, the employees will represent an important source of sustainable competitive advantage. The question on the efficient collaboration with the scientific and research, the university and other educational institutions in the recent years and also the question of the usage of the advisory help for the development of the employees knowledge lead to the same conclusion. The research has shown that not only the collaboration is weak (with only 3,1 mean value), but those that have a certain degree of collaboration are on a low or middle level. This is in most part a consequence from the insufficient information that the hotels have about the services offered by these organizations and programs. Also the conclusions show that as high rank is the hotel, the perception of the organizational study of all the employees as part of the total management process for quality becomes a key factor, because new techniques are not learned, and there is not a possibility for development and advancement.

It is obvious that the five star hotels care a lot about the house rules of the hotels (3,7 mean value which means that they are in an advanced phase) compared to the three and four star hotels. The lack of book of regulations about employees' awards, or its existence only in the planning stage (2,4 mean value) is present in all of the three categories of hotels. This condition creates demotivation and dissatisfaction of the employees with their work, and the consequences are weak business results of the hotels. The managers do not invest in the work potential that needs to be developed and good results can be expected only if it is invested into it. The research show a lack of assessment of the satisfaction and the dissatisfaction with the work of the employees through an anonymous questionnaires (2,5 mean value) in all of the three categories of the hotels. In times of knowledge, people pay more and more attention on the employees' satisfaction and the discovery of the degree of motivation. Satisfied employees strive toward improvement or i.e. they make an effort to improve the quality of the products / services. The key factor is in the material and instrumental equipment on the workplace, especially the informational and communicational connections that are a factor in the effectiveness and the efficiency of the business processes.

If we aim for a good conduct of the employees, then it is essential to have an effective dialogue with those employees and to ensure their loyalty toward the hotel. Although the data is unofficial (because it's obtained through a direct contact with the employees), it is concerning that there is only partial loyalty toward the hotel as a result of the lack of clear and honorable relations between the managers and the employees, which is essential in establishing confidence in the business relations. Hotels are aware of the role and the meaning of the employees' motivation and satisfaction over the efficiency of their work.

In Table 10 we have presented the total results derived from the responses in the third part of the questionnaire, which refers to the indicators for an assessment of the total management system for quality in the hotels.

Indicators for assessment of the three pillars of house of quality	3* Hotels	4* Hotels	5* Hotels	Total
	Average grade	Average grade	Average grade	Average grade
Application of internal standardization	2,9	3,5	3,6	3,3
Application of integral quality control	3,7	3,7	4,7	4,0
Application of a system for quality costs' optimization	3,0	3,5	4,6	3,7
Application of a system for educating and motivating the employees	2,4	3,2	3,7	3,1
Arithmetic mean of the values	3,0	3,5	4,2	3,5

Table 10.
Indicators for an assessment of the total management system for quality in the hotels

Note: The influence factor is shown in color according to the following legend:

1.00-1.80 (no, they do not plan at all)	1.81-2.60 (activities are planned)	2.61-3.40 (the activities are at start)	3.41-4.20 (the activities are at advanced phase)	4.21-5.00 (They have implemented the activities)

From Table 10 for all types of hotels (3*, 4*, 5*) can be noted that the indicators for an assessment of the conduct with the total management system for quality in the surveyed hotels show middle or high influence factor. This means that the surveyed hotels are in the initial or the advanced phase of the process for projecting and implementing the internal standardization (3,5 mean value). The need to enable working under international standards and strategic connections with the western countries has forced some of the managers and owners of hotels to implement a quality system, which was confirmed by our research.

5. Conclusions and Recommendations

The experiences around the world has shown that large number of hotels have significant difficulties in the implementations of the TQM (Total Quality Management) system. Although it is theoretically well organized, in practice difficulties arise and often hotels cancel the implementation regardless of their initial acceptance of the system. The management in the hotels often only declares as positive for the introduction of this system, and it later shows unpreparedness to develop support for its realization. There is a large number of managers who are not enthusiastic enough to transfer that positive feeling to the other employees, in order to develop the system of quality. Also there are many managers who don't want to give some of their authority to the lower levels. We should also mention the unpreparedness of the employees to change their habits acquired throughout the years while doing the given tasks. These are some of the reasons for the unsuccessful establishment of the quality system. It is logical to conclude that if the management of an organization shows disinterest or inability to continuously develop the quality, it is pointless to expect it from the employees. It is expected that before making the final decision, the management should check its own readiness and the eventual problems that might arise in the process of the establishment and the implementation of the quality system.

The recommendations derived from the results of our research are the following: in order to successfully implement and develop a TQM system of quality, it is necessary for the Macedonian managers to make a clear decision and to develop the quality through practical actions. If the answers to these suppositions are satisfactory, then the organization can be confident in its way to success. Also they have to use appropriate procedures while stablishing the quality system, which is oriented toward the market and it is led by the consumer, with a great emphasis on the role of the employees. Our examination has shown that the hotels that have only formally certified a system for obtaining quality of the products/services, do not fulfill the requests of the ISO standards and do not have any gain from that formally certified quality system.

The main conclusion from our research is that the Macedonian hotels need to measure constantly the satisfaction of the users of the services, which means using different methods and techniques for a continuous development of quality of the hotel's product and succeeding in satisfying the tourists. The top management needs to build a system for an integral control on quality directed to following the whole production and accommodation process, by emphasizing the exceptions and the errors that might influence the quality of the product and herein to enable to make measures timely if there are reasons for it. The system of quality with an underdeveloped and unapplied concept of statistical process control (SPC) will not guarantee its own survival. On the other hand, the application of SPC without a developed system for saving the data and standard operative procedures (SOP) is illogical, and its application will come down to solely recording errors for which are needed trained teams. The use of SPC is one of the requests of ISO 9001:2015.

The managers in the whole industry need to create stations throughout the company in order to identify and analyze the weak placed and to analyze the costs for reclamations, errors, defects or i.e. all the costs that derived from the lack of quality. The lack of statistical approach in the processing of the data, the assessment of quality and the transfer of information, causes a lot of the problems in the Macedonian hotels. The application of the statistical process control (SPC) is present in a small number of hotels. The instructions about the importance and the usage of SPC and the improvement of the services' quality need to be available in all fields: marketing, sales, production, finances, human resources; but these seeks a regular training for all the employees. The conclusions show that the higher the rating of the hotel, that higher is the perception for the different standards in relation to the quality, the environment, the safety at work, the conduct of information, the energy and the safety of food. The technical and technological equipment of the Macedonian hotels is almost at a satisfactory level and satisfies more or less the current requests of the buyers/users. The problems are mostly derived from the badly organized business processes and the inability to satisfy the needed standards of quality. In the Macedonian hotels the same technology is used to realize lower business results. The reason is not only the lack of modern technology, but also the weaker manager abilities, the qualifications and the satisfaction of the employees, and the quality of conduct of the business processes. Examples of an integral control and self-control appear in the surveyed hotels that are on the tourist market for the past 15 years. Their consistency on the market is a result of an integral control on quality, which is based on the participation of all employees for the development of quality. This has been achieved by changing the behavior and the sense of the job depending on their knowledge, education, desire and motivation. The application of the model of an integral control of quality doesn't require equipment investments or new technology, but only a different approach toward the job.

The Macedonian hotels have to strive for a minimization of the costs, which means that they need to use only the necessary sources for the given production level. This will mean higher profit for the hotels, because there will be greater difference in the production price and the selling price at minimal costs.

Herein, the general conclusion is the need of application of the integral model of a total management for quality, which does not require investments in equipment, new technology, but only a different approach toward the work, the completing of tasks, the mutual communications, unity in the realization of quality as well as correctness and the higher responsibility toward the job and the consumers. These types of activities can help measure

the results that directly decrease the operation costs for working of the hotels. The new approach toward quality seeks new activities in the educational field of the employees, and that means a drastic change in the employees' behavior, radical changes in the organization, clear definition of the rights, the obligations and the responsibilities of every individual at the hotel.

Acknowledgements

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Customer Satisfaction and Enterprise Performance: A Study from the Electronics and Communication Equipment Retail Industry in the Czech Republic

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Abstract

The aim of this paper is to identify whether customer satisfaction measured by means of mystery shopping in selected retail companies in the electronics and communication equipment industry and their loyalty expressed by the NPS score correlate with the performance of the selected enterprises. The study contains research into communication with customers at the point of sale and customer satisfaction, with a focus on the five most significant representatives of this industry. The performance of companies is evaluated through the ROA, ROE and ATO indicators based on data available in the Magnusweb database. The study shows that customers satisfied during the sale of products also express their loyalty, which was measured by the NPS score. The said research conducted in the Czech Republic failed to prove the correlation between customer satisfaction and loyalty on the one hand and the selected enterprise performance indicators on the other. The same conclusion has also appeared in several research studies conducted abroad.

Keywords: *customer satisfaction; Czech Republic; enterprise performance; electronics and communication equipment; retail.*

1. Introduction

Enterprise performance as well as customer satisfaction (CS) and loyalty are phenomena that are at the forefront of the assessment of not only the current, but also the future value and the prospect of an enterprise in the current demanding, fully competitive conditions. CS and loyalty are prerequisites for the strengthening of the position of an enterprise in the market, and thus are also connected with achieving success in customer orientation (Kotler & Keller, 2013), which in turn is connected with the quality of services provided. The focus on service quality combined with communication with customers during the sale of competitive products is undoubtedly key to increasing the performance of an enterprise, in this case in retail in the electronics and communication equipment industry at traditional (not on-line) points of sale.

In the presented study, enterprise performance is measured based on the analysis of publicly available (Magnusweb) data from closing financial statements (specifically, balance sheets and profit and loss statements). This (quantitative) way of measuring performance based on accounting data is fairly common (compare with, e.g., Gunasekaran et al., 2005; Gupta & Galloway, 2003). CS is one of the conclusions of an independent research study conducted by way of mystery shopping, which is suitable for checking customer service and communication with customers. The items 'satisfaction' and 'loyalty' are included in the records obtained by trained observers according to mystery shopping scenarios at the point of sale of the tested enterprises in three regions of the Czech Republic (cf. Eger & Mičík, 2017). Mystery shopping is used to gather information about customer-oriented communication, their satisfaction with retail and customer feedback via NPS.

The purpose of this study is to investigate the level of customer–oriented service (communication), CS and search for its relation to the Net Promoter Score in retail industry Electronics and communication equipment in the Czech Republic. And following that the study examines the link between CS and various financial ratios that measure the performance of companies in the Czech Republic. This study may contribute in several ways to the literature regarding retail and personal selling, and CS and customer loyalty.

First, we assess the influence of some part of the shopping environment and of customer-oriented communication on CS and customer loyalty. Second, we operationalize and assess company´s performance. Third, the study adds to the very limited research on company´s performance and CS in retailing in the Czech Republic.

2. Literature overview
2.1. Enterprise performance

In general, enterprise performance can be defined in various ways, depending on the context that allows performance to be subsequently specified (Suchánek, Richter, & Králová, 2014). The specification of enterprise performance thus also affects the way it is measured. Drucker (1992) defines performance as the ultimate test of any organization. It may be added that such a test must have an economic dimension. More specifically, performance may be defined as the ability of an enterprise to increase the value of the invested capital (Hindls et al. 2003). With respect to CS, performance can be defined as the

enterprise's ability to achieve its goals by meeting its customers' expectations more effectively and efficiently than its competitors (Kotler, 1984).

Enterprise performance needs not only to be defined, but also measured. The method of measuring enterprise performance further specifies its concept. If performance is the ability of an enterprise to achieve (economic) goals and satisfy customers (see above), then measuring performance is a specific way of achieving this. "Performance measurement is the process of determining how successful organizations or individuals have been in attaining their objectives" (Sinclair & Zairi, 1995 in Tunji-Olayeni et al. 2014). For the success of an enterprise, this process is crucial mainly in the context of changes: "performance measurement is critical to the success of organizational change programs in general" (Chang, 2006).

The process of performance measurement presents a series of activities that must be executed in such a way that its objective is achieved. "Performance measures are defined as a tool for assessing how well the activities within a process or the process outputs achieve a specified goal" (Chen & Cheng, 2007). Additionally, the goals must be set within the actual framework of the economic environment in which the enterprise operates, i.e., the goals must be achievable. "The best measures are customer-focused and goal-oriented and goals should also reflect current realities" (Chen & Cheng, 2007).

At first sight, performance measurement seems to be static, i.e., conducted at a certain moment, but even at the given moment it is still possible to make comparisons, i.e., compare the measured values with those that are planned or ideal (benchmarking). "The concept of performance measures is the process of comparing actual operation results with established performance targets" (Ahmad et al. 2005) and "the target value is used to evaluate performance measurement data, usually to assess performance achieved compared to performance expected" (Chen & Cheng, 2007). Performance should be measured regularly and over the long term. Chen and Cheng put emphasis on qualitative performance measurement and business improvement using Six Sigma and the balanced scorecard (compare Chen & Cheng, 2007).

The quantitative measurement of enterprise performance based on accounting data is connected with the fact that CS translates into a successful business in the sense of sales volume and consequently profit and rate of return (compare Neely et al. 1995). In the context of CS, it is obvious that the key indicator that can evaluate the specific performance of an enterprise and which can be measured is the rate of return of the company (more specifically, the ROA indicator). This also corresponds with a number of research studies conducted (e.g., Anderson et al. 1997; Terpstra & Verbeeten, 2014; Yeung et al. 2002). The revenue, profit, rate of return and successful performance impact the enterprise's evaluation by its surroundings, i.e., the capital market indicators that reflect the value of the company (for details, see, e.g., Jacobson & Mizik, 2009).

Within a comprehensive approach to measuring company performance, there are various categories of financial indicators. Some authors use indicators related to the rate of return, activity, debt ratio, liquidity, growth indicators and asset structure indicators (for details, see Delen et al. 2013). Others use indicators pertaining to the rate of return, debt ratio, liquidity and growth indicators (for details, see Heikal et al. 2014).

In a number of research studies, financial performance in the context of CS is evaluated by standard financial indicators, such as ROA, ROE (e.g., Al-Hawari & Ward, 2006), accompanied by capital market indicators (e.g., Sun, Dae-Young, 2013). It can be inferred that, at least from the long-term perspective, a company's rate of return is affected by a number of other influences. For the purpose of our research, which does not focus solely on analyzing performance, but rather the relationship between performance and CS, it is desirable to focus primarily on the measure of performance, that is, the rate of return, and indicators capable of measuring it in the context of CS. Additional indicators that provably influence the rate of return can be found and added. In the case of enterprises in the Czech Republic, one such indicator is asset turnover (ATO) (for details, see Suchánek & Králová, 2016a; Suchánek & Králová, 2016b).

2.2. Retail, personal selling, customer satisfaction

CS and retention are critical for retail also in the area of electronics and communication equipment. Providing quality customer service is the way to be distinguished from competitors. An organizations employees skills and competencies (Egerová, 2015; Zeglat et al, 2014) are essential to making a successful service encounter and interaction. Customer service should be an essential part of marketing strategy. The scholars found that CS is a major driver of customer loyalty and earlier empirical findings revealed that customer loyalty could lead to a 25-85 percent increase in profit (Reichheld et al., 1990). CS effects positive word-of-mouth and future repeat purchase (Abu-EL Samen et al, 2011; Bolton et al, 1998). Srivastava and Kaul (2016) claim, that customer loyality is a dream that all retailer chase. Companies that have a more satisfied customer base also experience higher economics returns such as return on investments and profitability (Aaker & Jacobs, 1994; Abu-EL Samen et al, 2011; Bolton et al, 1998; Yeung et al., 2002,). Customer service is an important topic because it has a strong link to long-term financial outcomes such as profitability (Abu-EL Samen et al, 2011; Duncan & Eliot, 2004).

CS and future intentions in retail affects a product and its market image. Value, service, trust, reliability, and the behaviour of salespeople help create brand image. Communication in personal selling is an important part of sales behaviour and can help any company increase its CS level and improve the customer experience (Gilbert & Veloutsou 2006; Pimpakorn & Patterson, 2010, Wangenheim et al., 2007). It is apparent that if customers are satisfied, have trust in salespeople and see value in the provided customer service, they are more likely to come back and repeat purchase in the future (El-Bachir, 2014; Gruca & Rego, 2005; Kim, Park. & Jeong, 2004). The existence of individual employees' customer service skills is a major contributor that leads to achievement of CS and customer loyalty in service business (Abu-ELSamen et al., 2011) and also in retail (Eger & Mičík, 2017).

Traditionally, it is supposed that CS is an important factor in the performance and competitiveness of retail shops. Some authors argue that customer loyalty is of greater importance than CS (Fraering & Minor, 2013; Belás & Gabčová, 2016), while others (e.g. Khan & Rizwan, 2014) argue that CS explains 93% of customer loyalty. In general, there are two approaches to CS in literature, expectancy-disconfirmation approach and performance-only approach (Gilbert & Veloutsou, 2006). In our study, we work with performance-only approach. According to our adopted approach, CS is defined as "an overall evaluation based on the customer's total purchase and consumption experience with a good or service over time" (Anderson, Fornell, & Mazvancheryl, 2004). The deterministic approach of customer loyalty (Odin et al, 2001), which we use in our study, addresses customer loyalty as an attitude manifested through customers' preferences, buying intentions, supplier patronization and recommendation willingness.

Belás and Gabčová (2006) found a strong positive correlation between CS and customer loyalty in Czech banks. Our study is focused on customer-oriented communication, customer overall satisfaction with the shopping process, and customer loyalty in the retail industry Electronics and communication equipment. Customer service and communication with customers become more important in retailing than before (Beneke et al., 2012; Jankal & Jankalova, 2011; Parment, 2013).

The mystery shopping technique (MS) can be used to assess how employees interact with customers and to identify CS and areas for future service quality improvement. MS studies

have been conducted especially in retail by Gosselt et al, (2007), Janka and Jankalova (2011), Kehagias, Rigopoulou, and Vassilikopoulou (2011) and Eger and Mičík (2017).

Delivering quality customer service is essential to sustain any kind of business (Chen & Barrows, 2015). Some studies show that up to 70% of organizations are losing customers due to poor customer service, and just less than 15% due to poor quality of the product (e.g. Michelson, 2015).

2.3. Customer satisfaction and enterprise performance

Several studies suggest that there is a positive relationship between employee satisfaction and CS but only some of them examine necessary relationship between CS and enterprise performance (Wangenheim et al., 2007). For example, findings from research conducted by Chi and Gursoy (2009) suggest that while CS has positive significant impact on financial performance, employee satisfaction has no direct significant impact on financial performance. Report by FeedbackSystems (2016) summarizes findings from several studies and argues: "One of the main benefits of CS research is the capability to observe trends on indicators that are directly tied to financial performance." This is also the focus of this study conducted in the context of the Czech Republic.

3. Method
3.1. Research question

The study provides an answer to the following central research question: Is there a association between CS resulting from the sale of products in selected enterprises of the electronics and communication equipment retail industry and the performance of these enterprises?

3.2. Study design

To answer the present research question, the study used a convergent parallel mixed methods research design, which allows the researcher to explore a research problem (Gray, 2009). In this design, both qualitative and qualitative data were collected during the same phase of research and data were analysed separately and independently (Creswell & Plano Clark, 2011). The quantitative approach comprises an analysis of the performance of selected companies and the qualitative approach applies the mystery shopping survey. The MS was used to gather information about the selling process and CS and customer loyalty.

Before conducting our research, we formulated the following hypotheses:

Hypothesis 1: There are positive relationships between service skills and overall CS.

Hypothesis 2: There is a positive relationship between customer overall satisfaction and customer loyalty in retail industry Electronic and communication equipment in the Czech Republic.

Hypothesis 3: There is a positive association between customer loyalty and the performance of selected companies from retail industry Electronic and communication equipment in the Czech Republic.

3.3. Analysis of financial performance

When measuring performance using financial indicators, it is necessary to specifically define the indicators or a set of indicators that will be used for the purpose of performance measurement. In this respect, the aforementioned and proven financial indicators of the rate of return, ROA and ROE, suggest themselves to be used, complemented by the activity-related ATO indicator (Suchánek & Králová, 2016c). The ROA indicator is constructed as the ratio of EBIT (earnings before interest and taxes) to total assets. The ROE indicator is constructed as the ratio of net income to the book value of equity. The ATO indicator is constructed as the ratio of total revenue to total assets. For all three of the above-mentioned indicators, it can be said that the higher their value, the higher the rate of return, the efficiency and in this context also the performance of the enterprise.

The results were evaluated using two methods based on multiple criteria decision-making (cf. Babic & Plazibat, 1998). Using the first method (ranking method), the companies' results in the selected financial indicators were sorted by ranking, with their average ranking determining the final rank according to their performance (Šubrt et al., 2015). Using the other method, the average values of the said indicators in the given industry (specifically, retail without motor vehicles) were ascertained. The results (averages) of the respective indicators for the industry were obtained from publicly available data from the Ministry of Industry and Trade of the Czech Republic (see Department 31400, 2015). Enterprises were evaluated either as performing (if the indicator value was above the industry average) or non-performing (if the indicator value was below the industry average). Subsequently, the results reached using both methods were synthetized and performance determined, i.e., the measure of performance of the researched companies.

3.4. Mystery shopping

The scenario and research tool were used in research conducted by Eger and Mičík (2017). The scenario of MS was validated by three experts from retail industries and planned research was again piloted to assess to clarity and relevance of the questionnaire items (cf. Kehagias, Rigopoulou, & Vassilikopoulou 2011). Process of scale construction was similar to Dew and Xiao (2011) approach.

To obtain more objective assessments from the customer's point of view, not the employee's, but skilled customers (mystery shoppers) evaluate the sales process. In this study, their overall view of the shopping process is crucial. The study also answers an ultimate question regarding loyalty represented by the NPS indicator. This indicator is used in our research as customer's cumulative statement of their loyalty (cf. deterministic approach to customer loyalty above), because companies with satisfied customers tend to enjoy greater customer loyalty that leads to a positive word of mouth (Luo & Bhattacharya, 2006, Xu & Goedegebuure, 2005).

The use of so-called immediate CS measurement (last item in this MS scenario) and the answer to a single question (NPS) represents simplification and research limitation (Grisaffe, 2007) in comparison to cumulated satisfaction, which summarizes complex indexes like the ACSI (American Index of Customer Satisfaction) and the ECSI (European Customer Satisfaction Index) (cf. Eklöv & Westlund, 2002).

Mystery shopping is a technique for measuring service quality. ESOMAR (2005) states: 'The purpose of mystery shopping studies is to help focus the attention of business management on customer service improvement by providing information on the operation and the quality of service it is providing.'

The scenario was based on theoretical issues (ESOMAR, 2005; Ford et al., 2011; Kehagias, Rigopoulou, & Vassilikopoulou, 2011; Schmidt & Hollensen, 2006; Schmidt & Vadi and Suuroja, 2006; Wilson, 2001). Its structure and the content of partial items were prepared according to the mentioned resources and prior research (Eger & Mičík, 2017).

Mystery shopping has the potential to directly measure service performance across the range of present standards, including behavioural aspects (Wilson, 2001). Skilled mystery shoppers can make a relatively objective assessment of all observed aspects of the service experience.

The scenario contains items divided into seven parts: store entrance (A), staff appearance (B), needs and benefits (C), listening and answering (D), offer-knowledge of the product (E),

negotiating and satisfaction with the overall impression (F) and the last small section contains the NPS question and scale (0 – 10) for an answer. A Likert-type scale were used in the scenario to measure individual items (1=strongly disagree (parts A–E) / very dissatisfied (part F), 5=strongly agree (parts A–E) / very satisfied (part F).

The research was conducted in three regions (in small and large cities), which were selected to represent the level of customer service in retail of selected firms of the area Electronics and communication equipment in the Czech Republic. The research covers the retail area (industry) electronics and communication equipment.

To achieve an objective result by mystery shopping, research was conducted in two waves, first in March and in April 2017 and second one year later in the same time. The total number of all mystery shopping visits was 204 (18 + 26 in Electro World, 18 + 23 in Euronics, 16 + 26 in Datart, 15 + 21 in Planeo Elektro and 15 + 26 in OKAY Elektro points of sale). These firms are the most famous companies in the mentioned retail industry, with great turnover in the context of the Czech Republic.

3.5. The characteristics of the examined sample of companies

The research sample consists of five companies that operate retail chains of electronics stores in the Czech Republic. Specifically, these companies are: HP TRONIC Zlín, spol. s r.o. (operating the chain of EURONICS stores), DATART INTERNATIONAL, a.s. (operating the chain of DATART stores), FAST ČR, a.s. (operating the chain of PLANEO stores), OKAY s.r.o. (operating the chain of OKAY stores) and Electro World s.r.o. (operating the chain of ELECTRO WORLD stores). These companies rank among the six largest retailers of electronics in the Czech Republic (Marketing & Media, 2011). According to a different study, they are among the ten most frequently visited electronics retail outlets in the Czech Republic (Macich jr., 2013). The companies Datart, Electro World and HP Tronic were also listed among the seven (excluding e-shops without brick-and-mortar stores) largest electronics retailers in the Czech Republic in 2016 (Redakce W4T, 2016). It can thus be said that the said sample of companies consists of the largest electronics retailers in the Czech Republic when it comes to traditional (not online) sales. The said companies therefore form a representative sample in the electronics retail segment (excluding online sales).

In 2015, the annual retail sale of information and communication equipment in specialised stores amounted to CZK 18,873 mil. and the retail sale of other household equipment in specialised stores was CZK 104,785 mil. (i.e., a total of CZK 123.7 billion, Czech Statistical Office, 2017). The combined sales of all the companies listed above in 2015 amounted to CZK 27.5 billion, which represents 22.2% of total market turnover. Due to the fact that the total figure of CZK 123.7 billion also includes e-shops, the actual market share of the companies included in the study was actually higher.

4. Results

The mystery shopping visits (204) executed in three regions in the first half of 2017 and 2018 to the aforementioned five companies allow us to evaluate the effect of the different variables on overall CS. Table 1 allowed us to identify correlations between important parts (variables) from the research construct. These results help us better understand the relationship between selected variables for the retail industry Electronics and communication equipment.

The table below (Table 1) compares selected areas and items of the customer-oriented service MS survey in the manner of shop interior, staff appearance, communication with cus-

tomers (C, D. E) and satisfaction with the overall impression. The correlation matrix is used to investigate the dependence between variables from our construct focused on customer-oriented communication and on customer-oriented service (cf. Eger & Mičík, 2017).

Areas and number of items	α	A	B	C	D	E	F
A Store entrance (3)	0.69	-					
B Staff appearance (2)	0.75	.407	-				
C Needs and benefits (2)	0.56	.286	.227	-			
D Listening and answering (2)	0.75	.294	.280	.446	-		
E Offer-knowledge of the product (2)	0.73	.284	.261	**.535**	**.593**	-	
F Satisfaction (2)	0.85	.380	.272	.338	**.633**	**.644**	-
Mean		3.8	4.4	3.7	4.0	3.8	3.9
SD		.703	.655	.889	.669	.790	.724

Table 1. Descriptive statistics, the individual section – customer-oriented service (mean, standard deviation, and correlation matrix)
Source: Authors

The reliability of instrument is established by internal consistency (Cronbach's alpha). Almost all partial scales showed acceptable values above or near 0.7. Nunnally and Bernstein (1994) reported about acceptable values of alpha from 0.7. Area Needs and benefits contains only 2 items focused on these two features of mentioned area and Cronbach's alpha is only 0.6.

Partial conclusions are as follows:

❑ "WAO" effect – Shop looks attractive from the outsider – no significant correlations were found with other items except the items staff appearance (middle correlation).
❑ Positive correlations exist among variables E-C, and E-D. The highest correlation coefficient was found between the items satisfaction with the overall impression and listening and answering and offer – knowledge of the product.
❑ The findings show that product presentation and communication with customers (D, E) have positive effects on customers' expression of their satisfaction with the overall impression of the buying process (F Satisfaction).
❑ The relationship between service skills and customer overall satisfaction is supported (H1).

Net Promoter Score, or NPS, measures customer experience and predicts business growth. The NPS calculation: Subtracting the percentage of Detractors from the percentage of Promoters. The Net Promoter Score is an index ranging from -100 to 100.

As shown in Table 2, the company with a high NPS score also received the best rating by mystery shoppers in terms of the item: I am satisfied with the overall purchase experience (5-point Likert scale from 1 = very dissatisfied to 5 = very satisfied).

	Number of MS	Value of NPS	Satisfaction Average
Electro World s.r.o.	44	18	4.11
Euronics / HP TRONIC Zlín, spol. s r.o.	41	0	3.81
Datart / DATART INTERNATONAL a.s.	42	2	3.93
Planeo / FAST ČR, a.s.	36	-25	3.75
OKAY / Okay s.r.o	41	-22	3.71

Table 2. Companies of the industry electronics and communication equipment and NPS
Source: Authors

Table 2 demonstrates the association between the item overall customers satisfaction and the item customer loyalty (NPS). This table 2 shows that there exists a relationship between overall CS (from mystery shopping) and customer

loyalty (index NPS), H2 is supported (see the research limitation below). The results of our partial study confirm that CS is a strong antecedent to customer loyalty (cf. Anderson & Sulivan, 1993, Xu at al., 2006, Eger & Mičík, 2017). In order to depict the connections between selected variables, a statistical analysis was conducted. Due to the character of the data, Kendall Tau indicator was used on the basis of which the occurrence of the statistical significance was tested (t=0.55, p=0.0000001).

The results of the analysis of the companies' financial performance suggest that the highest performing enterprise in the sample is Datart international, both in terms of ranking averages and industry comparison. The enterprise with the lowest performance is Electro World, again according to ranking averages and in comparison with the industry. The ROE indicator of this enterprise had a positive value but still it is the worst enterprise in comparison with the other companies within the sample, as the company's equity is in fact negative (profit, of

course, is also negative). The three remaining companies took second to fourth place, based on the comparison with the industry average, and therefore can be viewed as medium-performing enterprises. From the point of view of ranking averages, the second highest-performing company is Okay; Fast ČR came in third and HP Tronic Zlín took fourth place.

Regarding the methodology of determining the ranking of the companies, i.e., their performance, it is obvious that the overall rank based on the indicators is more precise, that is, it makes it possible to better differentiate the performance of companies than the overall rank based on the industry average. The results also clearly indicate that with respect to the industry only two enterprises (Datart internatioanal and HP Tronic Zlín) are performing companies (with at least two of the three indicators above the industry average) and three enterprises (Fast ČR, Okay and Electro World) are non-performing (with two out of three of whose indicators were below the industry average).

Companies	ROA	ROE	ATO	Average rank based on indicators	Overall rank based on indicators	Overall rank based on industry average	Final order
HP TRONIC Zlín	2.33%	9.61%	2.42	3.33	4	1-2	2-3
DATART INTERNATIONAL	1.95%	17.02%	3.61	2.33	1-2	1-2	1
FAST ČR, a.s.	6.08%	14.85%	1.83	3	3	3-5	4
OKAY s.r.o.	4.90%	19.43%	2.25	2.33	1-2	3-5	2-3
Electro world s.r.o.	-19.66%	156.66%	3.1	4	5	3-5	5
Industry average	6.55%	8.64%	2.29				

Table 3. Results of the selected financial indicators of the surveyed enterprises in 2015, including the industry average for 2015 and the resulting rank
Source: Authors

Companies	ROA	ROE	ATO	Average rank based on indicators	Overall rank based on indicators	Overall rank based on industry average	Final order
HP TRONIC Zlín	3.12%	27.00%	2.49	2.33	1	1-2	1
DATART INTERNATIONAL	1.56%	5.78	3.71	3.33	4	3-5	4
FAST ČR, a.s.	6.69%	15.46%	1.85	2.67	2	3-5	3
OKAY s.r.o.	4.80%	15.03%	2.4	3	3	1-2	2
Electro world s.r.o.	-11.25%	-116.90%	4.19	3.67	5	3-5	5
Industry average	6.98%	11.22%	2.17				

Table 4. Selected financial indicators of the surveyed companies in 2016
Source: Authors

Table 4 contains the results of the selected financial indicators of the surveyed enterprises in 2016, including the industry average for 2016 and the resulting rank. Available results for 2016 indicate that the order of enterprises slightly changed compared to 2015. The results of the analysis of the companies' financial performance suggest that the highest performing enterprise in the sample is HP Tronic Zlín, both in terms of ranking averages and industry comparison. The enterprise with the lowest performance is Electro World, again according to ranking averages and in comparison with the industry. The three remaining companies (Datart International, FAST ČR and Okay) took second to fourth place, based on the comparison with the industry average, and therefore can be viewed as medium-performing enterprises. From the point of view of ranking averages, the second highest-performing company is Fast ČR; Okay came in third and Datart international took fourth place.

The overall ranking of enterprises is not clear. The more sophisticated (and in this respect more precise) order of enterprises, according to the mutual comparison of the indicators, shows that three enterprises are performance (HP Tronic, Okay, Fast ČR) and two enterprise are non-performance (Electro World, Datart International).

Hypothesis no. 3: There is a positive association between customer loyalty and the performance of selected companies from the retail industry Electronic and communication equipment in the Czech Republic, is not supported (H3).

The conducted study analyzes five enterprises from selected retail industry which represent only a quarter of total market turnover in this industry. But these enterprises are the most important players in this industry, and the deeper understanding

of this issue is taking place in similar studies (cf. Chi & Gursoy, 2009). It is not possible to assume the implementation of an comprehensive study for the retail industry, where many small entities operate.

5. Discussion and conclusion

The mystery shopping results confirmed the findings from the previous study, Eger and Mičík (2017), and proved that customer-oriented services and positive communication with customers lead to overall CS. According to our results, overall CS leads to greater customer loyalty (similar conclusion reached by Anderson & Sullivan, 1993, AbuEl Samen et al, 2011, Xu et al., 2006).

When comparing the performance results of the particular companies and the level of satisfaction of their customers, it is obvious that the statement about greater CS and greater company performance is in fact not valid, as proven in the area of services, for example, by Zeithaml (2000). The only non-performing companies in the sample (Electro World and Datart international) are the companies with the highest CS. On the other hand, the best-performing company (HP Tronic Zlín) came in third in terms of CS. The second highest-performing company is Okay, which took fifth place in terms of CS, and the third highest-performing company is Fast ČR (Planeo), which in terms of CS took fourth place. We need to briefly state some facts about these companies from publicly available sources.

For example, in its 2015 annual report, Elektro World states that it is one of the largest multi-channel retail chains

specializing in the sale of consumer electronics, computer and telecommunications technology, including the provision of related services. The company is aware of its wide portfolio of products and touts its customer service, although the same annual report also presents information about its takeover by the largest retail chain in Slovakia, Nay a.s., and the launch of a process to deal with the loss that Elektro World had posted. The Czech Office for the Protection of Competition authorized this merger in mid-2014 (Novinky, 2014). In 2017, Elektro World has 18 large-format stores in the Czech Republic. On the one hand, it is optimizing its network and distribution, and on the other it is developing its assortment of products and its customer club, with more than 200 thousand members.

Euronics has 120 smaller stores throughout the Czech Republic and as seen in Table 4, the company's economic results are positive.

For further context, here is information about the company Datart international, which has developed over the years and nowadays is one of the largest retail chains in the Czech Republic with stores specializing in the sale of electronics. In 2015, the Datart international retail chain included 42 stores and continually posts increasing revenue. In mid-2017, a decision was made on the merger of the Euronics and Datart International companies, which would result in the formation of the largest electronics retailer in the Czech Republic (ČTK, Ekonomika, 2017). The entire transaction has already been approved by the Czech Office for the Protection of Competition (ČTK, 2017).

The Okay company also continues to expand and under the Okay brand there are several entities and stores specializing in different types of goods and services. The size of the stores is comparable to those of the Datart Company, but already in 2014 there were 135 Okay stores; however, this research focuses solely on Okay Elektro. According to its website, Planeo Elektro

currently operates 246 stores. That makes its retail chain the largest network, although the stores are smaller than those of Euronics and much smaller than those of Elektro World. In 2015, the company's revenue grew and its profit doubled.

The results of the research study show that the correlation between CS and performance is the exact opposite of what had been expected (inversely proportional, i.e., the higher the performance of the company, the lower the CS). However, these results correspond with the statement that CS is connected with costs and therefore greater CS is associated with higher costs (Ittner and Larcker, 1998). What can be inferred from this is that greater CS leads to lower performance as a result of higher costs. The same result, i.e., the conclusion that non-performing companies have more satisfied customers than performing ones, was also reached in a study conducted among food companies in the Czech Republic (Suchánek & Králová, 2016c).

It may seem that the situation where greater CS is linked to lower performance is typical for Czech companies. However, even research studies conducted abroad are not unanimous and some research (dealing with services) has confirmed our conclusion (Anderson, Fornell and Rust, 1997).

Limitations of the study. First, the research focused on CS and the performance of selected companies from the retail industry was conducted in the context of the Czech Republic in 2017. Second, the conducted research survey focuses only on the most famous companies in the mentioned retail industry. Therefore, to generalize it to results for other retail industries, the study should have involved more mystery shopping in other retail industries. One of the main limitations of this study is that CS was examined as a unidimensional constructs. Future studies should utilize multi-dimensional constructs to capture the true essence of CS. Finally, the scope and depth of discussion in the paper is compromised when compared to the selected research surveys.

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Ethical Behaviour as a Means to Deliver Quality Outcomes in Higher Education

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Abstract

This paper aims to emphasize the importance of ethical behaviour for delivering quality outcomes from higher education institutions, with a focus set on engineering education. Higher education institutions have the potential to build exceptional innovative specialists through teaching, researching and training. However, they also produce tomorrow's leaders in all industrial fields, but also in research and politics, therefore their integrity and ethical values must be tailored to produce honest, reliable and trustworthy graduates. In an effort to display the current ethical climate within universities, the author of this paper analyses the critical aspects present in the new learning environment. The author also presents original recommendations about fostering the ethical culture of engineering education on three lines of intervention: faculty, academic governance and students. The findings of this paper advocate for a new vision about engineering education which should become a gonfalon of quality in teaching and researching. The findings also refer to the responsible tackling of ethical transgressions and the development of excellence in research which is to be correlated with the core society's values. The recommendations of this paper might be used as an introspection tool by academics in an effort to understand and adapt to the current learning environment. Moreover, the recommendations may be applied as a sustainable package of best practices which might be infused into the engineering education to enhance students' ethical "literacy" and ultimately improve the students' work ethics which is to be further used as future graduates, professionals and leaders.

Keywords: quality; academic governance; ethics; tertiary education; sustainable education.

1. Introduction

The problem of ethics is encapsulated within all the human activities and it must become a priority of the modern society. However, ethics cannot be thought aside the core society values and the education system has the responsibility to instil those values, as these will influence the entire life of a person. Therefore, the real society's core values should be incorporated within the education system, from the primary to tertiary education. Recently, a European official declared that "*the values are important apart the economic, commercial and industrial data and this was the main deficiency of the European Institutions*" [Traicu, 2019]. Starting with the educational system, the ethics should be infused back into society and the real values should be properly disseminated in order to fight against what it currently seems an ethical lethargy of the society.

The main ethical principles for education were identified by the pan-European platform on Ethics, Transparency and Integrity in Education: integrity, truth, honesty, transparency, fairness, accountability, trust, respect for others, democratic and ethical governance of education, and quality of education [Smith & Hamilton, 2016]. Therefore, the quality of engineering education supposes, besides the technical, economical and managerial knowledge, an ethical approach of activities which is to be embedded within the university life. However, this means that a new vision about engineering education must be thought. In such a way engineering programs have the potential to become an authentic gonfalon of quality in teaching and researching.

Ethical climate in higher education refers to the perception of its members (leaders of university, faculty, administrative staff and students) about the rights and wrongs within a given university. This is the backbone of the ethical culture a university desires to promote which influence the behaviour of its members and stimulate the understanding about what is acceptable / unacceptable within a given university. Unethical behaviour unpunished by severe measures establishes for the university members poor role models and determines poor behaviour, becoming a part of the organizational culture [Hanson, 2009; Rothman, 2017]. The application of the ethical culture in specific contexts defines the new learning environment in which the students learn, but the study of its complexity is beyond the scope of this paper. The open learning environment which is based on open data and open science is just a part of this new learning environment.

This paper is a preliminary study of a larger research and it encapsulates reflections on ethics in tertiary system from Romania, with a focus set on engineering education. It is further structured as follows: chapter one discloses the critical ethical aspects of tertiary education and chapter two contains recommendations about fostering the ethical culture of engineering education; the paper ends with conclusions and points out the way forward.

2. A primer on critical aspects of tertiary education

2.1. A brief history on importance of ethics in Romanian education system

In Romania, starting with the Alexandru Ioan Cuza reform from the XIXth century, the education was considered essential for the building of the nation. After the World War I, university

professors like Nicolae Iorga, Vasile Parvan, Dimitrie Gusti, Garabet Ibraileanu, Costin Nenitescu, to name just a few, contributed to the prestige of the universities from Romania. The university professors were also highly respected in the society, being associated with great culture, ethics and vision and their remuneration reflected this fact. The salary of a university professor was around 30.000 lei, about the same amount a ministry of that time received [Giurescu, 2001]. Moreover, the universities had autonomy, fact that was dismantled by the Communist Party in 1946 by the Decree 658/ 24th August 1946 [Dobos, 2005].

Unfortunately, after the World War II, within the period 1946-1950 many reputable university professors were replaced by persons trusted by the Communist Party, often with low scientific relevance. The years that followed until 1989 were characterized by political involvement and a lower consideration of the scientific merits of the professors. The communist discourse was part of the curricula and community life. After the fall of the Communist regime in Romania, starting with the 90s, the academic community began a process of redefinition of its identity. Sadly, the disregard of the competence and professional merits continued after the 1990, the political involvement being replaced by ethical transgressions of all types: favouritism, fraud and plagiarism.

Presently, after 43 years of communism and 30 years of many educational reforms, the academic society of Romania shows a mixed picture: competent professors along with impostors and scientific analphabets promoted by favouritism and lack of consideration of the actual professional quality. The recent scandals revealed by the media from Romania on plagiarism, bribes, arranged tenures, and false diplomas bring suspicion and criticism of higher education institutions and shed a negative light on the correct, competent professors. This in turn leads to the leaving of the youngsters to aboard universities, contributing to the surge of brain to other countries. Therefore, the actual survival of the universities depends on the ethics, as the ethical transgressions have repercussions on the entire tertiary system.

2.2. Main actors influencing the ethical climate within Romanian universities

The leaders of higher education were in the past associated with outstanding culture, noble vision, character and ethical behaviour. These leaders significantly contributed to the prestige of the universities all around the world. The ethical behaviour of leaders set examples for all the university members establishing trust, respect, credibility and ethical expectations, thus proving organizational efficiency. Unfortunately, there are currently questionable ethical behaviours which weaken the reputation of many higher education institutions: false diplomas for civil engineers [Chirciu, 2019], high retraction rates of scientific articles from journals based on plagiarism [Oransky, 2018] and corruption [Stückelberger, 2017].

Corruption hinders the enforcement of ethical behaviour. In a common sense, corruption is defined as being a deviation from morality, honour and duty [Coteanu et. all, 1986]. In legal terms, corruption is represented by illicit activities carried out by high social or political positions to obtain advantages, material or moral in nature [Dersian, 2006]. Corruption in educational context might be defined as the abuse of authority for private benefits, personal or material. This undermines a sustainable development of a given country, as it instils a destructive mechanism which correlates success with manipulation, bribery and favouritism instead of personal effort and merit. In such a way, the corruption extends over the next generations and the students of today may become the tomorrow's corrupt leaders. Susceptibility to corruption by different mechanisms [Rumyantseva, 2005] as nepotism, favouritism, conflict of interest, excessive influence both for academic and administrative staff, low standards for admission and for evaluation of the students

all are characterising the university modern life. Corruption is a plague, regardless if it is considered large or petty corruption, and the infusion of ethics in society starts with education. However, the enforcement of ethics is not an easy endeavour. Today, in many universities, the ethics is voluntary and therefore depends on the beholder - if is not illegal, is ethical. The ethical climate is influenced by many actors, inside and outside the university:

- ❑ actors inside the university: leaders of university, faculty, students, administrative staff.
- ❑ actors outside the university: parents of students, industry / business, suppliers of goods, politicians, accreditation bodies, funding agencies, recruiting agencies, sponsors, civil society/media, diploma mills, predatory sites offering false diplomas/dissertations.

Given the great pressure coming from outside the university, the actors inside the university, especially leaders and faculty, should be ethically alert and continue to learn, assess and update their knowledge. However, the main role is belonging to the university leaders which have the power to transform the behaviour of all the other actors inside the university. The second role is belonging to the faculty, which, before requiring the students' ethical behaviour, should consider their own performance and moral conduct.

2.3. Main critical aspects of ethics in Romanian universities

Ethical behaviour must be a goal of the tertiary education, as the students' character is moulded during the years of study. Engineering education has the potential to build exceptional innovative specialists through teaching, researching and training. However, it also produces tomorrow's leaders in all industrial fields, but also in research and politics, therefore their integrity and ethical values must be tailored to produce honest, reliable and trustworthy graduates. This can be achieved by implementing institutional ethics, before fixing the potential students' ethical problems. Many universities have code of ethics, rules and standards, but their existence will not guarantee the actual implementation of ethics. Within the boundaries set by the codes and rules there is a large space of manoeuvre which allows, for instance, unethical selection of faculty and this, in turn, opens the door for unethical behaviour. The faculty members in Romania are selected on specific criteria established by university, for the lower positions of teaching assistant and lecturer, and by the Ministry of Education for higher positions, of associate professor and professor. However, the criteria are strictly numerical and the judgement of the quality of their content is not even considered by the selection commission. In such a way, the members of the selection commission, due to lack of time or lack of care or specific interests, do not read the books, articles and studies present in the candidates' portfolios. They only confirm the quantity of published material, declared and assumed by the candidates. In such a way, imposture and incompetence make way into the academic life through articles published by predatory journals, publications of low quality, bizarre authorship and unverified records of research projects.

Academic dishonesty paves the way to the corrupt leaders of tomorrow. Regardless of the institutional pressures, publish-or-perish, expectations of funded research and students' retention, faculty should pursue for excellence in teaching and research. Their professional integrity should be above petty interests, as positive feedbacks from students, or complying with the department chair requirements for faster promotion and/or hourly payment. The students learn by examples: if you want to succeed, you need to cheat and/or be tolerant with unethical behaviour. This is only the beginning of a vicious circle, where low performance, corruption and unethical behaviour make their entry into their lives and continue to manifest throughout the rest of it.

3. Recommendations to foster the ethical culture in tertiary education

The mission of a university incorporates the generation of highly skilled, independent and educated graduates which will become the future professionals and leaders that will help society move forward. But, in order to produce them, the university should first employ the persons whom are highly skilled, independent and educated, both for faculty and administrative members. Therefore, in order to promote the highest ethical conduct for faculty working in engineering programs, the first line of intervention is the selection/promotion of faculty members. The best practices considered should incorporate a step-by-step approach:

Step 1. Redefinition of the minimal criteria for all university positions belonging to all engineering specialities:

❏ better definition of terms in order to leave outside the possible interpretation of some requirements;
❏ introduction of a minimal mark for candidates for Bachelor Studies (minimal graduate average above 9.00 and diploma mark of 10.00) in order to select only the persons committed to learning and personal development;
❏ better rendering of the educational/teaching dimension;
❏ incorporation of quality research outcomes:
  • the consideration only of articles published in journals with impact factor higher than 0.1 (their number should be 5/10/20 for all teaching positions involving lectures: lecturer/associate professor/full professor);
  • the introduction of a minimal cumulated impact factor (for instance: 3/6/10 for all teaching positions involving lectures: lecturer/associate professor/full professor);
  • the consideration of minimum 1/2/3 articles published in journals belonging to first and second quartile of Web of Science (Q1, Q2) for all teaching positions involving lectures: lecturer/associate professor/full professor; among those minimum 1 should be as single author / first author.
  • the consideration of citations only in journals with impact factor higher than 0.1;
  • the consideration of quality scientific articles mentioned above for all academic life (not from the last promotion, as it is for some engineering commissions).

Step 2. The appointment of a selection impartial pre-check commission from the university. The pre-check must be performed by a commission of 5 qualified persons, with variable composition, depending on specific topics. This pre-check should go beyond the quantity, excluding all inappropriate reporting of candidates. The pre-check commission should carefully verify all the reporting, to avoid plagiarism, academic fraud and fictitious reporting. This pre-commission should be lead by the one university leader (for instance by the Chancellor of the University).

Step 3. The appointment of the persons of the selection commission by the pre-check commission, in order to avoid possible personal interests of the department chair/dean.

Step 4. The payment of the persons of the selection commission by the university which selected them (travel & accommodation & daily stipend, retribution for assessing the quality of the publications of the candidates).

Step 5. The assessment of the candidate should incorporate the teaching dimension; therefore 1 task of the candidates should be a lecture of 1 hour in front of the students, for all positions (from teaching assistant to professor). The teaching performance should be judged in terms of the knowledge of the subject, quality of contents, eloquence and interactivity. In such a way the teaching competence might be properly assessed [Momete, 2015].

The faculty members are employed by the university, but they are not just employees, as they have collegial autonomy and they are not hired by organizations based on hierarchical bureaucracies as corporations [Skulason, 2015]. The faculty members are both teachers and researchers working in adhocracies and the "management form is typically rather symbolic than real" [Jensen, 2010]. The university is presided over by the collegial governance represented by the Academic Senate. Therefore, the second line of intervention is the quality of the academic governance. The action plan considered should incorporate:

Action 1. The existence of an information system which should facilitate the acquiring of the educational requirements: data gathering, processing and analyse in order to promote the quality assurance and transparency. The yearly based personnel establishment of each department should be based on a digitalised content through a dedicated application. The data should be imported from university's updated database regarding: the actual number of the enrolled students, for each faculty and each specialization and each year (the number of groups and subgroups) and the types of academic activities for each discipline from the curriculum of each speciality (lecture, laboratory, project, seminary). The data should be synchronised within the university, faculty, and department. The application should generate: personnel establishment, student's schedule requirements (number of psychical hours for each discipline and each course leader), and the transformation coefficient. All the data generated by the application (personnel establishment, students' schedule, curricula, syllabuses) should be freely accessible from faculties' web sites by professors and students. In such a way, the department heads are less susceptible of holding back important information or disclosing it to only a few.

Action 2. Setting of minimum requirements for the academic leading positions (as dean, department chair, chair of the doctoral school). The persons whom are allowed to run should meet the minimal standards for their academic position (e.g. associate professor, full professor), being in such a way less susceptible to corruption and having a larger potential to be concerned with common welfare rather than self-interest.

Action 3. Controlling the lecture/project/seminaries discipline. The actual presence of the teaching staff inside the classroom at given moments of time should be controlled (the actual correlation of payment with the students' schedule). This measure might involve the scanning of professor/students cards at the beginning and end of the classes.

Action 4. Responsible tackling of unethical behaviour. This will establish for the university members strong role models and will install ethical behaviour, becoming a part of the organizational culture. Types of unethical behaviour:

❏ Fraud: a student submits a plagiarized paper and receives a passing grade.
  • Possible reasons of the professor: lack of time/work overload, low qualification, concern about students' retention, favourable student feedback, nepotism, favouritism, bribe, pity.
  • Minimum measures: the university should have anti-plagiarism software and the paper must be verified by a platform prior to the grading.
❏ Cheating: a student copies at the exam with the help of traditional/modern technology (phone, smart watch, bluetooth, etc) and receives a passing grade.
  • Possible reasons of the professor: lack of attention / careless attitude, concern about students' retention, favourable student feedback, nepotism, favouritism, bribe, pity.
  • Minimum measures: exam without modern technology, where the case, and/or a proactive attitude of the student's colleagues induced by the ethical climate within the university.

Action 5. Designate an ombudsperson from university to deal with the fairness of the academic life (selection/promotion, students' evaluation, treatment of the faculty by department head/dean, etc).

The students are the recipients of the education and their whole life will be influenced by the university education. Therefore, the third line of intervention is linked with the students and the development of their ethical literacy. It is worthwhile mentioning that the students should not be punished, but rather informed, as they tend to comply with properly communicated conditions [Ghinea et. all, 2019], and properly evaluated:

Action 1. Set higher standards for admission. The universities should not expect quality and ethical outcomes from underprepared students.

Action 2. Prioritize ethical behaviour. The ethical climate of the university should be communicated to the freshmen, through pre-orientation/orientation materials and actions. Unfortunately, the orientation is generally given to the foreign students and does not involve a focus on ethics.

Action 3. Authentic engagement for the enforcement of ethics in using scientific data and technologies by explanations during lectures, dedicated courses on ethics, and by organising university events oriented on ethics.

Action 4. Improve the standards for evaluation of the students and do not accommodate the need for higher student retention rate. In such a way, the professor makes sure the students are inspired, challenged and helped to reach their true potential.

Action 5. Reward ethical behaviour (the reward may take different forms, but the simplest one is to nominate it, as the power of example is very effective (both for faculty and students)).

Development of excellence in research is to be correlated with the core society's values, in such a way we will enjoy in the future a more just society. The recommendations of this paper might be used as an introspection tool by academics in an effort to understand and adapt to the current learning environment. The recommendations take the form of a sustainable package of best practices on the three intervention lines previously described which might be infused into the engineering education to enhance students' ethical "literacy" and ultimately improve the students' work ethics which is to be further used as future graduates, professionals and leaders.

4. Conclusions

The ethics has the power to make a university credible and effective. The recalibration of university leadership towards ethics leads to the university overall success. The present paper identifies the main critical aspects and their tackling on ethics by three lines of interventions, each with 5 steps/actions. They represent the minim set of tools the university posses in order to enforce commitment to the highest ethical conduct and to advance towards educational effectiveness.

The opinions expressed by this paper rely on the author's judgement and beliefs and are based on personal experience and deep understanding of the academic life. It is worthwhile to mention that the ethical climate is worse now than 10 years ago, and if nothing is done, especially by university leaders, this will only worsen.

The critical aspects and recommendations expressed here might be thought-provocative for faculty, but also may be used as an introspection tool by academics in an effort to understand and adapt to the current learning environment.

The present research will continue with the evaluation of proper key indicators in order to access the openness to ethics of universities from Romania and European Union.

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Building Quality Education through Integrating ICT in Schools: Teachers' Attitudes, Perception, and Barriers

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Abstract

Information and Communication Technology (ICT) integration has significant impacts and many barriers in the 21st-century education. This mixed method study aimed at analyzing teachers' attitudes and perceptions toward the integration of ICT in the teaching and learning processes in the schools of Indonesian rural areas and its barriers. We applied a-mix method study with two phases of data collection, survey and focus group discussion. The respondents of this research were 234 teachers for the survey and 23 participants for a focus group discussion. We used a mean and standard deviation in the data analysis of the survey. Meanwhile, the data from the FDG were transcribed, translated, coded, analyzed, and elaborated. The findings exposed the attitudes and perceptions of teachers in schools of Indonesian of rural areas toward the integration of ICT in education and the integration barriers. Implication and policy recommendations are offered for the betterment of Indonesian educational system.

Keywords: ICT in schools; quality education; rural schools.

1. Introduction

Information and Communication Technology (ICT) has a very important role in the 21st-century education. The application of ICT worldwide is often hypothesized to be a potential equipment to revolutionarily change the system of education which sometimes outdated, develop the way of teaching and learning, and establish education betterment efforts (Aduwa-Ogiegbaen & Iyamu, 2005; Bullock, 2004; Kersaint, Horton, Stohl, & Garofalo, 2003; Pelgrum, 2001). In developed countries, the use of ICT has been an important issue in the past years. Currently, the governments of those countries are in the race on investing their national budgets on educational ICT, for instance, some countries are buying one laptop for one student on their primary and secondary schools (Balanskat et al., 2006; Chung, 2011). However, some developing countries are still struggling in the ICT implementation (Aduwa-Ogiegbaen & Iyamu, 2005; Albirini, 2006; Benzie, 1995; Sobaih et al., 2016; Pelgrum, 2001; Rogers, 1995). In responding the situation, governments in many developing countries have started to initiate national programs to introduce new tools such as computers, laptops, projectors, and internet accesses into their educational program. As a result, they have generated their burden on their national budget to education (Benzie, 1995). Further, it is indicated that some national programs have been of limited success not only because they were formulated in non-educational realms, but also because they were not research-based programs (Aduwa-Ogiegbaen & Iyamu, 2005; Albirini, 2006; Rogers, 1995).

ICT entails the whole range of electronic devices (Anderson, 2010) such as laptops, computers, electronic pads, and smartphones along with the broadband Internet, interactive Web 2.0 technologies and cloud applications. Facilitating teachers and students with the use of ICT composes major educational program elements; infrastructures, environment, and human resources (Claro, Nussbaum, López, & Contardo, 2017; Thomas & Stratton, 2006). Regardless of the amount of technology, its sophistication, and supporting environment, it will not be maximally utilized, should human resources; administration staff, teachers, and students do not possess the skills, knowledge, and attitudes necessary to infuse it into the curriculum (e.g., Al-Ruz & Khasawneh, 2011; Baylor & Ritchie,2002; Fu, 2013; Haji, Moluayonge, & Park, 2017; Lin, Wang, & Lin, 2012; Srivastava et al., 2014; Yang, & Kwok, 2017). In dispersion through those elements, studies about teachers attitudes toward the use of technology could have significant impacts on teaching and learning process in the classroom (e.g., Albirini, 2006; Ang'ondi's, 2013; Bullock, 2004; Ertmer, et al, 2012; Kersaint, Horton, Stohl, & Garofalo, 2003; Koohang, 1989; Malagón & Pérez, 2017; Ndibalema, 2014; Watson, 1998; Woodrow, 1992). In an early study on ICT integration, Koohang (1989) informed that teachers' attitudes toward ICT are main elements related to the initial and future acceptance of ICT. This informs that studies at the beginning of technology integration should be in the center of users' attitudes. This study was in line with this concept.

Indonesia, a developing country located in Southeast Asia, through its Ministry of Education and Culture, MOEC, is now trying to develop the ICT integration in educational system (MOEC, 2013). Embracing the 21st education, MOEC recently addresses a national plan to equip all schools with ICT tools; computer labs, projectors, laptops, and internet connections. The integration of ICT in Indonesian schools in big cities has been objects of few studies (Hadiyanto et al., 2017; Prasojo et al., 2017). However, the studies of technology application of schools in Indonesian rural areas have yet to be found although schools in these Indonesian areas have been equipped with

technology facilities such as computers, projectors, and some of the schools equipped with the internet access. We conducted research, which aimed at determining Indonesian high school teachers' attitudes toward ICT in Indonesian rural areas. We also presented the teacher's perception of some elements influencing their attitudes toward ICT. This research also aimed at revealing barriers encountered during the integration of ICT. This research was guided by the following questions: (1) What are the attitudes and perceptions of high school teachers in Indonesian rural areas toward the integration of ICT in education? and (2). What barriers are found in the ICT integration?

2. Literature review
2.1. ICT in education

ICT skills are important for individuals in every area of life including education (Yilmaz, 2011). Information and Communication Technology plays significant effects in global education in the 21st century (Thomas & Stratton, 2006). Many researchers has been promoting the use of ICT as a platform to support the process of teaching and learning in education (eg., Bullock, 2004; Hack, 2013; Prasojo et al., 2107; Karabenick, 2011; Kersaint, Tondeur, van Braak, & Valcke, 2007; Yilmaz, 2011; Tambouris et al., 2012). Tambouris et al., (2012) informed that the integration of ICT in the process teaching and learning made the students to be more active, collaborative, and productive. In other study, Hack (2013) has also stated that the use of Web 2.0 that is from of ICT can provide the tutor or facilitator with an opportunity to scaffold and assess the efficient process in teaching and learning. Prasojo et al., (2017) informed that internet and social media are nowadays very important to support teaching and learning process in Indonesian higher education. In changing the style of teaching, the establishment of ICT integration has changed the shifting of how teachers teach, from traditional to be advance ways of teaching (Tondeur, van Braak, & Valcke, 2007). Within the context of a knowledge society, teachers and schools recently keep making the integration of ICT as a system to poster students skills and to encourage independent learning strategies among them (Anderson, 2010; Karabenick, 2011). In brief, ICT helps the users accumulate, reserve, retrieve, process, analyze, validate, and transmit information and communication in a simple way.

2.2. Benefits and teachers' attitudes toward ICT

ICT has the potential to foster the system of education of one country (enhancing students; roles, aiding to create learning with collaboration, establishing teachers, creativity, and simplifying the process of teaching and learning). The potential of the integration depends on many supporting elements; policy, infrastructure, human resources, and finance (Abedalaziz, Jamaluddin, & Leng, 2013; Al-Ruz & Khasawneh, 2011; Balanskat et al., 2006; Baylor & Ritchie, 2002; Chung, 2011; Fu, 2013; Lin, Wang, & Lin, 2012; Srivastava et al., 2014; Yang, & Kwok, 2017; Haji, Moluayonge, & Park, 2017).

Among the supporting elements, teachers attitudes plays an essential role (Woodrow, 1992; Watson, 1998; Kersaint, Horton, Stohl, & Garofalo, 2003; Bullock, 2004; Ertmer, et al, 2012; Albirini, 2006; Ang'ondi's, 2013; Ndibalema, 2014; Malagón & Pérez, 2017). Woodrow (1992) affirmed that the success of educational practice transformation needs the establishment of appreciative attitudes from the users toward the novel technology. Watson (1998) affirmed the establishment by revealing that it is a key factor for teachers both in increasing the integration of computer and in reducing the resistance of computers Watson (1998) affirmed the establishment by revealing that it is a key factor for teachers both in increasing the integration of computer and in reducing the resistance of computers. He said "the teacher is an empty vessel into which

this externally defined innovation must be poured" (Watson, 1998, p. 191). A study conducted in 2003 by Kersaint, Horton, Stohl, and Garofalo revealed that with positive attitudes toward ICT, teachers would have a comfortable feeling when using it and integrating it into their teaching activities. Likewise, Bullock (2004) informed that the attitudes of teachers is a main allowing / disallowing element in technology integration. Ertmer, et al. (2012) cited Marcinkiewicz (1993, p.234) "full integration of computers into the educational system is a distant goal unless there is reconciliation between teachers and computers. To understand how to achieve integration, we need to study teachers and what makes them use ICT". Malagón & Pérez, (2017) informed that the vast majority of teachers perceived that ICT has played important roles for education in general. In some developing countries, the attitudes of teachers toward ICT are also positive. Ndibalema's (2014) conducted research on ICT attitudes of secondary school teachers in Tanzania and Ang'ondi's (2013) research on teachers in Kenya informed the teacher's positive attitudes toward ICT integration in teaching. Likewise, other research in other developing countries also informed teachers' positive attitudes toward ICT (Albirini, 2006 in Syria; Abedalaziz, Jamaluddin, & Leng, 2013 in Malaysia; Al-Zaidiyeen et al., 2010 in Jordania).

2.3. ICT in developing countries and the integration barriers

Providing access to Information and Communication Technology (ICT) comprises many essential elements in education programs of many countries around the world (Thomas & Stratton, 2006). As a result, the educational institutions of many industrialized and developed countries are well-equipped by the government with the facilities to hold technology-mediated teaching and learning (Abedalaziz, Jamaluddin, & Leng, 2013; Balanskat et al., 2006; Chung, 2011). A pan-European academic review informed that ICT have positive impacts, particularly on European countries' primary education (Balanskat et al., 2006). Master plans of ICT for schools (1999–2014) were established and applied by Singapore's Ministry of Education to develop and reform the environment of teaching and learning and equip students with the critical competencies and dispositions to succeed in academic life (Chung, 2011).

Although the integration of ICT has been well-implemented in developed countries, it has also been an integral part in some educational systems of some developing countries (Benzie, 1995; E.Sobaih et al., 2016; Ihmeideh, 2009; Pelgrum, 2001; Rogers, 1995). Some developing countries have experienced the benefits of the integration as an innovative and effective tool for teaching and learning (E.Sobaih et al., 2016). Indonesia as one of developing countries spends 20% of its state budget or $ 34 billion on education. Although the government has spent that big amount of money, many schools in Indonesia are still lack of ICT facilities (Sofwan & Habibi, 2016).

Some barriers informed by research on ICT integration are culture, infrastructure, and human resource (Pelgrum, 2001; Ihmeideh, 2009; E.Sobaih et al., 2016; Aduwa-Ogiegbaen & Iyamu, 2005; Claro, Nussbaum, López, & Contardo, 2017). The educational institution must have been equipped with the facilities to hold ICT-based teaching and learning (Abedalaziz, Jamaluddin, & Leng, 2013 & Chung, 2011). The environment should be appropriate in supporting ICT as the new resource within the school context (Claro, Nussbaum, López, & Contardo, 2017).

3. Methodology
3.1. Research sites and participants

This study aimed at analyzing teachers' attitudes and perceptions toward the integration of ICT in the teaching and

learning process in the schools of Indonesian rural areas and its barriers. We used mix- method study to fulfill the aim of the study (Creswell, 2003; Johnson and Christensen, 2008; Mukminin et al., 2017). The target population of this research covered all high school teachers in Indonesian rural areas in Jambi, one of Indonesian provinces. We used random sampling technique where fifteen high schools were the samples of this research. We evaluated the category of the sampled schools with the help of two population experts (Doctor of Philosophy from Jambi Research and Regional Development Agency, JRRDA).

3.2. Data collection

There were two phases of data collection applied in this study, a survey and two focus group discussions (FGDs). The respondents of this research were 234 teachers for the survey and 23 participants for the FGDs. The first phase was the quantitative phase. In the quantitative phase, we distributed a questionnaire developed in order to have the information required to answer the research questions. Rather than using available instruments, the questionnaire establishment was led and guided by comprehensive review of previous literatures (Woodrow, 1992; Watson, 1998; Kersaint, Horton, Stohl, & Garofalo, 2003; Bullock, 2004; Albirini, 2006; Ertmer et al., 2012; Ang'ondi's, 2013; Ndibalema, 2014; Malagón & Pérez, 2017). The questionnaire instruments were validated by experts from two institutions, Jambi University and JRRDA for content and face validity. Feedbacks from the experts were utilized to assure the appropriateness of the content and context of the study. We refer the ICT to computers and their attributes along with other supporting equipment. Some schools have internet access which is also our concern. In addition, we provide explanation over all terms and condition prior to the questionnaire distribution and the FGDs meetings.

The questionnaire consisted of 16 statements; attitudes toward ICT (5), perceived easiness (6), and perceived usefulness (5). We asked the respondents to respond to each statement represented by a Likert scale, 1 (Strongly Disagree, SD), 2 (Disagree), 3(Neutral), 4 (Agree), 5 (Strongly Agree). The statements were in Indonesian language and translated into English for the elaboration of the data. In the end part of the questionnaire, we provided a question confirming the availability of the respondents to participate in the FGDs, second phase. In the second phase, two FGDs were held in the office meeting of JRRDA for approximately 180 minutes. As previously mentioned, we asked the respondents in the quantitative phase to confirm whether they would like to join the FGDs. As a result, 28 respondents agreed to participate in the FGD sessions. However, only 23 participants could attend the discussion. The discussion aimed at further elaborating the views of the participants to get more in-depth information on the same core strand or dimension as on the questionnaire statements; attitudes toward ICT, perceived easiness, and perceived usefulness. Further, in the FGDs, some barriers to the ICT integration were also revealed.

3.3. Data analysis

The data analysis and elaboration were conducted in two phases, quantitative and qualitative. In the first phase, we performed statistical analysis by involving mean and standard deviation. We further elaborated the data by showing the statistical data and descriptively presented them. In the qualitative phase, we analyzed the data by using an across and between analysis. We analyzed the data with equal manners although the participants' background and experience varied. We computerized the data, printed, read and re-read or examined for connections and redundancies, translated and coded manually, and divided them into themes (Prasojo et al., 2017; Mukiminin, et al., 2017; Habibi et al., 2018). In relation to the research purposes, we focused on the topic related to the questionnaire statements. However, some barriers on the ICT integration were crucial to elaborate. As we discussed the data analysis, we decided to elaborate the barrier and present the result in this paper.

4. Results
4.1. Demographic data

The survey respondents and focus group discussion (FGD) participants in this study were teachers from 15 senior high schools categorized as schools in rural areas from two regions of Indonesia. They were invited to respond to a number of items asking for demographic information and professional history namely gender, age, educational attainment, training on ICT, teaching length of service, and academic position in order to better describe the sample for both the survey and the FGDs. Data from these questions are summarized in the Table below.

Variables	Sub-variable	The respondents (n. 234)	The participants (n. 23) Teacher 1 (T1)- Teacher (T23)
		F (%)	F (%)
Gender	Male	73 (31.2%)	7 (30.4 %)
	Female	161 (68.8%)	16 (69.6%)
Age	20-29 Years	23 (10.3%)	6 (26.1%)
	30-39 Years	72 (30.3%)	7 (30.4%)
	40-49 Years	101 (43.2%)	8 (34.8%)
	50 Years and above	38 (16.2%)	2 (8.7%)
Educational attainment	Lower than bachelors' degree	0 (0%)	0 (0%)
	Bachelor's degree	218 (84.6%)	19 (82.6%)
	Master's degree	16 (15.4%)	4 (17.4%)
Training on ICT	No training	212 (90.65)	12 (52.2%)
	1-2	20 (59.4)	11 (47.8%)
	3-4	2 (0.85%)	0 (0%)
Length of service (Years)	1-10 Years	50 (20.1)	8 (34.8%)
	11-20 Years	77 (49.1)	7 (30.4%)
	21-30 Years	86 (36.8)	7 (30.4%)
	31-40 Years	21 (9%)	1 (4.3%)
Academic position/rank	Government official teachers	208 (88.9)	20 (87%)
	Part time teachers	26 (11.1%)	3 (13%)

Table 1. Participant demographic data

4.2. Attitudes

Mean of the statements from each item varies from low (2.66) to moderate (3.45). The mean of item 4 and 5 with the statements "I like the idea of ICT integration" and "I want to learn more to integrate" was above 3 (item 4; mean= 3.23; SD= 0.921) and (item 5; mean=3.45, SD=0.873). However, the mean of item 1, 2, and 3 with statements "Teaching and learning are more fun with the use of ICT", "Using ICT does not intimidate me", and "Working with ICT comforts me" are under 3 (item 1; mean 2.70; SD=0.990). The combined mean for this part was 3.25.

Item	Statements	n	M	Std. Deviation
	Teaching and learning are more fun with the use of ICT	233	3.21	0.990
	Using ICT does not intimidate me	233	2.66	1.121
	Working with ICT comforts me	234	2.67	1.121
	I like the idea of ICT integration	232	3.73	0.821
	I want to learn more to integrate ICT in class.	234	4.01	0.792
Combined mean			3.25	

Table 2. Attitudes

The participants in the group discussion were asked similar topics as the survey items. For the attitude, the majority of the participants stated that they agreed with the ICT integration and wanted to learn more. However, they felt intimidated by the integration due to lack of experience and skill. These quotations represent their opinions:

❑ I couldn't agree more with the idea of ICT integration in education. The world changes and everyone on this age has been connected with the ICT and the students are digital natives. So, I want to learn more to adapt although I am 46. (T20, 46)

❑ It is right that we agree on the integration of ICT in education. However, I assume that many teachers have the same experience as I have. We felt threatened and intimidated with that because we have limitations in terms of skills and experience. Hope the authorities keep their eyes open on the problems, especially with teachers working in rural areas. (T18, 42)

4.3. Perceived Easiness

All responses for the perceived easiness of ICT integration in teaching and learning process are low ranging from 2.48 to 2.63. The mean score of the statement; "ICT is easy to use" (mean= 2.63; SD 1.105), "ICT interaction is clear and comprehensible" (mean= 2.67, SD= 1.105), "access to ICT is not complicated" (mean= 2.57, SD= 1.058), "interacting with ICT does not need a lot of effort" (mean 2.48; SD= 1.106), "I am confident when I teach using ICT" (mean= 2.51; SD= 1.141), and "Learning ICT does not make much effort" (mean= 2.52; SD= 1.099).

Item	Statements	n	M	Std. Dev.
1.	ICT is easy to use	234	2.63	1.085
2.	ICT interaction is clear and comprehensible	234	2.67	1.105
3.	Access to ICT is not complicated	234	2.57	1.058
4.	Interacting with ICT does not need a lot of effort	233	2.48	1.106
5.	I am confident when I teach using ICT	234	2.51	1.141
6.	Learning ICT does not make much effort	233	2.52	1.099
Combined mean			2.56	

Table 3. Perceived Easiness

Responding to the questions concerning the perceived easiness in using ICT in the teaching and learning process, the participants of the group discussion session informed similar results as the survey revealed. Their concerns are likely on their self-efficacy, skill and experience, and infrastructure. The following thematic quotations are representative of the views expressed in the FGDs:

❑ Computer and its supporting tools are not easy to use. As a senior teacher, I have many weaknesses on operating the tools. (T23, 57)

❑ Of the use of ICT, computer and other tools, I don't have any sufficient skills and experience regarding the use of it in the teaching and learning process. They [the government] should concern on these matters by providing training and workshops on ICT. (T17, 45)

❑ The school is far away from the city center causing lack of the effectiveness of ICT integration. Electric stability, lack of

ICT facility, and cost are the main things that should be considered. I am bit frustrated with this infrastructure. (T4, 37)

However, some comments from the young-aged participants expressed the perceived easiness of using ICT in positive ways. Some of the comments relating to self-efficacy, skill, and experience are presented in some of these quotations:

❑ I have some different opinions regarding to the use of ICT. Computer, for example, is easy to use and very important to make things more efficient and I believe that I can learn new things from the use of ICT. (T1, 24)

❑ As a young teacher and fresh graduate, I am accustomed to using all ICT stuffs like internet, computer, printing machine, and projector. There is no problem at all using those tools. (T3, 25)

4.4. Perceived Usefulness

Even though most respondents in the survey disagreed with the statement in the perceived easiness of ICT use, they had positive responses to the usefulness of ICT for the teaching and learning process. The means ranged from 3.63 to 4.05. The mean of the first statement "ICT improve the effectiveness of teaching and learning" was 3.75 (SD= 0.943). The mean of the second statement "ICT improve the productivity of teaching and learning" was 3.86 (SD= 1.289). The mean of the statement "ICT save more time" was 3.61 (0.388). The mean of the fourth statement was 4.05 (SD= 0.820). The mean of the fifth statement "ICT improve student learning in general" was 4.04 (SD= 0.828).

Item	Statement	N	M	Std.
1.	ICT improve the effectiveness of teaching and learning	234	3.75	0.934
2.	ICT improve the productivity of teaching and learning	233	3.86	1.289
3.	ICT save more time	234	3.61	0.833
4.	ICT help me learn new things	232	4.05	0.820
5.	ICT improve student learning in general	232	4.04	0.828
Combined mean			3.86	

Table 4. Perceived usefulness of ICT

In the group discussion, the participants were asked about their perceived usefulness of ICT in education. The responses revealed by the participants are similar to the result of the survey. Some participants informed that ICT can be a factor supporting the teaching and learning process in terms of time efficiency, teaching and learning effectiveness, and productivity improvement. Three participants had their opinions and thoughts:

❑ Although I don't have good skills in using computer, projector, and other supporting tools, I believe that those can improve the effectiveness of the teaching and learning process due to their function and usefulness. (T19, 45)

❑ I have children at home who use computer and smartphone on daily basis. Being in digital era, all tools have been penetrating to all areas including our area the students will surely improve their productivity in learning. (T15, 42)

❑ Even though, our school in a rural area, internet access is accessible in some parts of the area. I think all students have a smartphone and the situation help us make the teaching and learning more efficient through the use of internet to look for information. (T5, 28)

5. Discussion

The study was aimed to answer two guiding questions; (1) what are the attitudes and perceptions of high school teachers in Indonesian rural areas toward the integration of ICT in education? (2) what barriers are found in the ICT integration? Overall, the findings of qualitative data supported the findings of quantitative data. The findings of the study are consistent with

the findings of some previous studies (Davis, Bagozzi, & Warshaw, 1989; Hu et al., 2003; Yang & Kwok, 2017) where perceived easiness and usefulness of ICT integration are the important factors determining the attitude toward ICT integration.

The low mean score of the perceived easiness of ICT corroborated with the two attitudes statements in the survey ("Using ICT does not intimidate me" & "Working with ICT comforts me"). Meanwhile, the mean score of the perceived usefulness of ICT in education corroborated with the other three attitude statements ("I like the idea of ICT integration" & "I want to learn more to integrate ICT in class"). These findings indicate that even though most teachers agree with the usefulness of ICT to support teaching and learning process in education, they have lack of skills of ICT use and feel intimidated by the integration. The perceived usefulness include time efficiency, teaching and learning effectiveness, and productivity improvement which reflects the findings from Srivastava et al., (2014), Barak and Ziv (2013) Shroff, Deneen, and Ng (2011), Edmunds, Thorpe, and Conole (2012).

The perceived usefulness of ICT in education have been supported by many researchers (Al-Ruz & Khasawneh, 2011; Baylor & Ritchie, 2002; Fu, 2013; Haji, Moluayonge, & Park, 2017; Lin, Wang, & Lin, 2012; Srivastava et al., 2014; Yang, & Kwok, 2017). Similarly, the verbatim results of these study qualitative data show similar findings where the majority of the participants agreed on the positive uses of the ICT in education. One of the participants stated that although he had no good skills in using a computer, projector, and other supporting tools, he believed that those would improve the effectiveness of the teaching and learning process due to their function and usefulness. From the group discussion, it is further revealed that some of the participants working in schools of Indonesian rural areas have has access to the internet as part of Information and Communication Technology in some spots of the areas to support a better educational system (Aduwa-Ogiegbaen & Iyamu, 2005; Bullock, 2004; Kersaint, Horton, Stohl, & Garofalo, 2003; Pelgrum, 2001).

The barriers informed in the group discussion including teachers' skills and experience. T 17 said in the discussion that he did not have any sufficient skills and experience regarding the use of ICT in the teaching and learning process and suggested the government should have more concern. Schools' electric stability, lack of ICT facility, cost were also mentioned which represented by one of the participant's statements "Electric stability, lack of ICT facility, and cost are the main things that should be considered. I am a bit frustrated with this infrastructure". The findings on the barriers of ICT integration are consistent with the previous studies (Pelgrum, 2001; Ihmeideh, 2009; E.Sobaih et al., 2016; Aduwa-Ogiegbaen & Iyamu, 2005; Claro, Nussbaum, López, & Contardo, 2017).

6. Conclusion and Policy Implications

Indonesian authorities should evaluate their policy on ICT integration in schools located in rural areas. Even though the vast majority of the teachers of these schools had positive attitude and perception on the usefulness of ICT, they informed that they had barriers in using ICT especially senior teachers. Therefore, they suggested the authority to provide teachers with sufficient facilities, supporting cost, and eligible training. ICT integration in education is unavoidable even for the schools in rural areas since the rapid development and penetration of technological devices have been significant not only in big cities but also in rural areas.

ICT integration in education delivers a dynamic environment in the teaching and learning process. Many countries invested in the ICT to improve their quality of education. Teachers are the central figure that will determine the success of ICT integration in the schools. Attention to the teachers on the field should be brought to practice and research. Evaluation, analysis, and development should be maintained in order to keep the integration on the tracks. In addition, training, conferences, seminars, and workshops are should be held to improve teachers' skills and experience for the betterment of IC integration. The concentration of both acts should be balanced in terms of areas, schools in cities and rural areas.

In the present study, we exposed the attitudes and perceptions of high school teachers in Indonesian rural areas toward the integration of ICT in education and the barriers are on the ICT integration. In general, the teachers in this research agreed with the usefulness of ICT. However, they had negative attitudes and perceptions on the perceived easiness of ICT. Those factors influenced the attitudes toward the ICT integration. The barriers informed in this research are also important to understand. Teachers' skills and experience as well as schools' electric stability, lack of ICT facility, cost are things that should be overcome by all stakeholders; schools, teachers, student parents, and especially the Indonesian educational authority.

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Corporate Social Responsibility and Corporate Value: Evidence from an Emerging Economy, Indonesia

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Abstract

The main aim of this study is to examine the relationship between corporate social responsibility (CSR), ownership structure and corporate value. More specifically, this study aims to investigate how (a) CSR influences corporate value, (b) ownership structure influences corporate value, (c) ownership structure influences CSR, and (d) CSR mediates the relationship between ownership structure and corporate value. Using multilevel data collected from financial service companies from Indonesia Stock Exchange over the period 2013 – 2016, the findings reveal that CSR mediates the relationship between ownership structure and corporate value. In other words, ownership structure promotes CSR, which in turn, increases corporate value.

Keywords: corporate social responsibility; ownership structure; corporate value.

1. Introduction

The main goal of the corporation is to maximize shareholder prosperity or maximize the corporate value (Azeem Qureshi, 2007; Hersugondo & Udin, 2019; Salvatore, 2005). This can be done by implementing business activities in the social and environmental fields, such as corporate social responsibility (CSR).

CSR has taken a lot of attention from many researchers, academics and business practitioners. CSR is defined as an integrated corporate responsibility that includes the economic, legal, ethical, and discretionary expectations of the organizational community (Carroll & Shabana, 2010). Such importance of CSR, since 2007, the Indonesian government issued a regulation to encourage companies to implement CSR contained in Law No. 40 of 2007, asserts that "*the corporate which carries out its business activities in the field related to natural resources has to carry out to social and environmental responsibilities*".

On one hand, this study furthermore is based on the gap findings between ownership structures and corporate value. Khan, Ullah, and Shah (2012); Mandacı and Gumus (2010); and Young (2011) concluded that ownership structure has a positive effect on corporate value, while Majeed, Aziz, and Saleem (2015); and Wahba and Elsayed (2015) in contrast concluded that ownership structure has a negative effect on corporate value. In line with the findings of López-Iturriaga and Crisóstomo (2010) and Selarka (2005) which concluded that there was a non-linear relationship between ownership concentration and corporate value.

On the other hand, there is a little study that examines the extent to which the role of ownership structures is able to explain CSR (Barnea & Rubin, 2010). In particular, because different owners may have different objectives and decision-making horizons (Ilmi, Kustono, & Sayekti, 2017; Young, 2011), it is very important to study the relationship between different types of owners and CSR. The high expenditure for CSR is considered to reduce the corporation's profits. Because of the control possessed by the principal, the ownership structure by some researchers is believed to be able to influence the course of the corporate, which in turn affects the corporate's social responsibility program in maximizing the corporate's value (Buchanan, Cao, & Chen, 2018; Wang, Song, & Yao, 2013).

2. Literature Review
2.1. Agency Theory

The agency theory describes the cooperative relationship between principal and agent, where the authority of the principal delegates to the agent to manage the corporate and make decisions (Jensen & Meckling, 1976). The agency theory suggests that among the principal and the agent have different interests. From the interests of each other, it creates a conflict which called "agency conflict". Ownership structure is one aspect of corporate governance, which is seen as an appropriate control mechanism to reduce agency conflict because it can improve the monitoring process within the corporate (Mohd Ghazali, 2007).

2.2. Stakeholder Theory

The stakeholder theory asserts that the corporation is not an entity that only operates for its own sake, but also has to provide benefits to its stakeholders. Based on this theory, it can be seen that stakeholders cannot be separated from the social environment, which if the stakeholders bring bad influence will also have a bad impact on CSR information disclosure to the corporate, which in turn affects the bad value of the corporate in the eyes of investors and the public. Hussainey, Elsayed, and Razik (2011) said that corporate activities can cause social and environmental impacts so that the practice of social and environmental disclosure is a managerial tool used by companies to avoid social and environmental conflicts.

2.3. Foreign Ownership

Foreign ownership is the percentage of share ownership by foreign investors. According to Indonesian Law No. 25 of 2007,

foreign ownership is an individual of a foreign national, foreign business entity, and a foreign government that invests in the territory of the Republic of Indonesia (Jamali, Sutrisno, Subekti, & Assih, 2017).

2.4. Institutional Ownership

Institutional ownership is the ownership of shares of companies that are majority owned by institutions or institutions such as companies, insurance, banks, investment companies, asset management and other institutional ownership. Institutional ownership is the largest shareholder so that it is a means of monitoring management (Khan et al., 2012).

2.5. Public Ownership

Ownership of public shares is the proportion of share ownership held by the public/community to the corporation's shares. The public itself is an individual or institution that has a shared ownership of less than 5% which is outside the management and does not have a special relationship with the corporate (Giannarakis, Konteos, Zafeiriou, & Partalidou, 2018).

2.6. Corporate Value and CSR

Corporate value is an important indicator that shows the welfare of stakeholders in the corporate. Every corporate established wants the stock price to be sold to have high price potential. This will be in demand by investors because with increasing stock demand, the value of the corporate will also increase.

CSR is one of the signals given by the corporate to investors and is the corporate's commitment to contribute to sustainable economic development by paying attention to corporate social responsibility and focusing on the balance between attention to economic, social and environmental aspects (Carroll & Shabana, 2010). The more forms of accountability that the corporation does to its environment, the more the corporate image becomes. Investors are more interested in companies that have a good image in the community because of the better corporate image, higher customer loyalty so that in a long time the corporate's sales will improve and the corporate's profitability also increases. If the corporate run smoothly, then the corporation's stock value will continue to increase (Habbash, 2015).

3. Hypotheses Development

Corporate value is often associated with stock prices. If the corporation's stock price is high, then the value of the corporation is also good. Therefore, companies need to do CSR disclosures so that investors are interested in making decisions for investment. This idea is supported by the results of Susanti, Fenny, and Rini (2012) who found a positive and significant influence between CSR and corporate value.

According to Dagiliene (2010), high institutional ownership will lead to greater oversight of social activities by institutional investors. This is supported by research by Young (2011) which found a positive and significant influence between institutional ownership on CSR. Neither the public ownership nor the community with large public ownership in a corporate will make the corporate carry out more social responsibility activities. This statement is supported by the results of research by Young (2011) and Majeed et al. (2015) who found a positive and significant influence between public ownership of CSR.

High stock prices also make the corporate's value high. Multinational companies have the ability to increase higher stock prices compared to national companies. Therefore, foreign ownership is considered to be able to influence the value of the corporate, such as research conducted by Jamali et al. (2017) and Khan et al. (2012) which indicates a significant influence.

Likewise with institutional ownership and public ownership which also has an influence on the value of the corporate. High institutional ownership in the corporate provides supervision and monitoring within the corporation so as to minimize fraud and deviant actions from the corporate. This caused the corporate's operational activities to run smoothly, making good corporate names, thus impacting the corporate's good value.

The same is true for public ownership where the value of the corporation is closely related to the good image of the corporation so that with a high public ownership of the corporate, the value of the corporate will also be good. Young (2011) explained that CSR is thought to be able to show an indirect relationship between ownership structure and corporate value because, through the ownership structure, shareholders can ask the corporate's management to do and disclose its CSR activities in order to gain legitimacy and corporate value. Based on these perspectives, the hypotheses proposed in this study are as follows.

H1: CSR has a positive influence on corporate value.
H2: Foreign ownership has a positive influence on CSR.
H3: Institutional ownership has a positive influence on CSR.
H4: Public ownership has a positive influence on CSR.
H5: Foreign ownership has a positive influence on corporate value.
H6: Institutional ownership has a positive influence on corporate value.
H7: Public ownership has a positive influence on corporate value.
H8: CSR mediates the relationship between foreign ownership and corporate value.
H9: CSR mediates the relationship between institutional ownership and corporate value.
H10: CSR mediates the relationship between public ownership and corporate value.

4. Materials and Methods
4.1. Population and Sample

The population used in this study are all financial service companies from Indonesia Stock Exchange over the period 2013 – 2016. By using purposive sampling, 130 financial service companies is determined as samples. The purposive sampling criteria used in this study are as follows: (1) Financial service companies from Indonesia Stock Exchange over the period 2013 – 2016; (2) Financial services companies that publish complete annual reports on the Indonesia Stock Exchange over the period 2013 – 2016; and (3) The corporate has complete data during the period 2013-2016 which relates to the variables used in the study, namely the value of the corporate, foreign ownership, institutional ownership, public ownership, and specifically the amount of CSR expenditure.

4.2. Measurement

Ownership structures are measured by foreign ownership, institutional ownership, and public ownership. Furthermore, foreign ownership is measured by the percentage of share ownership by foreign investors which is seen in the corporate's annual report with the number of shares outstanding. Institutional ownership is measured by the percentage of share ownership by the institution as seen from the corporate's annual report with the number of shares outstanding. Public ownership is measured by the percentage of public shareholding seen from the corporate's annual report with the number of shares outstanding.

CSR is measured by using the total budget used for CSR activities. Corporate value is measured using DER (D / E Ratio) and PBV (Price to BV). DER is measured by the ratio between total debt and equity. While PBV is measured by Market Price

Per Share with Book Value per Share.

2. Results

Table 1 describes descriptive statistics and correlations among variables. This table shows that the correlation among variables is in the expected direction.

Variables	N	Minimum	Maximum	Mean	Std. Dev
PBV	130	0.10	11.21	1.63	1.69
DER	130	0.07	23.74	5.16	3.65
CSR	130	12,000,000	131,624,737,414	10,474,103,841	24,007,470,330
Forgn_Own	130	0.00	85.10	14.63	22.52
Ints_Own	130	0.00	99.997	46.61	32.91
Public_Own	130	0.00	80.83	22.91	18.28

Table 1. Descriptive statistic among variables

Based on Table 1 shows that the PBV variable has a minimum value of 0.10 and a maximum value of 11.21 with an average PBV of 1.63. This identifies that the average corporate has a high PBV level of 1.63% and the average number means more than one (1.00), which if the PBV value is more than one (1.00) then the value the corporate is said to be good.

The minimum DER value is 0.07 and a maximum of 23.74 with an average of 5.16. This means that the average debt owned by the corporate is 5.16% so that shareholders or investors need to be careful and must be careful in seeing the DER in the corporate. If the DER is more than one, it will interfere with the corporate's performance which will also interfere with the growth of stock prices which will lead to the bad value of the corporate.

The minimum value of CSR is IDR 12,000,000 and maximum value is IDR 131,624,737,414 – with an average of IDR 10,474,103,841. This means that the average CRS costs incurred by the corporate in disclosing corporate social responsibility activities are Rp. 10,474,103,841.

The minimum value of Forgn_Own (foreign ownership) is 0.00 and the maximum value is 85.10 with an average of 14.63. This means that the average share owned by foreign investors is 14.6%.

The minimum value of Ints_Own (institutional ownership) is 0.00 and the maximum value is 99.997 with an average of 46.61. This means that shares owned by the institution are companies or other institutions amounting to 46.6%.

The minimum value of Public_Own (public ownership) is 0.00 and the maximum value is 80.83 with an average of 1.61. This means that the ownership of shares owned by the community is 1.6%.
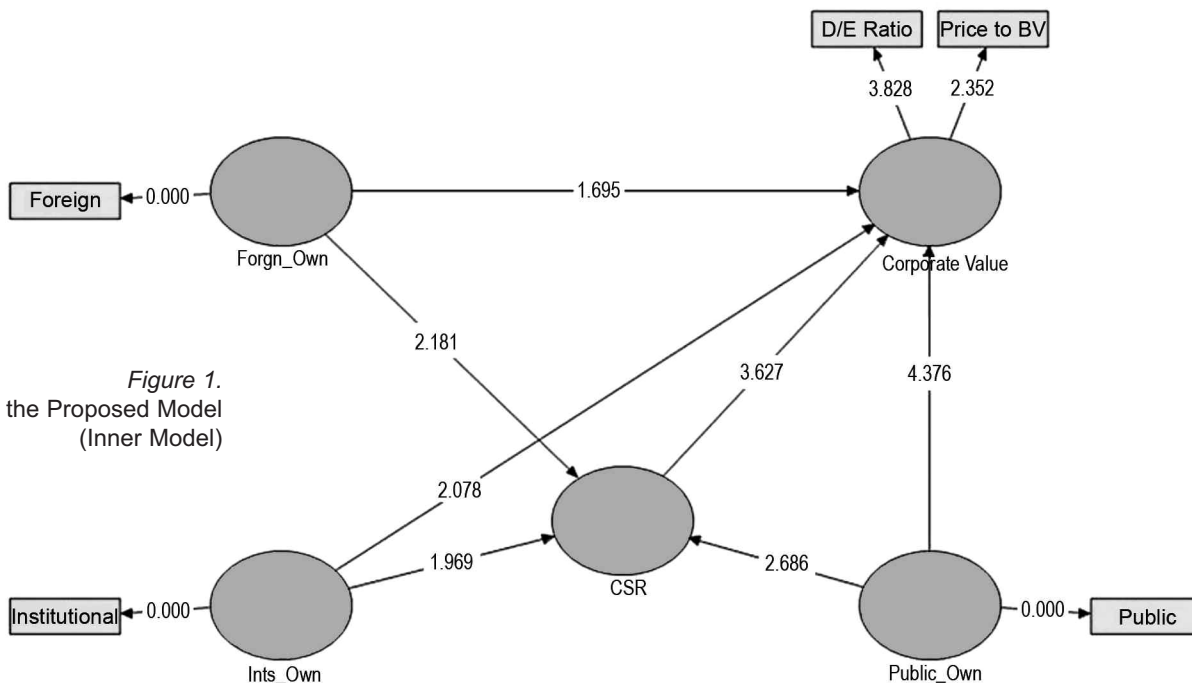
Figure 1.
Results of the Proposed Model
(Inner Model)

	Original Sample	T Statistics	P Values
CSR -> Corporate Value	0.307	3.627	0.000
Forgn_Own -> CSR	0.182	2.181	0.015
Forgn_Own -> Corporate Value	-0.132	1.695	0.045
Ints_Own -> CSR	0.188	1.969	0.024
Ints_Own -> Corporate Value	-0.265	2.078	0.019
Public_Own -> CSR	0.257	2.686	0.004
Public_Own -> Corporate Value	-0.506	4.376	0.000

Table 2. Path Coefficients

	Original Sample	T Statistics	P Values
Forgn_Own -> Corporate Value	0.056	1.806	0.035
Ints_Own -> Corporate Value	0.058	1.654	0.049
Public_Own -> Corporate Value	0.079	2.115	0.017

Table 3. Indirect Effects

Based on the output of the inner model, it can be concluded as follows:

1. **H1**: CSR has a positive influence on the corporate value
    The results of the analysis can be seen that the calculated value of 3.627 > t table is 1.960 and the significance level of CSR variables is 0.000 < significance level of 5%, so it can be concluded that CSR has a positive influence on corporate value.
2. **H2**: Foreign ownership has a positive influence on CSR
    The results of the analysis can be seen that the value of t arithmetic is 2.181 > t table of 1.960 and the significance level (p-values) of the Forgn_Own variable is 0.015 < significance level of 5%, so it can be concluded that foreign ownership has a positive influence on CSR.
3. **H3**: Institutional ownership has a positive influence on CSR
    The analysis results can be seen that the value of t arithmetic is 1.969 > t table is 1.960 and the significance level of Ints_Own variable is 0.024 < 5% significance level, so it can be concluded that institutional ownership has a positive influence on CSR.
4. **H4**: Public ownership has a positive influence on CSR
    The analysis results can be seen that the calculated value of

2.686 > t table is 1.960 and the significance level of the Public_Own variable is 0.004 < 5% significance level, so it can be concluded that public ownership has a positive influence on CSR.

5. **H5**: Foreign ownership has a positive influence on corporate value

   The results of the analysis can be seen that the calculated value of 1.695 < t table is 1.960 and the significant level of the Forgn_Own variable is 0.045 < significance level of 5%, so it can be concluded that foreign ownership has a positive influence on corporate value.

6. **H6**: Institutional ownership has a positive influence on corporate value

   The results of the analysis can be seen that the t value of 2.078 > t table is 1.960 and the significance level of the variable Ints_Own is 0.019 < 5% significance level, it can be concluded that institutional ownership has a positive influence on corporate value.

7. **H7**: Public ownership has a positive influence on corporate value

   The analysis results can be seen that the value of t is equal to 4.376 > t table of 1.960 and the significance level of the Public_Own variable is 0.000 < significance level of 5%, so it can be concluded that public ownership has a positive influence on corporate value.

8. **H8**: CSR mediates the relationship between foreign ownership and corporate value

   The analysis results can be seen that the calculated value of 1.086 < t table is 1.960 and the Forgn_Own variable significance level for indirect effects is 0.035 < 5% significance level, so it can be concluded that CSR mediates the relationship between foreign ownership and corporate value.

9. **H9**: CSR mediates the relationship between institutional ownership and corporate value

   The results of the analysis can be seen that the value of t arithmetic is 1.654 < t table of 1.960 and the significance level of the Ints_Own on corproarte value is 0.049 < 5% significance level, so it can be concluded that CSR mediates the relationship between institutional ownership and corporate value.

10. **H10**: CSR mediates the relationship between public ownership and corporate value

    The analysis results can be seen that the value of t is 2.115 > t table of 1.960 and the significance level of the Public_Own on corporate value is 0.017 < 5% significance level, so it can be concluded that CSR mediates the relationship between public ownership and corporate value.

	R-square
CSR	0.201
Corporate Value	0.001

Table 4. R-square

Table 4 shows that the R-square of CSR is 0.201, and corporate value is 0.001. These results indicate that 20.1% of CSR can be influenced by ownership structure and 79.9% is influenced by other variables. Furthermore, 1% of corporate value is influenced by CSR and 99% is influenced by other variables.

6. Discussions

The test results obtained that CSR has a positive influence on the corporate value. This shows that the greater the expenditure and disclosure of CSR, the corporate value will increase. With the implementation of CSR activities, it can signal investors or potential investors that the corporate has high social and environmental concerns. These findings are consistent with the research of Buchanan et al. (2018); Susanti et al. (2012) and (Young, 2011) which found a positive and significant relationship between CSR and corporate value.

The test results obtained that foreign ownership has a positive influence on CSR. This positive influence shows that the higher the shares owned by investors or foreign agencies in the corporate, the greater the disclosure of CSR activities. This can happen because foreign investors in choosing companies tend to choose companies that have a long-term strategy. CSR is a long-term strategy implemented by companies, especially financial services companies. That is why companies that have ownership by foreign investors will be encouraged to disclose CSR activities. This research is in line with the research conducted by Habbash (2015) and Rahim (2013) which shows that foreign ownership has a positive and significant effect on CSR.

The test results obtained that institutional ownership has a positive influence on CSR. This positive influence shows that the higher the value of shares owned by the institution, the greater expenditure for CSR activities because CSR is one of the corporation's activities monitored by institutional shareholders. In making decisions to buy shares, companies will choose to buy shares or invest in companies that have a good reputation and corporate value. By carrying out CSR activities, the corporate can create a good image and reputation of the corporation so that it creates good corporate value. This research is consistent with Young (2011) who found a significant positive relationship between institutional ownership and CSR.

The test results obtained that foreign ownership has a positive influence on corporate value. This shows that the greater the shares owned by foreign investors in a corporate, the better the value of the corporate. This can happen because the presence of share ownership by foreign investors in a corporation will make the corporate's performance better because there will be technology transfer and it can also transfer experts. With the transfer of technology and the possibility of transfer of experts will make all the needs of the corporate fulfilled. Therefore, with the transfer of technology due to the large foreign ownership of a corporation, the operations and management of the corporate will run smoothly so that it will increase the value of the corporate.

Increasing corporate value is one of the corporate's strategies for long-term orientation in addition to disclosing CSR activities. The corporate's strategy for the long term is one of the reasons for foreign investors to consider before choosing a corporate for investment. That is why companies with high foreign ownership will have good corporate value, especially foreign investors from high-class categories that have high per capita income, such as European and American countries. These findings are consistent with research conducted by Hersugondo and Udin (2019); (Jamali et al., 2017) and Khan et al. (2012) who found a positive and significant relationship between foreign ownership and corporate value.

The test results obtained that institutional ownership has a positive influence on corporate value. This shows that the greater the number of shares owned by the institution in the corporate, the corporate value will increase. Because in determining the place to invest, far away institutional investors have more mature abilities because they have complete information compared to individuals so that institutions are much smarter in determining where to invest, and the institution is far more experienced in making investment decisions than individuals. Therefore, companies that have share ownership in the institution are definitely companies that have good corporate value, but with greater ownership will be able to increase the value of the corporate more better.

2. Conclusion and Recommendation

The conclusion of this study confirms that CSR has a positive influence on corporate value in the financial service companies from Indonesia Stock Exchange over the period 2013 – 2016. This means that CSR determines good corporate value.

This study provides recommendations for companies and investors, that is for companies that want to maximize the value of the corporate, they should offer their shares to foreign investors. As for investors, you should choose the shares of companies that have high foreign ownership, especially foreign ownership with the category of advanced or high-class countries with high per capita income such as countries in Europe and America.

The suggestions in this study are as follows: (1) Future research needs to consider the fundamental variables that have not been examined in this study, such as government ownership, managerial ownership, other ownership and corporate performance; (2) Future research needs to be carried out in a different case study or broader such as publicly listed companies or manufacturing companies listed on the Indonesia Stock Exchange, in order to obtain a larger sample; and (3) Future research needs to make the cluster for the use of variables of foreign ownership and institutional ownership.

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The Role of Team Building Training on Team Cohesiveness and Organizational Commitment in an International Manufacturer in Central Java

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Abstract

Team building training is one form of organizational intervention in managing team performance among its members. Good team-building training is marked by the achievement of an organization in forming a solid team. Team integrity is then predicted to have a positive influence on employee commitment to work and to the organization. The purpose of this study was to determine whether team building training influenced team cohesiveness, and employee commitment to work and to the organization. In addition, the team's mediation role is also traced to the influence between team building training and both types of commitment. As an additional analysis, this study also explores differences in team cohesion, commitment to work, and organizational commitment to employees who have participated in team building training, and who have not participated in similar training. The study was conducted on a number of 55 employees at an international company located in Kudus, Central Java, Indonesia. The results showed that the training of team building as independent variable does have an effect on the commitment of employees to their work and to the organization. However, the hypothesis that team building training influenced team cohorts did not seem to be supported in this study. Then, the hypothesis that defines the differences between employees who have never been to and have not participated in team building training is also not fully supported.

Keywords: team building training; job commitment; organizational commitment; group attachment.

1. Introduction

It is hard to be denied that the productivity and profitability of a company is closely tied to how employees are able to work together, so it takes the company's effort in building teamwork (George, 1987; Wahyuni & Ginting, 2017). In building good teamwork, a process is needed where members can learn to illustrate goals, priority issues, roles in groups, and building communication skills (Amadei & Wade, 1996). Employees working in a team need to have the same views on the things that are related to their work. To build teamwork requires a development process that can be done through team building training (Senécal et al., 008). Training is interpreted as a systematic approach in the learning and development efforts of individual, team, and organizational effectiveness (Goldstein & Ford, 2002). To be effective, a company's training must be targeted, using efficient methods (Holleran, 1997). What is then needed in team building training is a clear flow between inputs (team structure and environment), processes (teamwork dynamics), and integrated team output (Carron & Spink, 1993; Senécal et al., 2008) .

When the dynamics of cooperation has been successfully developed in a team, then it will form a team cohesiveness (Senécal et al., 2008). Team cohesion is a condition where a team is always together and remain united in achieving things that can satisfy each of its members affective (Carron et al., 1998; Senécal et al., 2008; Budiharseno, 2017; Kurniawan, 2017). In addition, if a team-building exercise is done properly and coherence of the team can create it also leads to outcomes other positive for the organization, such as team performance (Cohen & Bailey, 1997), and commitment (Wech et al., 1998).

As team cohesion can bind any member to loyal (Wang et al., 2006), the sense of togetherness that appears predicted to affect the commitment of each member on the job and the organization.

Thus, it is interesting to explore further the effect of these variables. In addition to the influence among the variables that have been described above, there is one more research gap that tried to be revealed in this study related to the procurement of training of team building by the organization. Team building training is one form of management intervention of an organization in managing its employees (Porras & Berg, 1978). Some researchers argue that a team-building exercise as an effective way to do the organization to form a solid team (George, 1987; Holleran, 1997; Senécal et al., 2008). However, team-building exercise influence on overall team performance requires a more detailed search (Salas et al., 1999). To answer the gap, this study further analyzes how the differences between employees have attended a team building training program, with those who have never participated in similar activities.

2. Literature Review and Hypothesis Formulation

2.1. Team building training and team cohesiveness

Generally, the team is understood as a group of people with the same focus and purpose (Dent, 2000; Hughes et al., 2012). Similar to individual performance, team performance is a vital determinant, and is often used as an indicator of organizational outcomes (Stashevsky & Koslowsky, 2006). Some conditions that determine the effectiveness of a team according to Dent

(2000) include having clear objectives, proper leadership, appropriate membership, team commitment, supportive team climate, working standards and techniques, and willingness to learn. Building teamwork has long been an important thing to be considered by the organization (George, 1987; Senécal et al., 2008; Eameaim et al., 2009), and forming a solid team is regarded as one good strategy in the face of competition (Chiocchio & Essiembre, 2009).

However, building a compact team is not an easy thing to do, especially without the help of the company management. It takes a process for members to learn to equalize goals, identify issues and roles in teams, and build communication skills (Amadei & Wade, 1996). This process can be attempted by the organization to occur through team building training programs. Team-building exercise is one of the organizations as a form of intervention purposively aimed to help build cooperation in a team. There is a process in which the members are involved in building the capabilities and perceptions together and effectively (Salas et al., 1999). As the provision of training should be directed toward clear objectives with effective methods, team building training should also contain the processes needed to build a good and solid team.

Good team-building training can lead to a coherent team, also called team cohesiveness. Team cohesiveness is understood as a dynamic process in which a team has a tendency to always be together to achieve goals that can satisfy each of its members (Carron et al., 1998; Senécal et al., 2008). Team cohesiveness can be formed when a team has reached a high level of commitment among each other in achieving the team's goals (Thompson et al., 2015). If the company successfully implements a team building training program effectively, employees who follow the training program are believed to be able to work together and deal with complex situations. Based on the explanation, the following hypothesis is formulated:

Hypothesis 1: Team building training has a positive effect on team cohesiveness.

2.2. Team building training, job commitment and organizational commitment

Team-building training is a form of intervention by the company, in order to motivate employees to be able to work in a team (Klein et al., 2009; Heinemann et al., 2018). The main objective is to form a team that is compact and effective at work, so it will have a positive impact on the organization's output. One expected outcome of team building training is the formation of commitment for team members. Commitment in organizing is a psychological construct between members of the organization and its organization that reflects the alignment and determines the individual's decision to continue membership in the organization (Allen & Meyer, 1993; Robbins, 2005). In the context of the team, commitment can mean the attachment and alignment of team members to the team.

In each of the dynamics that occur in a team, there are processes that involve collaboration, communication, interpersonal interests in common, and positive feelings between each member of the group (Wech et al., 1998). This is due to the routine of each group member in working on a joint work. If the company managed to facilitate the training of team building well, then the team dynamics in cooperation would be better. Positive feeling in the team, such as encouraging each other, providing good information and communication smoothly, helps the team to function properly (George & Brief, 1992; Pudjiarti & Suharnomo, 2018), and motivates members to like jobs that run together (Beal et al., 2003). Thus, it is not surprising when the team is well established through training provided by organization, its members also can have a good attachment to the work being carried out (Beal et al., 2003). Training will increase motivation and a sense of empowerment for team members, so they will actively commit to the tasks assigned to them, thereby ultimately affecting the organizational commitment (Chelliah et al., 2016)

In addition to being attached to the work being carried out, team building training is also predicted to have an effect on organizational commitment. Organizational commitment reflects the degree to which employees believe in organizational goals and want to achieve organizational goals (Mowday et al., 1979). Based on this definition, it is understood that to build organizational commitment requires sustained intervention to be done by the organization, in order to instill trust in its employees. These interventions can be done through training, because the training contains elements of participation, as measured by frequency, duration, and access (Geethalakshmi et al., 2018). Being associated with a team, some researchers agree that the team is an important part in the organization, and is the medium for the organization to face the competition (Buller, 1986; Kozlowski et al., 2015; Neininger et al., 2010). The effectiveness and the quality of team performance determine the success of the organization (Stashevsky & Koslowsky; 2006). Team-building training will form attachments and loyalty among members of the team (Wang et al., 2006), and then increases the commitment to the organization, as the team is a representation of the organization.

Hypothesis 2: Team building training has a positive effect on commitment to the job.

Hypothesis 3: Team building training has a positive effect on organizational commitment.

2.3. Mediating role of team cohessiveness

As mentioned earlier, if a team-building training held properly by organization, it can form a team cohesiveness (Senécal et al., 2008). Carron et al. (1998) defines team cohesiveness as a dynamic process that reflects the team's tendency to stay together in achieving goals and satisfying the needs of its members. It is not surprising when many leaders are interested in increasing the cohesion of the team, because they believe that the more cohesive a team, the better the performance and the higher the level of success the team (Beal et al., 2003; Bloom et al., 2003; Carron et al., 2002; Senécal et al., 2008). Team cohesiveness is known to have two dimensions, namely, cohesion and coherence of interpersonal tasks (Picazo et al., 2014). These two dimensions help explain the formulation of the two subsequent hypotheses.

Some researchers agree that the cohesion of the team have relevance to the commitment to the task (Beal et al., 2003; Mullen & Copper, 1994; Stathevsky & Koslowsky, 2006). The statement can be reflected in one of the dimensions of the team's cohesion, the task force. Task cohesion refers to the shared commitment among the members of the team to improve individual efforts in working on each task (Picazo et al., 2014). Team integrity can lead team members to be more involved in activities in teams and organizations (Welsch & La Van, 1981). Integrated team means a team capable of motivating and providing opportunities for its members to coordinate well (Beal et al., 2003), so that they can depend on each other when facing a problem (Carron & Brawley, 2000). Good communication and coordination can make it easier for members to do their work, thereby increasingly helping them to commit to the work.

Wech et al. (1998) argue that team cohesiveness can lead to organizational commitment, and a coherent team has the cooperation and positive feelings toward the tasks that are undertaken together. The explanation is also reflected in the interpersonal dimension of the team team variable. Interpersonal cohesion reflects the interest among members of the team, which made the members communicate and coordinate well (Beal et al., 2003; Kozlowski & Ilgen, 2006; Picazo et al., 2014). Positive feelings that arise in team cohesion will stimulate positive working rhythm in the team. It is an indication of behavior of a high organizational commitment (George & Brief, 1992; Wech et al., 1998; Susilo, 2018). When organizations can stimulate the formation of team cohesion through team building

training, it is predicted to positively affect the organizational commitment of each member in the team.

Hypothesis 4: Team cohesiveness mediates the relationship between team-building training and job commitment.

Hypothesis 5: Team cohesiveness mediates the relationship between team-building training and organizational commitment.

2.4. Training attendance effect on individual differences

Training is defined as a systematic approach to learning and development of effectiveness at every level, from individuals, teams, to organizations (Goldstein & Ford, 2002). Training has often been associated with positive outcomes for the organization, ranging from improving employee quality (Josiam & Clements, 1994), performance (Cohen & Bailey, 1997), to job satisfaction and organizational commitment (Roehl & Swerdlow, 1999; Saks 1996). In team building, training on prospective members needs to be done by the organization in order to form an attachment and loyalty between members of the team (Wang et al., 2006). These explanations indicate that training procurement will bring benefits to individual employees, as well as to organizations. To convince the argument, this study traces the difference between employees who have never participated in team building training, with those who have already attended the training program. The comparison is formulated through the following hypotheses:

Hypothesis 6: There are different levels of job commitment, organizational commitment, and team cohesiveness among employees who attended team-building training program, and who has never participated in team-building training program.
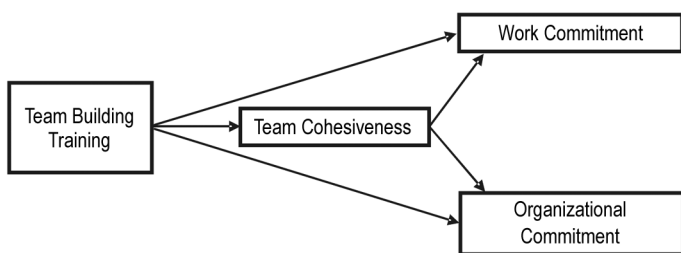
Figure 1. Research Model

3. Research Methods

3.1. Research Design

This research uses quantitative analysis. The primary data collection was conducted through a survey using questionnaires. In addition to collecting primary data, this study also collects information obtained by secondary data containing information relating to the history, development, and current conditions of a company that is the object of research. This study captures the benefits of establishing team-building training for employees in a company, and analyzing how it affects team cohesion, commitment to work, and organizational commitment.

3.2. Sampling

The study population is all employees who work in a manufacturing company in Kudus, Central Java. There are as many as 400 employees who become research populations, and 55 of them are willing to participate as research samples. Some of the research samples were employees who had participated in a team-building training program held by the company, and others had never participated in similar programs. Descriptive data obtained from 55 respondents, amounting to 88.2% male, while the remaining (11.8%) is female. The age range of employees with the highest percentage is in the range of 30 to 40 years (51.8%). In addition, more than half of all

respondents (53.6%) have experience working for more than 10 years. Majority of respondents (61.8%) worked at the level of the first line management. Majority of respondents obtained education level of high school graduates (50.9%).

3.3. Operational Definition and Measurement

There are 4 (four) variables used in this study, and they are team training building (TBT), job commitment (JC), organizational commitment (OC), and team cohesiveness (TC). Operational definitions and measurement indicators are taken from several sources and literature relevant to the purpose of this study. Before starting the hypothesis test, the test of validity and reliability of the statement items for each variable was firstly conducted.

Team-building training (TBT) is understood as a method of intervention undertaken by the organization or company to increase the sense of unity and cohesion, as well as allowing a team to work together more smoothly and effectively (Porras & Berg, 1978; Senécal et al., 2008). This variable is measured using 12 items of statements formulated by Amadei and Wade (1996), Gibson (2003). One of the statements used was 'how teams face conflict'. Each was assessed using five-point Likert scale, ranging from scale 1 strongly disagree, to 5 strongly agree.

Team cohesiveness (TC) is defined as a dynamic process that reflects the tendency of teams to stay together in achieving the objectives and satisfying the needs of its members (Carron et al., 1998). This variable was measured using 8 items statement formulated by Shanley (1998), Kreitner and Kinicki (2004). One of the statements used is 'Team members need each other to achieve the same goal'. Each was assessed using five-point Likert scale, ranging from scale 1 strongly disagree, to 5 strongly agree.

Job commitment (JC) reflects the possibility of an employee staying on the job, or leaving it, with the psychological attachment and feelings of the employee (Farrell & Rusbult, 1981). This variable is measured using 4 (four) statement items formulated by Hall, Schneider, and Nygfren (1970). Each was assessed using five-point Likert scale, ranging from scale 1 strongly disagree, to 5 strongly agree.

Organizational commitment (OC) is defined as the psychological construct between the organization's members and its organization, reflecting the alignments and determining the individual's decision to continue membership in the organization (Allen & Meyer, 1993; Robbins, 2005). This variable was measured using 15 items of the statement formulated by Porter et al. (1974). Each is assessed using five-point Likert scale, ranging from scale 1 strongly disagree, to 5 strongly agree.

3.4. Data Analysis

Path analysis with statistical tools AMOS version 4.01, was used as a method to test the hypothesis 1 to hypothesis 5. This analysis is one of the analytical methods for multiple regression (Cooper & Schindler, 2003). Meanwhile, to test hypotheses related to differences (hypothesis 6) between variables in two different situations: getting training, and having never participated in the training, was conducted by different test using t-test. The t-test was performed to determine the statistically significant differences between the mean distribution of the sample and the research parameters (Cooper & Schindler, 2003).

4. Results and Discussion

To test hypotheses 1-5, this study used a path analysis approach using AMOS software version 4.01. Meanwhile, different test on hypothesis 6 was analyzed using SPSS.

Hypothesis	Estimate	S.E.	C.R.
TBT → TC	0.157	0.082	1.914
TBT → JC	0.192	0.065	2.970
TBT → OC	0.232	0.086	2.690
JC → TC	- 0.091	0.104	-0.872
TC → OC	0.629	0.138	4.542

Table 1. The Results of Multiple Regression Analysis
TBT: team building training, TC: team cohesiveness,
JC: job commitment, OC: organizational commitment

Category		Participating in TBT	Not participating
Job Commitment (JC)	Mean	15.89	15.65
	Std. Deviation	2.44	2.69
	Sig. (2-tailed)	.630	
Organizational Commitment (OC)	Mean	44.67	38.96
	Std. Deviation	4.16	4.25
	Sig. (2-tailed)	0.00	
Team Cohesiveness (TC)	Mean	33.64	33.64
	Std. Deviation	2.97	3.15
	Sig. (2-tailed)	1.000	

Table 2. t Test
TBT: team building training, TC: team cohesiveness,
JC: job commitment, OC: organizational commitment

With the degree of significance (a) = 5% and degrees of freedom (df) = 46, the amount of contribution can be seen from the calculation of Critical Ratio (CR) table = t (table) = t (0.05: 46) = 2.01. CR test results can be seen in Table 4.7. The CR values calculated in Table 1. vary, in the range of -0.872 to 4.542, while the CR value with a significance level of 5% is 2.01. In the meantime, to answer hypothesis 6, a different test of t-test was performed.

Hypothesis 1 mentions that there is an influence between team building training and team cohesiveness. The analysis showed the hypothesis was not supported because the value of C.R calculated smaller than the value of C.R table, indicated by the significance level of 2.01, or higher that the level of 0.05. This suggests that team building training does not seem to have a significant effect on team cohesiveness. This result is in line with the arguments of Salas et al. (1999), which found that the form of organizational intervention in the form of team building as a whole has no significant benefits for the organization. This is due to many other factors that overshadow a team, such as, size, team composition, and the duration of the team is formed. These factors are thought to have more contribution in determining team performance, rather than training the formation of their own teams. Based on the explanation it can be understood that the intervention in the form of training the formation of teams have small influence in producing the qualified teams.

Furthermore, hypothesis 2 states that there is a positive effect of team building training on commitment to work. The result showed that this effect between training building and job commitment is significant at C.R level (2.97) greater than CR table (2.01). Thus, the hypothesis 2 was supported. This result can be explained by the findings of Beal et al. (2003), which revealed that when team members feel positive feelings when working in teams, each member will like the work they do together. Positive feelings can be generated through processes that involve collaboration and good communication within the team (Wech et al., 1998), and the process can be taught in a team-building training (Klein et al., 2009).

The next hypothesis, hypothesis 3, states that team building training has a positive effect on organizational commitment. The result showed that the effect of team building training on organizational commitment is significant with the value of C.R (2.69) which is larger than the value of C.R table (2.01). This means that third hypothesis was also supported in this study. This result is consistent with the opinion that team-building training will form attachments and loyalty among members of the team (Wang et al., 2006), which is then channeled to the organization's commitment, because the team is an important part of the organization (Stashevsky & Koslowsky; 2006).

Furthermore, the next two hypotheses will be tested to indicate the role of mediating variable. Testing results showed that hypothesis 4 and 5 are not supported, because hypothesis 1 is not supported. There is no influence between team building training and team cohesiveness, there is no role of mediating variable in the relationship between team building training and work commitments and organizational commitment. Similar to the first hypothesis, an exact explanation for this result is related to the research of Salas et al. (1999), who found that team cohesion does not have a significant impact on the organization, as many other factors influence the effectiveness of a team, such as size, team composition, and duration.

Table 3 shows that team building training has a significant correlation with the job and organizational commitment, indicated by the 0.005 level for the first and 0.011 for the second. The next source, group cohesiveness, has different results for each dependent variable. The correlation with work commitments is not significant at the level of 0.396, but on the contrary with a work commitment that has a very significant amount at.

Independent	Dependent	Mean Square	F	Sig.
TBT	JC	51.447	3.496	.005
	OC	74.993	6.969	.011
TC	JC	4.437	.773	.396
	OC	213.779	19.886	.000

Tabel 3. Multivariate Analysis of Variance
TBT: team building training, TC: team cohesiveness,
JC: job commitment, OC: organizational commitment

Three situations occur for the last hypothesis (H6), that is, there is a difference in the level of job commitment, organizational commitment, and team cohesiveness among employees who have taken the formation training team yet to undertake the training program. For the difference in the level of work commitment, there is no evidence of difference between the two sample groups, since the level is significantly greater than 0.05 at the 0.630 level. At the level of organizational commitment for the same sample, there is a difference because the level is significantly less than 0.05 at the level of .000. Meanwhile, team cohesiveness differences between employees who have been and have not undertaken a training program are not proven because the level is significantly greater than 0.05 at the level of .000.

Similar results were found when the analysis was performed using MANOVA, where the training of team building as an independent variable had a significant correlation with work commitment and organizational commitment at the .005 level for the first and 0.011 for the second. However, team cohesiveness has different results for each dependent variable. The correlation with job commitment is not significant at the level of 0.396, on the contrary with organizational commitment that has a very significant level. Both the results of the analysis indicate that the hypothesis 6 supported in part. These results indicate that the establishment of team building training does provide benefits for individual employees. Training procurement requires special attention by organizations or companies, especially in the elements of participation, as measured by frequency, duration, and access.

5. Conclusions and recommendations

Team building training has no significant effect on team cohesion. This result is quite surprising, and contrary to the findings of researc of Senécal et al. (2008) which stated that the influence of the training team building on team cohesiveness.

However, on the other hand, this result is consistent with the findings from Salas et al. (1999), which revealed that the form of intervention in the form of training team building is not very effective to be done by the organization. There are many other factors that affect the effectiveness of a team rather than the team building training. Team-building training was found to have a positive influence on job commitment. When team members feel positive feelings while working in a team, then they would feel bound by work undertaken jointly (Beal et al., 2003), and positive feelings can be generated through the processes of development of cooperation in a team-building exercise (Klein et al., 2009; Wech et al., 1998).

Team-building exercise also has a positive effect on organizational commitment. Teams that effectively determine the success of the organization (Stashevsky & Koslowsky; 2006), and through a team-building exercise will show the higher level of engagement and loyalty among members of the team, to the team and the organization. Team cohesiveness is not mediating influence between team-building training and employee commitment to the job. In the results of the one hypothesis analysis, it was found that team building training did not significantly affect team cohesion, so team cohesion could not mediate the influence between team-building training and commitment to work. Team cohesion does not act as mediating variable in relationship between the team building training and organizational commitment. Many other factors can influence a team in addition to team building training, so that the variable does not have a significant effect on team cohesiveness. Therefore, the cohesion of the team can not act as a median variable in strengthening the influence of team-building training on organizational commitment. There is a difference between employees who have participated in team building training with those who have never participated in similar activities. But the difference is only visible at the level of organizational commitment, at a glance at the level of commitment to work, and not at all to team cohesion.

Although this study found that team-building exercise does not have a significant effect on the cohesion of the team, it does not mean that the company or organization can ignore the role of team-building training. Previous research has found that the processes in the training that involves cooperation, communication, and commonality of interest interpersonal among the team members can motivate members to perform better and bound on his team (Carron et al., 1998; Senécal et al., 2008 ; Wech et al., 1998). Therefore, things that need to be taken by companies is how the process of team-building training itself actually includes the development process of cooperation and communication among the team members. Team cohesiveness was found to have a positive influence on the two types of commitment, namely, commitment to the work and commitment to the organization. Therefore, companies need to consider a variety of ways to build the cohesiveness of this team, so each team is formed to perform optimally in meeting common goals. Future studies need to consider the role of other factors, such as team composition, duration of the formation of the team, as well as the size of the team, according to the proposed by Salas et al. (1999). These factors predicted to be having an impact in determining the quality of a team. Future studies could combine team-building training with these factors, and then analyze its influence together on the outputs of the team, such as the commitment and performance.

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Efficiency and Financial Performance Evaluation of the Medical Spa Sector: An Empirical Study from Slovakia

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Abstract

The issue of measuring and evaluating the enterprise performance and efficiency remains an open question, as identification and management of the financial health still represent a prerequisite for improving strategic management decision-making processes. In this regard, the aim of paper was to evaluate the performance and efficiency of the Slovak medical spa sector for the period 2012 – 2017, to examine the possible interconnection of these two dimensions of entrepreneurial activity as well as to emphasize the importance of financial situation assessment in order to develop management control system of enterprises. The results of spa sector performance measured by the Economic Value Added and efficiency quantified on the basis of linear programming using the Simplex Method revealed significant shortcomings, since both dimensions were evaluated as average and inadequately profitable for shareholders. Detailed monitoring of the development and identifying the current state of performance and efficiency of the analysed spa companies is a fundamental starting point for financial managers within the implementation of new tools, techniques and systems for their continuous improvement. Thus, performance efficiency management is essential to achieve sustainable success, goals, plans, strategies and competitive position of enterprises.

Keywords: performance management; medical spa sector; business efficiency; matrix model.

1. Introduction

The ongoing globalization processes and growing competitive environment force enterprises to implement constantly new evaluation methods within the business management processes and control systems to help achieve future strategic goals and success. As reported by Gallo, Mihalcova (2016), the main factor to company success is in monitoring the actual market situation, therefore, a competitive struggle is won only by enterprises that are adequately dedicated to measuring and evaluating performance and efficiency and use the right approaches and measuring tools. Neither the Slovak spa enterprises are no exception, as thanks to them Slovakia belongs to one of the perfect spa destinations blessed with many hot springs and mineral waters. Demographic trends in population ageing have put increasing pressure on health care costs, so spa resorts and enterprises are considered serious medicine in Slovakia. However, they do not represent a separate economic sector as it interferes with all spheres of economic and social life. In addition, spa tourism is one of the economy sectors with high growth potential and the main product line of tourism in Slovakia. For this reason, we focused on the performance and efficiency evaluation of the medical health spa sector in Slovakia by applying the Economic Value Added and Simplex Method of Linear Programming over the last 6 years (2012 – 2017). The purpose of this evaluation is not only to capture the financial position of the above-mentioned sector for a given period, but also to help managers of these spa enterprises identify areas of their competences or weaknesses. It aids in investment, financing, dividend policy and operational decision-making, too.

2. Literature review

In many research studies, the concepts of performance, efficiency and effectiveness are perceived in the same meaning. As reported by Horvathova, Mokrisova (2017), the efficiency is an important prerequisite for business performance as it represents one aggregate value comprised of multiple areas of financial and business performance assessment. Kiselakova, Horvathova, Sofrankova, Soltes (2015) also agree with above-mentioned statements and define performance measurement as a process of quantifying the efficiency and effectiveness of enterprise activities. Efficiency corresponds to the extent to which the customer's requirements are met. Effectiveness is a measure of economic exploitation of the organization's resources to provide a certain level of customer service.

2.1. Importance of the enterprise performance measurement

Organizations in today's highly competitive market must struggle to respond flexibly to changing conditions and regularly monitor the level of organizational performance. Managers solve problems how to measure the performance to prevent the improvement of one part of the business at the expense of another, and to make the system of performance measurement a management tool that supports continuous improvement (Soltes, Gavurova 2015). The analysis of the enterprise performance measurement issues is dedicated to many authors from different points of view. According to the authors Arena, Azzone, Bengo (2015), the performance evaluation represents one of the tools

helping the company management to realise right decisions. Therefore, the correct choice of method for measuring business productivity, with consideration to its specifics, can call attention to key problems and shortcomings that need to be removed (Kozena, Jelinkova 2014). In recent years, there has been growing interest on improving the quality of performance management, as well as on increasing the competitiveness through the use of decision support systems. In this regard, Popescu, Andreica, Popescu (2018) presented a proposal to develop an effective IT solution to support the managerial decision in preventing financial failure that could become a useful tool in managing and overcoming the challenges of the economic environment.

Milichovsky (2015) states that one of the fundamental problems of the company performance is how to measure the performance, since the different target groups around the company understand the performance of their point of view. For this reason, the other modern methods measuring the business performance are developed. Mihalcova, Gallo, Pruzinsky (2017) emphasize that measuring company performance by means of generally accepted indicators is a source to key information on company efficiency and its future prospects. However, as reported by Largani, Kaviani, Abdollahpour (2012), in today's competitive world, value and wealth creation for shareholders are among the most important goals of businesses. For the sake of achieving his goals, the investor needs some instruments in order to measure the potential value of each investment opportunity. It is clear that these instruments are not capable of predicting the exact future, they just provide some piece of information and advice that help the investor in the decisions he makes. From all modern financial indicators, we focused our attention on the most important one – **the Economic Value Added (EVA)**.

As reported by Ismail (2011), Kiselakova, Sofrankova (2017), the EVA belongs to advanced and appropriate modern tools to measure financial performance as it can reliably describe and predict the actual company value and enables managers to pay more attention to maximizing the shareholder wealth than traditional tools. Zakic, Nenad, Besic, Simic (2012) emphasize, that the value added is created when the net Return on Assets held by the business exceeds the return required by those who have contributed capital to the business. Accepting value creation as the paramount corporate goal is only a beginning, as managers and shareholders must determine a way to reliably measure their progress in achieving it.

2.2. Efficiency as the aspect of enterprise performance

According to Cyrek (2017), the efficiency is understood as the relationship between outputs and inputs and it is often analysed in terms of goals. Carstina, Siminica, Circiumaru, Tanasie (2015) emphasise that efficiency is closely interdependent to effectiveness, meaning that an efficiency undertaking without being effective will not have a very long period of existence, and an effectiveness of enterprise without obtaining efficiency automatically lead to unfavourable economic results. According to Turcu (2017), enterprise performance evaluation is also based on the analysis of the manner of fulfilment of indicators specific to the different activities performed within processes.

The issue of efficiency evaluation of enterprises was analysed by Popova (2018). The study dealt with the problems of Quality Management System (QMS) effectiveness evaluation in companies. The assessment of QMS effectiveness was based on the achievements of its objectives, their comparison with benchmark indicators and previous achievements of company's QMS. The author highlighted five points of QMS effectiveness: customers' satisfaction; product quality improvement; operational performance; effectiveness of QMS processes; culture of continuous improvement. Ermolina, Golikov, Kozenko, Ponosova (2018) examined strategic effectiveness of an enterprise in order to determine the role of human capital. Authors came to conclusion that human capital occupies the central role among the indicators of strategic effectiveness of enterprise, as it is a source of maximization of enterprise's profit. There are many situations in which analysis of a company needs to be performed, but only limited information are available about its structure and efficiency. Therefore, Andreica, Andreica, Andreica (2008) presented algorithmic techniques and dynamic programming systems for solving these problems.

In general, we can conclude that almost every human activity is influenced by the effort to optimize it as much as possible. Similarly, it also works in business companies. The most popular and in practice the most commonly used methods of process optimization solutions include linear programming method (Berezny, Kravecova 2012). Hyranek, Grell, Nagy (2014) also emphasize that the latest approaches to enterprise performance are aimed at evaluating the level of production system functioning, where it is necessary to measure the effectiveness of the transformation process and to implement not only financial indicators but also the indicators of efficiency and effectiveness. The authors developed an innovative approach based on the matrix system of indicators, solved by **the Simplex Method** by applying linear programming. Grell, Hyranek (2012) consider matrix system as an open, variable and adaptable complex that can be dynamically modified depending on the enterprise conditions, which is its undoubtedly great advantage. Kliestik (2009) emphasizes that the goal of the above-mentioned matrix system is to eliminate the subjectivity of evaluation by measuring outputs in relation to the inputs.

3. Data and methodology

As reported by Rajiani, Bačík, Fedorko, Rigelský, Szczepańska-Woszczyna (2018), the aging of the society and the extension of life expectancy increase the demand for health care and spa services, require increased expenditure on health policy, including long-term care for the elderly.

At present, the Slovak medical health spa sector comprises a total of 28 enterprises with the official permission from the Ministry of Health of the Slovak Republic to operate the natural health spas and spa medical institutions in Slovakia (see Figure 1). Thus, we consider a given sample of enterprises as complete and, therefore, any conclusions stated in the paper are presented from the point of view of the whole sector evaluation. All financial data regarding the spa enterprises (their financial statements) that we worked with were drawn from the available internet portal managed by a company DataSpot Ltd. and processed in MS Excel.

In this paper, we addressed the performance and efficiency assessment of the Slovak medical spa sector during the years 2012–2017, surveyed the possible interconnection between these two dimensions of entrepreneurial activity and pointed to importance of financial health evaluation in order to support enterprises' management control systems. The following hypotheses were set to support the goal of the paper:

❑ **H0**: We assume that there is no statistically significant relation between the enterprise performance evaluation measured by the Economic Value Added and efficiency quantified as the optimization task of linear programming using the Simplex Method.

❑ **H1**: We assume that there is a statistically significant relation between the enterprise performance evaluation measured by the Economic Value Added and efficiency quantified as the optimization task of linear programming using the Simplex Method.

The performance of Slovak medical health spa sector was quantified on the basis of the EVA indicator. At present, there are several calculations for this indicator (equity, entity and APV method). In this paper, we applied the equity approach. The equation for calculating the EVA indicator has the following form (Neumaierova, Neumaier 2002):
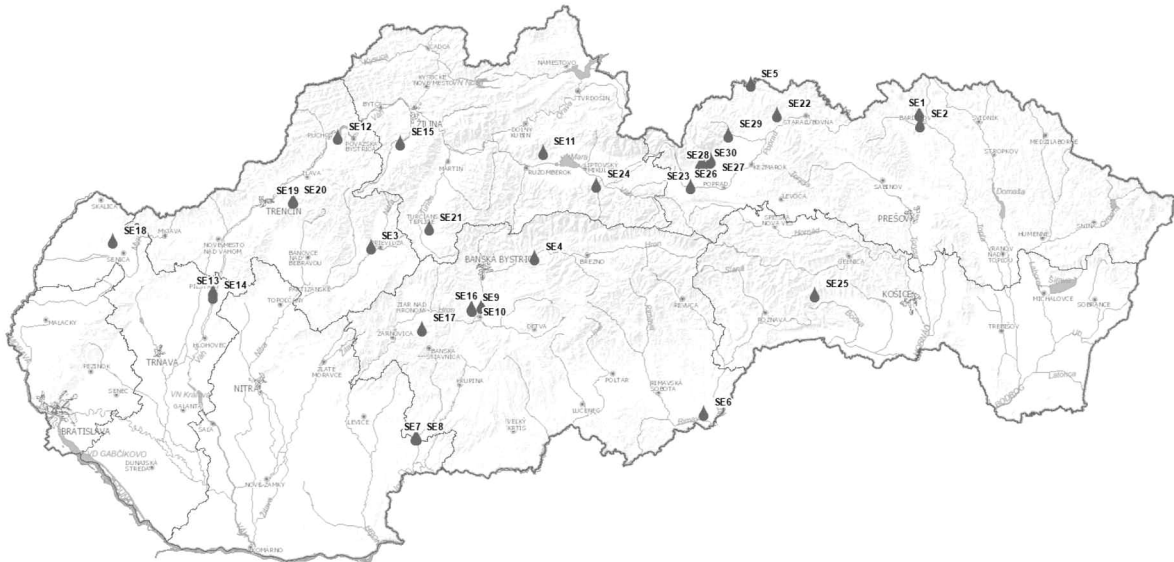
where:

SE 01 Spa Bardejov, Inc.
SE 02 Spa Horezza, Inc.
SE 03 Spa Bojnice, Inc.
SE 04 Spa Brusno, Inc.
SE 05 Spa Dudince, Inc.
SE 06 Spa Lucivna, Inc.
SE 07 Spa Lucky, Inc.
SE 08 Spa Nimnica, Inc.
SE 09 Spa Novy Smokovec, Inc.
SE 10 Spa Sliac, Inc.

SE 11 Spa Stos, Inc.
SE 12 Spa Trencianske Teplice, Inc.
SE 13 Spa Vysne Ruzbachy, Inc.
SE 14 Medical thermal spa, Inc.
SE 15 Spa Ciz, Inc.
SE 16 Spa Piestany, Inc.
SE 17 Spa Rajecke Teplice, Inc.
SE 18 Spa Turcianske Teplice, Inc.
SE 19 Spa Horny Smokovec, Ltd.
SE 20 Spa Kovacova, Ltd.

SE 21 Spa Pieniny Resort, Ltd.
SE 22 Spa Slovthermae Dudince, s. p.
SE 23 Specialised spa Marina, s. p.
SE 24 Specialised spa SR Druzba
SE 25 Specialised spa SR Arco
SE 26 Specialised spa SR Bystra
SE 27 Specialised spa Dr. Guhra, n. o.
SE 28 Specialised spa Tatranska
   Kotlina, n. o.

Figure 1. The location of medical spa enterprises in Slovakia
Source: own processing

$EVA_{equity} = (ROE - r_e) . E,$ where:

ROE – Return on Equity,
r_e – Cost of Equity,
E – Equity.

As stated by Nelson (2015), the achieved value of the EVA indicator should be positive. It means that the company actually produces economic profit and creates value for its owners even after paying salaries to employees, paying interest to demanders and shares to shareholders. Within the calculation of this indicator, it is essential to identify correctly the alternative rate of equity value (re). Among the various ways of quantifying it, we pay attention to the CAPM model. As reported by Damodaran (2004), the final cost of equity can be quantified as follows:

$r_e = r_f + ß . ERP + CRP,$ where:

r_f – Risk Free Rate of Return,
ß – Beta Coefficient,
ERP – Equity Risk Premium,
CRP – Country Risk Premium.

In order to identify prosperous enterprises from non-prosperous ones, the efficiency of spa companies was therefore quantified as the optimization task of linear programming using the Simplex Method. Formulation of the basic relations in the matrix model is presented in following Figure 2. The matrix model is made up of absolute indicators, which are divided into indicators of inputs and outputs of the entrepreneurial activity. Using a linear mathematical model, weights are assigned to individual inputs and outputs to reflect the efficiency of the particular variable (Grell, Hyranek 2012).

According to Grell (2016), the matrix of efficiency consists of four basic quadrants:

- ❑ output/input – indicators of productivity, efficiency, profitability;
- ❑ input/output – indicators of difficulty, commitment, cost;
- ❑ input/input – indicators of amenities;
- ❑ output/output – indicators of profitability.

where:
A – efficiency matrix of inputs dimension m.n; $a_{ij} = v_j/n_i$,
C – difficulty matrix of inputs dimension n.m; $c_{lk} = n_k/v_l$,
B – matrix structure of inputs dimension m.m; $b_{jk} = n_k/n_j$,
D – matrix structure of outputs dimension n.n; $d_{lj} = v_j/v_l$.

Figure 2. General matrix structure of indicators
Source: own processing according to Grell, Hyranek (2012)

According to Grell, Hyranek (2012), in the practical solution of this issue it is necessary to start from its simplification, while minimizing the deviations between the indicators of efficiency and effectiveness. The ui vectors (in relation to the efficiency indicators) and tr vectors (in relation to the effectiveness indicators) were obtained as a solution of:

- the basic equation:

$min \ \Sigma_j \ w_j = 0;$

- under the conditions:

$\Sigma_i \ u_i \ S^J_{M,ij} - \Sigma_r \ t_r \ c_{rj} - w_j = 0$
$\Sigma \ t_r = 1$
$u_i t_r w_j \geq 0$

- so finally, the order of transformation process efficiency was calculated by:

$$E_j = \Sigma_r\, t_r\, c_{rj}\, /\, \Sigma_i\, u_i\, S^J_{M,ij}\,,$$

where:
w_j – deviations in individual years,
u_i – value of weights for inputs,
$S^J_{M,ij}$ – inputs needed for linear programming,
t_r – value of weights for outputs,
c_{rj} – outputs needed for linear programming,
E_j – efficiency.

As input variables, we chose total costs, personnel costs and material costs. Output variables were represented by total revenues, net profit and value added. Based on the variables we considered to be the most determinant of the performance within the analysed sample of enterprises, we quantified the cost of returns, wage efficiency and material efficiency by applying the modified matrix system. The outputs were quantified in relation to the total revenues (index).

In order to reveal a potential degree of association of enterprise rankings according to the achieved performance and efficiency regardless of their size, the Spearman rank correlation processed in the statistical program Gretl was used:

$$r_s = 1 - \frac{6 \sum_{i=1}^{n}(x_i^* - y_i^*)^2}{n(n^2 - 1)}$$

where:
r_s – Spearman rank correlation,
$(x_i^* - y_i^*)^2$ – the difference between the ranks of corresponding variables,
n – number of observations.

The Spearman rank correlation can range from –1 to +1 and the resulting value indicates:

a) $r_s = 1 \rightarrow$ perfect degree of positive association between the two variables,
b) $r_s = -1 \rightarrow$ perfect degree of negative association between the two variables,
c) $r_s = 0 \rightarrow$ no association between the two variables (Sharma 2007).

4. Results and discussion

In the following partial analyses, the attention was firstly focused on evaluating the performance of Slovak spa companies based on the EVA application. Subsequently, we quantified the efficiency of the analysed sector and examined the interconnection of both dimensions by comparing the average resulting order of the spa enterprises in the period of 2012 – 2017 by applying the Spearman rank correlation.

4.1. Assessment of the enterprise performance of the Slovak medical spa sector

In order to compare the performance of enterprises in the spa sector under the same conditions, the Cost of Equity (r_e) and its relevant components for all enterprises was equal and quantified as the average of the individual years 2012-2017. Thus, the alternative cost of equity reached the value of 3.42% on average. In this regard, the level of EVA reached by individual spa enterprises differed depending on their Equity (E) and Return On Equity (ROE), which was mainly affected by the level of achieved profit or loss. These causes determining the poor enterprise performance were taken into account within the evaluation of the Slovak medical spa sector as a whole. Table 1 below shows the average level of primary components entering the aggregate EVA indicator for the period of 2012-2017.

Table 1. Average values of the EVA indicator and its basic components in the case of Slovak spa businesses over the years 2012-2017

Source: own processing based on financial statements of analysed enterprises

Enterprise	E (€)	ROE (%)	EVA (€)	Enterprise	E (€)	ROE (%)	EVA (€)
SE 01	11,982,684	4.62	142,911	SE 15	793,163	−20.08	−186,430
SE 02	17,805,953	−1.07	−799,969	SE 16	58,022,581	2.53	−516,557
SE 03	26,095,520	7.35	1,024,758	SE 17	17,819,621	3.57	26,574
SE 04	318,173	−588.88	−1,884,551	SE 18	8,114,341	2.64	−63,599
SE 05	14,023,183	5.61	307,164	SE 19	529,373	3.03	−2,108
SE 06	2,953,106	4.25	24,406	SE 20	−225,723	23.98	−46,389
SE 07	5,660,246	6.49	173,513	SE 21	26,996	−283.67	−77,503
SE 08	6,733,341	3.01	−28,096	SE 22	5,917,380	−0.58	−236,997
SE 09	2,132,629	2.14	−27,390	SE 23	4,185,428	5.34	80,338
SE 10	3,912,467	−17.05	−800,999	SE 24	227,697	9.88	14,702
SE 11	1,425,371	1.14	−32,509	SE 25	677,704	−5.53	−60,711
SE 12	23,997,557	0.64	−667,452	SE 26	528,834	1.20	−11,764
SE 13	9,324,700	−1.78	−485,073	SE 27	2,599,775	0.05	−87,729
SE 14	1,279,750	−3.06	−83,029	SE 28	3,207,682	−2.39	−186,621
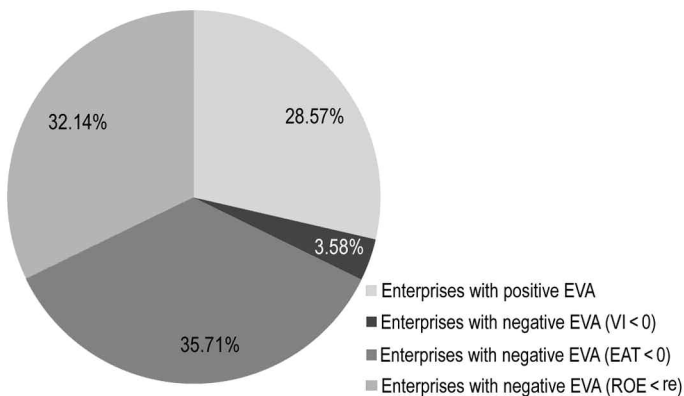
Figure 3. Structure of enterprises with positive/negative value of the EVA indicator
Source: own processing based on financial statements of analysed enterprises

Based on the results, the Slovak spa sector is considered non-performing over the analysed period, as the average value of EVA indicator ranged around € -160,396. Overall, the worst-performing enterprise was identified SE 04 (Spa Brusno, Inc.), which did not create additional value for business owners in any year of the monitored period (€ -1,884,551 on average). This undesirable result was mainly due to the highest loss and also the fourth lowest value of the Equity within the entire spa sector. The best-performing enterprise was identified SE 03 (Spa Bojnice, Inc.), which reached the highest level of Return on Equity and also the second highest value of Equity from all spa enterprises. To simplify the identification of the causes of the negative EVA value, we processed the results into the following Figure 3. The intention was to point to the average number of enterprises generating the value added for shareholders and, on the other hand, to determine the most frequent cause of the negative EVA value.

According to results achieved for individual spa companies,

it can be stated that only 8 spa companies were able to generate added value for shareholders with the average level of € 224,296. During the analysed period, the negative EVA indicator reached a total of 20 enterprises (€ -314,274 on average). After excluding the external impact (within the meaning of alternative cost of equity entering the calculation of the EVA indicator), there were not up to 71.43% of the spa companies capable of generating added value for shareholders. This fact was due to three main reasons: reporting the negative value of Equity (1 enterprise), loss (10 enterprises) or insufficient level of the Return On Equity (9 enterprises).

4.2. Assessment of the enterprise efficiency of the Slovak medical spa sector

To quantify the efficiency of the Slovak spa enterprises over the period of 2012-2017, we applied a linear programming apparatus solved by the Simplex Method using a matrix mapping of three selected input (cost) and output (revenue) items. The input group consisted of total costs, personnel costs and material costs. Total revenues, net profit and added value formed the group of output items. The above-mentioned metrics were selected so that inputs/outputs included the total value of costs/revenues, their selected aggregate items (personnel costs and value added) and finally their specific items (material costs, net profit). Thus, all cost/revenue levels were represented.

The efficiency solution by means of linear programming consisted of input weights (u_i), output weights (t_r) and deviations (w_j) of selected indicators, the sum of which had to be minimized. In the following Table 2 is presented a sample of the initial input and output values surveyed during the analysed period, whereas the individual values represent the average of the entire medical spa sector. In terms of inputs, we have quantified the cost of returns, wage efficiency and material efficiency. The outputs were quantified in relation to the total revenues (index).

Enterprise	Inputs			Outputs		
	Total costs (n_1)	Personnel costs (n_2)	Material costs (n_3)	Total revenues (v_1)	Net profit (v_2)	Added value (v_3)
	Cost of returns	*Wage efficiency*	*Material efficiency*	*In relation to total revenues*	*In relation to total revenues*	*In relation to total revenues*
SE01	€ 10,411,783	€ 3,207,284	€ 2,300,466	€ 10,964,926	€ 533,143	€ 5,867,667
	0.9496	*0.2925*	*0.2098*	*1.0000*	*0.0504*	*0.5351*
....	....	....	....	....	....	....
SE28	€ 1,465,474	€ 864,197	€ 326,007	€ 1,388,670	€ −76,805	€ 123,089
	1.0553	*0.6223*	*0.2348*	*1.0000*	*−0.0553*	*0.3228*

Table 2. Input data needed for application of linear programming using the Simplex Method
Source: own processing based on financial statements of analysed enterprises

Based on the results processed in MS Excel, we can state that the highest weight of the selected inputs was proved in the case of Material efficiency indicator (u_3 = 2.4009). In this regard, we can consider this indicator as the most important determinant of efficiency, as well as the performance of the Slovak spa companies. Within the selected outputs, the highest weight was assigned to the Net profit (v_2 = 0.6703) and Total revenues (v_1 = 0.3297). On the basis of calculated weights, we subsequently quantified the efficiency of the selected sample of enterprises (see Table 3).

Enterprise	Deviation (w_j)	Efficiency (E_j)	Enterprise	Deviation (w_j)	Efficiency (E_j)
SE 01	0.1402	0.72161	SE 15	0.3624	0.43178
SE 02	0.3495	0.47029	SE 16	0.1252	0.74036
SE 03	0.0000	**1.00000**	SE 17	0.2058	0.64648
SE 04	0.7602	0.10610	SE 18	0.1691	0.66894
SE 05	0.0000	**1.00000**	SE 19	0.1421	0.70683
SE 06	0.0634	0.84682	SE 20	0.1599	0.64201
SE 07	0.0442	0.89497	SE 21	0.0524	0.82500
SE 08	0.3077	0.53719	SE 22	0.3125	0.50738
SE 09	0.0000	0.64746	SE 23	0.0373	0.90862
SE 10	0.5971	0.25729	SE 24	0.2642	0.56296
SE 11	0.1488	0.69284	SE 25	0.2633	0.54313
SE 12	0.0983	0.77465	SE 26	0.2010	0.62307
SE 13	0.3281	0.47263	SE 27	0.2527	0.56645
SE 14	0.2167	0.59565	SE 28	0.2710	0.51911

Table 3. Average values of achieving deviation and efficiency in the case of Slovak spa businesses over the years 2012-2017
Source: own processing based on financial statements of analysed enterprises

Based on the results, it can be stated that only two spa enterprises reached the maximum efficiency at the level of 1.0000 (Spa Bojnice, Inc. and Spa Dudince, Inc.). The efficiency of all other enterprises during the monitored period reached a level of less than 1, ranging from 0.25729 to 0.90862. Taking into account the other partial results, Spa Bojnice, Inc. can be considered as the most effective enterprise, as it reached the highest value of Net profit (€ 1,918,149), created the second highest Added value (€ 6,468,404) and material intensity indicator was maintained at the stable level of 0.1930. Despite of generated Added Value at the level of € 1,410,976 on average and the second highest value of the material intensity (0.2863), Spa Brusno, Inc. as the only one achieved insufficient efficiency at the level of 0.10610. This fact was undoubtedly affected by the highest average loss within the entire spa sector (€ -1,873,658 on average).

For more comprehensible results processing, we have subsequently created a categorization of five basic efficiency zones reflecting its achieved level in the case of Slovak spa companies:

- ❑ E_j = 1 — Required efficiency;
- ❑ $1.00 < E_j > 0.75$ — Above-standard efficiency;
- ❑ $0.74 < E_j > 0.50$ — Middle efficiency;
- ❑ $0.49 < E_j > 0.25$ — Substandard efficiency;
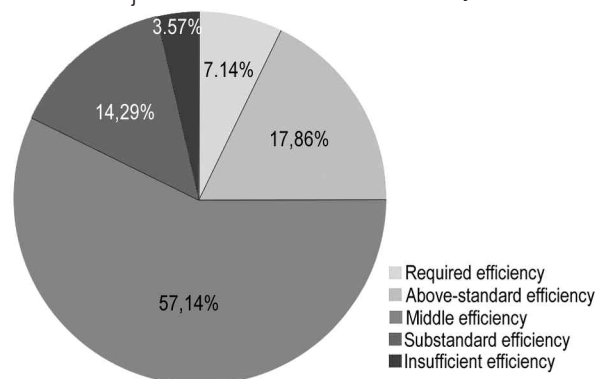- ❑ $0.24 < E_j > 0.00$ — Insufficient efficiency.

Figure 4. Categorization of spa enterprises within the individual zones of efficiency
Source: own processing based on financial statements of analysed enterprises

The required level of efficiency was achieved only in the case of the above mentioned two spa companies, which accounted for only 7.14% of the analysed sector (see Figure 4). A total of 5 enterprises were able to reach efficiency above the level of 0.75, which included them in a group of enterprises with above-standard efficiency. Up to 57.14% of spas were classified as a group of middle efficiency enterprises. The remaining 17.86% of the spa sector enterprises were unable to achieve the efficiency level higher than 0.49, whilst even one enterprise was included in a group characterized by insufficient level of efficiency. Overall, the Slovak medical spa sector reached a moderate level of efficiency (0.63963).

4.3. Exploring the relationship between performance and efficiency of spa companies

On the basis of previous partial analyses, we have focused on revealing the degree of resulting rank compliance of spa companies in the case of applying selected methods of enterprise performance (the EVA indicator) and efficiency (the Simplex Method) quantification. When calculating the degree of resulting rank compliance we applied the Spearman rank correlation. Table 4 below shows the resulting average performance and efficiency ranking of spa enterprises based on the application of the selected assessment methods during 2012-2017.

Table 4.
The average resulting rank of the spa enterprises compiled on the basis of the EVA indicator and linear programming using the Simplex Method

Source:
own processing based on financial statements of analysed enterprises

| Enterprise | Rank | | $(x_i - y_i)^2$ | Enterprise | Rank | | $(x_i - y_i)^2$ |
	Simplex Method (x_i)	Economic Value Added (y_i)			Simplex Method (x_i)	Economic Value Added (y_i)	
SE 01	9.	4.	25	SE 15	26.	20.	36
SE 02	25.	26.	1	SE 16	8.	24.	256
SE 03	**1.**	**1.**	0	SE 17	14.	6.	64
SE 04	**28.**	**28.**	0	SE 18	12.	16.	16
SE 05	2.	2.	0	SE 19	10.	9.	1
SE 06	5.	7.	4	SE 20	15.	14.	1
SE 07	4.	3.	1	SE 21	6.	17.	121
SE 08	21.	12.	81	SE 22	23.	22.	1
SE 09	13.	11.	4	SE 23	3.	5.	4
SE 10	27.	27.	0	SE 24	19.	8.	121
SE 11	11.	13.	4	SE 25	20.	15.	25
SE 12	7.	25.	324	SE 26	16.	10.	36
SE 13	24.	23.	1	SE 27	18.	19.	1
SE 14	17.	18.	1	SE 28	22.	21.	1

From the results shown in Table 4, it is obvious that spa companies SE 03 (Spa Bojnice, Inc.), SE 04 (Spa Brusno, Inc.), SE 05 (Spa Dudince, Inc.) and SE 10 (Spa Sliac, Inc.) reached the same average resulting rank in case of application of both selected methods of performance and efficiency evaluation. As we have already mentioned, other input data and indicators entering the calculations of both methods led to a bit different assessment. Despite the fact that most enterprises did not reach identical performance position measured by the selected methods, we have to emphasize the identification of the best and the worst-performing and efficient spa enterprise.

Figure 5. The result of Spearman rank correlation
Source: own processing in the statistical program Gretl

As the resulting Spearman rank correlation coefficient reached the level of 0.6907, it is obvious that enterprise performance is closely related to enterprise efficiency. However, the perfect degree of positive association between the two variables was not confirmed. Based on this result and p-value lower than 0.05 (0.0003), we reject the established H0 hypothesis and accept an alternative H1 hypothesis. In this regard, it can be concluded that there is a statistically significant linear relationship (relatively strong direct dependence) between the given variables – the enterprise performance and efficiency. Result of the above-mentioned statistical test is also presented graphically in the Figure 5.

5. Conclusion

Nowadays, there is a wide range of models and methods to help assess the financial situation of the enterprises. However, the management of each enterprise decides which financial instruments are used to assess its business activity. In this regard, more and more modern methods are being introduced to quantify the enterprise performance and efficiency in terms of increasing its market value. Comprehensive monitoring, quality management and continuous performance improvement is an important element in detecting possible future business risks that can contribute to meeting the strategic goals set in all areas of business.

The purpose of paper was to evaluate the performance and efficiency of the Slovak medical spa sector for the period 2012 – 2017, to reveal the possible interconnection of these two dimensions of entrepreneurial activity as well as to emphasize the importance of financial health and efficiency assessment. On the basis of performed partial analyses, we have come to the following conclusions:

❑ Over the years 2012-2017, only eight Slovak spa companies were able to create additional value for their business owners and increase the company's market value.

❑ The average level of the EVA indicator ranged around € -160,396. The most common cause of the negative EVA indicator was reporting the negative Earnings After Taxes (loss), which was subsequently reflected in the insufficient level of the Return On Equity as well as the Cost of Equity. Thus, the Slovak medical spa sector can be considered as non-performing.

❑ The highest weight among the input / output variables was reached in the case of Material efficiency indicator, Total revenue and Net profit. In this respect, these three metrics were identified as key determinants of efficiency.

❑ The maximum required efficiency at the level of 1.0000 was achieved by two spa enterprises and only one enterprise was included in a group characterized by an insufficient level of efficiency. Overall, we can rank the Slovak medical spa sector to a moderate level of efficiency, as the average value of all analysed spas ranged around 0.63963.

❑ Despite the fact that most enterprises did not reach identical position measured by the selected assessment methods, by applying the Spearman rank correlation coefficient (rs = 0.6907), a strong dependence was found between the performance and efficiency of the Slovak spa enterprises.

Summarizing the research, it should be noted that identifying the state of enterprise performance and efficiency give managers much more than just a snapshot of actual financial health. It can be also used as a powerful management tool to affect positive change within the individual enterprises as well as the entire economic sector – when used the right way. The processing and application of management models enhancing the performance and efficiency of business entities for the purpose of their sustainable growth will be the subject of our further scientific research studies.

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A Study of Counterproductive Culture Behavior:
The Preliminary a New Concept

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Abstract

This study is a development of a new concept of counterproductive cultural behavior (CCB's) through the synthesis of theories that support different structures in an open culture of counterproductive work behavior (CWB) at the level of management of human resource management (HRM). This new concept can also be applied to the aspects of openness in the cultural aspects and Interpersonal Counterproductive Work Behavior (CWBi) in the workplace.

Keywords: openness-culture; counterproductive work behavior; counterproductive culture behavior's.

1. Introduction

The unconsciousness and narrow cultural openness is the personality of individuals who do not have the capability to accustom and adapt to new things, ability to open to new ideas, being conventional, and do not have willingness to change with what have been habituations in their work environment [1]. Whereas, counterproductive interpersonal work behavior is a person's work behavior to socialize with other people at workplace that are contradictive in written and unwritten rules and norms so that they have the potential to harm other staffs and organizations in achieving their goals [2].

According to Porter, Parrigon, Woo, Saef, & Tay (2017), individuals who are culturally open-minded tend to see others more like themselves regardless of one's personal attributes [3]. It is different with interpersonal counterproductive work behavior, a behavior that is not good for co-workers in the workplace that can endanger other individuals in the organization [4].

Based on the meta-analysis, Woo et al. (2014) research shows that the narrow nature of openness may have a different relationship with constructs of cognitive abilities (eg, working memory, crystallized intelligence). For instance, in the research of DeYoung, Quilty, & Peterson (2007), it was found that only aspects of the intellect (and not cultural aspects, labeled as openness in their research) correlates with cognitive functions related to working memory [5]. In addition, the analysis of Woo, Chernyshenko, Longley, et al. (2014) distinguished the intellectual and cultural aspects in their study on openness to experience to find that intellectual aspects are aspects of intellectual efficiency, ingenuity, and curiosity. Menawhile, those that included in the cultural aspects are aesthetics, tolerance and depth [6]. Porter, Parrigon, Woo, Saef, & Tay (2017) research result is similar to Woo et al's suggestion (2014) who investigated how situational factors influence the relationship between the nature of narrow openness and organizational performance [7].

In counterproductive term, Robinson & Bennett's (1995) research on typology of deviant work behavior suggests that there are two different dimensions for measuring counterproductive work behavior: employee behavior toward individuals and organization [8]. They also make a difference between various aspects of CWB that are categorized as interpersonal or organizational. One of the differences is in interpersonal aspects (CWB-I), includes the behaviors to colleagues (such as hurting coworkers). Moreover, the variable counterproductive work behavior is also included in the study framework to assess the deviant workplace behavior (Miles, Borman, Spector, & Fox, 2002; Dalal, 2005) and specifically for individuals (CWB-I) and organizations (CWB-O). Furthermore, Ho (2012) study of CWBI distinguishes interpersonal counterproductive work behavior (ICWBs) into behaviors that hinder the performance of other workers' tasks (ICWB that focuses on the task), and personal matters (ICWB that focuses on people).

2. Literature Review
2.1. The Theoretical Foundation

The synthesis basis of the concept of counterproductive cultural behavior was formulated and began with the Open-to-Experience meta-analysis that conducted by Woo, Chernyshenko, Stark, & Conz (2014) to determine organizational criteria and the nature of openness through level investigations character in predicting an organization's outcomes. By exploration method, Woo et al's (2014) differentiated these relationships into nine organizational criteria, they are: task performance, contextual performance, counterproductive work behavior, turnover, leadership effectiveness, training performance, and adaptive performance. Whereas, Woo et al's (2014) distinguished the seven predictors of openness inti seven aspects: intellect and culture, efficiency and intellectual, ingenuity, curiosity, aesthetics, tolerance and depth.

Thus, as for the plan of this dissertation research, the writer chooses counterproductive work behavior in the context of organizational criteria as the basic point in developing the synthesis of the concept of counterproductive cultural behavior.

Furthermore, Sackett (2002) defined counterproductive behavior as behavior that is contrary to the legitimate interests of the organization [9]. More specifically, Spector & Fox (2002) stated that counterproductive behavior is an action (such as aggression or sabotage) which intended to hurt humiliate and organization or its employees [10]. Moreover, Fox & Spector (2005) also argued that is not different from Sackett's definition, counterproductive also gives harm to employees, customers and other stakeholders [11]. The matter of course will be occurred, if the stakeholders are harmed, the possibility of the organization being harmed cannot be avoided. Thus, counterproductive behavior is definitely contrary to the legitimate interests and intentions of the organization.

In the meta-analysis, Woo et al., (2014) described that contextual performance measures are assisting behavior towards coworkers and supervisors, monitoring ratings of teamwork, motivation and commitment, and interpersonal skills. They suggested that counterproductive work behavior is negatively correlated with (not different from) OCB (Organizational Citizenship Behavior). Through this definition, they considered records of absenteeism, delays, theft, and misuse of property as counterproductive. In a review and meta-analysis that was conducted by Berry, Ones, & Sackett (2007), OCB is most likely to be conceptualized as behavioral construction at a conceptual level similar to deviation [12]. Furthermore, in their meta-analysis, they found that ID (Interpersonal deviance) and OD (Organizational Deviance) scales have their strongest relationships with Big Five and OCB personalities. In addition, Dalal (2005) correlated relatively-wide concept of OCB variables, with a narrow deviation size, and found a smaller relationship than the meta-analysis result in measuring the deviations at wider ID (Interpersonal deviance) and OD (Organizational Deviance) levels [13].

According to the review of Berry et al. (2007), the Big Five variable dimensions are: Emotion Stability, Extraversion, Openness to Experience, and Agreeableness and Conscientiousness with a definition that reflects the general level of personality traits where someone is curious, intelligent, imaginative, and independent. These findings provided important theoretical contributions to some of the literature in industrial or organizational psychology, including work behavior, counterproductive behavior, OCB, organizational personality, and justice. Thus, there is a relationship in measuring counterproductive behavior through the Openness to Experience dimension that distinguishes it separately from OCB. In the previous Openness study, Woo et al., (2014) also determined a lack of consensus on the taxonomic structure of openness at the level of a broad personality dimension. They answered these problems by categorizing existing openness measures into lower order properties by two aspects: intellect and culture, and six aspects (intellectual efficiency, ingenuity, curiosity, aesthetics, tolerance and depth). Furthermore, Woo et al., (2014) also presumed that cultural aspects of aesthetics, tolerance, and depth, would show a stronger correlation with contextual performance and counterproductivity.

2.2. Synthesis of the Counterproductive Culture Behavior

Fiske's exploratory personality investigation (1949) showed five factors:Social Adaptability, Emotional Control, Conformity, The Inquiring Intellect, and Confident Self-Expression for the assessment of relatively real behavior [14]. Subsequently, Tupes & Christal study (1961) was revised in Tupes & Christal (1992). They continued to reanalyze the work of Cattell (1943) and Fiske (1949) [15] then found them in congruence on five factors: Surgery, Perseverance, Dependence, Emotional and Cultural Stability. Then, the concept was developed by Norman (1963), who suggested taxonomy of personality attributes into theoretical structures by stimulating its relationships with psycholinguistics and cross-cultural psychology, cognitive theory, and other psychology fields such as: extroversion,

agreeableness, conscientiousness, emotionality and culture [16].

The Norman five-factor model (1963) has been widely replicated. According to McCrae & Costa (1985), various characteristics of "openness" (eg openness to new feelings and ideas, flexibility of thought, and readiness to enjoy fantasy) find openness factors [17]. Based on the meta-analysis, Woo et al. (2014 research showed that the narrow nature of openness may have a different relationship with cognitive abilities constructs (eg, working memory, crystallized intelligence). As instance, the research of DeYoung, Quilty, & Peterson (2007), found that only aspects of the intellect (and not cultural aspects, labeled as openness in their research) correlates with cognitive functions that is related to working memory [18].

Furthermore, the analysis of Woo, Chernyshenko, Longley, et al. (2013) distinguished the intellectual and cultural aspects in their study on openness to experience to find that intellectual aspects are aspects of intellectual efficiency, ingenuity, and curiosity. Meanwhile, those that included in the cultural aspects are: aesthetics, tolerance and depth.

More specifically, Porter, Parrigon, Woo, Saef, & Tay (2017) found that high cultural openness determines the value social information that is relevant to cultural and aesthetic efforts, compared to other types of information when making social decisions. They also found that cultural openness is positively associated with the assessment of similarity. Meanwhile, intellectual openness was not related. In other words, individuals who are culturally open tend to preserve others more like themselves regardless of one's personal attributes. This finding represents the interesting idea, that openness to experience is not synonymous with interpersonal openness. Thus, for the future research, they suggest to investigate whether cultural openness or aspects is related to cultural openness provide the formation of successful interpersonal relationships between different individuals.

Moreover, the initial derivation of Theory of Planned Behavior by Ajzen (1985) proposed an intention (and other theoretical constructs) in terms of trying to perform certain behaviors (not in its relationship to actual performance) [19]. This concept was theorized from the extension of Theory of Reasoned Action by Fishbein & Ajzen (1975), which needed by the limitations of the original model in dealing with behavior where people have incomplete willingness control [20]. The theory of planned behavior (Theory of Planned Behavior) is principally open to extent additional predictors if it can be proved that it represents significant proportions of variance in intention or behavior, after the current theoretical variables considered. In general, Ajzen (1991) stated that the theory was found to be supported by empirical evidence that the intention to conduct various types of behavior can be predicted with high accuracy from attitudes and behavior, subjective norms, and perception of behavior control. And, this intention, along with the perception of behavioral control, explains the considerable variance in actual behavior [21].

Moreover, the Theory of Reasoned Action according to Fox & Spector's (1999) explains an active component in the formation of attitudes or behavioral responses on cognitive components that need further explanation of attitude and behavior variance [22].

In addition, according to the field testing of the equity theory that was conducted by Spector and White (1977) in Spector(1978), the only effect of established injustice was turnover. This term was hypothesized by Adams (1963) in response to the last attempt [23] .Interestingly, an unpublished research Spector and White (1978) found that employee responses to the two organizations on the Perceived Equity Scale were negatively correlated with scores on the Organizational Frustration Scale (Spector, 1975). This matter becomes an obstacle for the goal of achievement or maintenance which was established in the foundations of Storms & Spector (1987) about counterproductive [24].

Furthermore, according to Dollard et al. (1939) in Fox & Spector (1999), the act of inhibitory aggression is different with

the strength of the anticipated punishment for the act of expression (p.37). Expression of clear aggression through counterproductive organizational behavior can be attributed to the perception that someone can disassociate without being arrested or punished. This behavior will endanger organizations or people in the organization including employees, clients, customers. Regarding to this term, Fox & Spector (1999) then explained that their findings can be explained in accordance with Allen and Greenberger's (1980) suggestion that people whose control is low, can try to modify their environment and increase their sense of control through destructive actions.

Whereas, Sackett, Berry, Wiemann, & Laczo (2006) explained that organizational divergence refers to behavior that is harmful or counterproductive to the organization itself such as destruction or theft of organizational property, polluting, discussing confidential information, or little effort in one's work [25]. According to Fox & Spector (2005), divergences are behaviors that violate organizational norms and cause harm to the organization or its employees [8]. These behaviors, according to Fox and Spector (2005), are counterproductive with work behavior [26]. According to Fox et al. (2001), Counterproductive Work Behavior (CWB) is included in open actions such as assault and theft or passive actions, intentional errors with instructions or doing work improperly [26]. Fox & Spector (2005) stated that little attention causes to the impact of the organization (and also nationality) on CWB. Meanwhile, Sandra L. Robinson & O'Leary -Kelly (1998) showed that CWB individuals are influenced by members of the work group [27]. Therefore, Fox & Spector (2005) argued that group-level studies can be useful, to relate the frequency of behavior with contextual factors. Thus, Contextual performance can be defined as individual behavior that supports the organizational, social and psychological environment where the technical core should be utilized.

Morever, Spector & Fox (2010) explained that when a person involves in a prominent personal action, such as CWB, he or she will make attribution as the cause of then behavior. In this case, attribution is involved by the individual's efforts to understand his own behavior, not to others. The application of attribution theory by Jones & Nisbett (1972) on actor behavior that based on Bem's self-perception theory (1967), stated that people see and interpret their own behavior in an excessive manner the same way they understand the behavior of others [28]. Nevertheless, Jones & Nisbett (1972) highlighted the need for people to justify themselves in their tendency to relate negative behavior (or results) with situational requirements. Thus, the same type of evidence and logic are used whether people make attribution about themselves or others.

CWB, accordingly, can be a cause of considerable self-reflection, when the acute emotional response subsides. Based on this description, Spector & Fox (2010) suggested this matter to be applied to CWB, especially if it is associated with a negative emotional response to its predecessor at work [29]. More or less, this matter was revealed by Martinko, Gundlach, & Douglas (2002) although different theories have been used to describe how and why various causal reasoning processes are related to counterproductive behavior. We believe that attribution theory provides the most comprehensive, economical, and integrated explanation in terms of why some individuals, as opposed to others (when presented with the same stimuli) choose to engage in counterproductive behavior [30].

Conceptually, attribution theory is based on Heider's (1958) perception as stated in Spector & Fox (2010) which explains that people have an innate need to understand and control their environment. Individuals function as 'naive psychologists,' develops causal explanations for their own behavior and the behavior of others [31], based on a combination of external information, and internal beliefs and motives [32].

The results of Robinson & Bennett's (1995) research on typology of deviant work behavior explained that there are two different dimensions for measuring counterproductive work behavior:employee behavior toward individuals, and organiza-

tions. They also differed between various aspects of CWB which are categorized as interpersonal or organizational. One of the differences is in interpersonal aspects (CWB-I) which includes behaviors toward colleagues, such as humiliate coworkers. Meanwhile, the variable counterproductive work behavior is also included in the study framework to assess deviant and specific workplace behavior for individuals (CWB-I) and organizations (CWB-O). Consequently, Spector et al. (2006) stated that the dimensions of CWB-I are the same as the dimensions of Abuse against others, as one of the five dimensions of CWB. The dimension of abuse against others is a dangerous behavior acted to coworkers and others that threaten both physically and psychologically through: threats, bad comments, ignoring the person, or reducing the person's ability to work effectively.

Nevertheless, Ho (2012) research result about CWBI, distinguished interpersonal counterproductive work behavior (ICWBs) into behaviors that obstruct the performance of other workers' tasks (ICWB that focuses on the task), and personal things (ICWB that focuses on people). Ho (2012) also defined interpersonal Counterproductive Work Behavior (CWBi) as a direct behavior that threatens or endangers individuals within the organization, such as coworker's ridiculing behavior, uttering something that humiliate someone at work, and ridicule coworkers. Ho (2012) also suggested that further research should be able to improve the item further by including " deliberate " into the expression, so it will be consistent with the conceptualization of CWB as intentional, rather than unintentional behavior.

2.3. Proposed Model of the Counterproductive Culture Behavior

A described review of the synthesis literature on openness and counterproductive work behavior is the basis for finding the synthesis of the concept of counterproductive cultural behavior as outlined in figure 1. Based on the results of synthesis of openness and counterproductive work behavior (that requires further research on deviant behavior), it can be stated that both concepts require a new concept to answer and solve divergence behavior problems. The concept that has been proposed to answer this problem is Counterproductive Cultural Behavior (CCBs) which is also novelty in this study. According to J. B. Barney, Jr. & Wright (2011), one implication of a relevant theory is stated critically, and should also be followed by revitalization or decline [33]. Thus it can be concluded, the concept of Counterproductive Cultural Behavior's (CCBs) as novelty has matched the requirements [34].

Synthesis and novelty flow of the concept of Counterproductive Cultural Behavior's (CCBs) result the following propositions:

Cultural openness and interpersonal counterproductive work behavior is bridged by the concept of counterproductive cultural behavior, potentially detect the performance of relations in the workplace (contextual).

3. Conclusion and Recommendation

Many studies have investigated counterproductive behavior with different methods, tools and techniques. Nevertheless, this article is a differentiator. The researhers offer a novelty as a new concept called as Counterproductive Culture Behavior's (CCB's). The concept of CCB is expected to provide enlightenment in Counterproductive theory, especially to investigate the culture inherent in a person at work. The researchers combine the three elements in CCB's as a measurement indicator that is fundamentally based on Personality Theory, Planned Behavior, and Attribution Theory. These three elements are: Counterproductive, Culture Value, and Behavior's. The results of our review analysis found and explained that counterproductive cultural behavior is adequate to detect contextual performance in the interpersonal relationships of organizational members in the
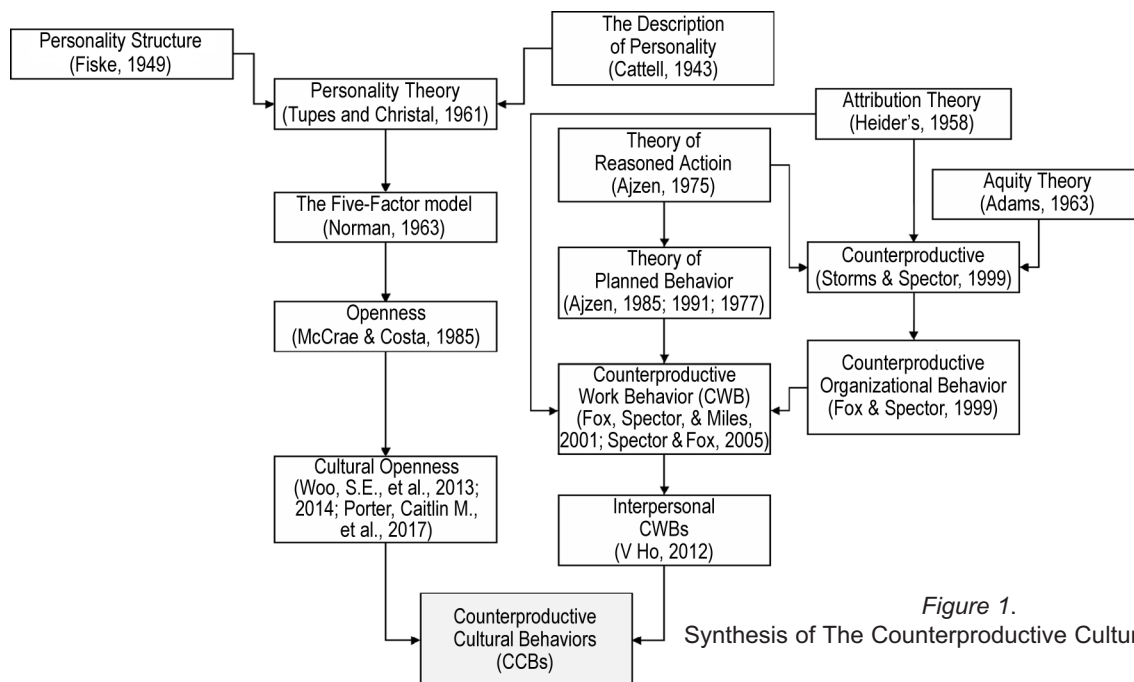
Figure 1.
Synthesis of The Counterproductive Culture Behavior

workplace from the concept of cultural openness and inter-personal counterproductive behavior in carrying out organizational goals.

Notwithstanding at this occacion, the researchers are carrying out the development of a research model to find empirical models for education personnel in private universities and colleges in the city of Medan. The researchers also recommend these findings to be followed up as basic theoretical considerations to determine the development of the theory of contra-productive behavior, and of course examine it empirically in different geographical and cases, considering the limitations in this study.

In conclusion, the CCB's concept is a solution for HR Managers to anticipate and overcome low or narrow cultural openness and interpersonal counterproductive work behavior employees perform at work.

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The Peter Principle and the Limits of our Current Understanding of Organizational Incompetence

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Abstract

This article discusses the implications of the Peter Principle, as it reflects the intriguing reality of the most organizational systems. Deliberately or not, the latter frequently encourage individuals to climb to their level of incompetence ending up in a situation in which most job positions are occupied by employees incapable of carrying out their duties, and leaving the few remaining ones to actually accomplish organizational goals. The article contains a comprehensive analysis of previous research and, based on these findings, develops several research directions which would bring to light new insights for the effectiveness of organizations and their HR strategies.

Keywords: Peter Principle; performance evaluation; promotion; incompetence; organizational culture.

1. Introduction

Incompetence defies the barriers of time or place. People come across it during their entire lives, and feel its effects every day, in various forms, and with a tremendous impact on their activity, career and personal development. In organizations, incompetent people occupying decision-making positions are even more harmful. Given the direct connection between the success or failure of an organization and the caliber of its employees, without the right person in the right place, organizations cannot sustainably progress and prosper. In other words, decisions about placing people are critical because they determine the performance of the entire organization (Drucker, 1998). If, by any mistake, a considerable number of employees eventually reach their level of incompetence, few remain to be effective and productive (Peter and Hull, 1969). However, even in this scenario, a company may survive due to the sufficient good decisions made by the right people who will compensate the mistakes or lack of action of the incompetent ones.

This solution is only suitable in the short run, whereas in the long run it will negatively affect the welfare of the company. The explanation resides in the employees' operational conditioning. Employees tend to improve their own activity when they see others being rewarded. Yet, when rewards go to non-performance, flattery or mere cleverness, Peter Principle is going to emerge and the organization risks developing a culture of incompetence (Drucker, 1998). In this case, incompetent people prevail, and the competent ones will eventually leave hindering the company's growth.

Now part of the business world lexicon, Peter Principle is oftentimes used to ridicule those aspiring for promotions out of the job that they are (over)qualified for until they reach the one exceeding their level of competence, or those who have been on the executive seats for a long time (Peter and Hull, 1969; Faria, 2000). Since it refers to the rampant incompetence found everywhere, not only in business, Peter Principle continues to fascinate both scholars and practitioners. As any organization could end up at a certain point with incompetent leaders and losing its best individual performers, the issues raised by the Peter Principle remain just as true nowadays as in 1969, when the theory was conceived. Exploring the issues that lead to the manifestation of the Peter Principle in organizations is useful for creating strategies to avoid them and warning system to detect them, thus leading to improved HR practices.

2. Description of the Peter Principle

Promotions are essential for a hierarchical organization, as they play both as incentive and enhancer of organization efficiency and performance by assigning employees to the jobs that best suit their abilities (Milgrom and Roberts, 1992). Theoretically, firms initially place individuals in jobs where they can do little harm, and those who prove able are then promoted to positions that require a higher level of ability. This approach is the core of the *tournament model* (Lazear and Rosen, 1981), which explains the positive effect that promotion and an associated increase of wage has on employees. The employee is generally motivated to exert effort and take actions beneficial for the organization. However, this conventional view is increasingly called into question, as it has been observed that promotions, if not wisely managed, could also have a negative impact as well.

2.1. Defining Peter Principle

In 1969, Peter and Hull advanced an apparently paradoxical principle summarized as follows: "Every new member in a hierarchical organization climbs the hierarchy until he reaches his level of incompetence" (Peter and Hull, 1969, p. 34). It is generally agreed that, in a hierarchy, promotion is strongly connected to the work competently done. However, the Peter Principle highlights serious flaws in the classical promotion

theory, and it even contradicts the conventional view that it acts as a major source of incentives.

The theory sustains that, sooner or later, employees will be promoted to a position for which they will be no longer competent, as the competence necessary for the new level could be uncorrelated to that required by the previous one. Thus, employees fall into *(un)conscious incompetence* or even *deliberate incompetence* (requiring supplementary payment for seriously working). The upward process eventually stops, and there is no downward process since bureaucracy makes it very difficult to demote an employee, even if that person would much better fit in a lower job. It is not surprising then that most of the higher levels end up being filled by inept people simply promoted because they were good at different tasks before promotion. Moreover, this phenomenon is not limited in scope, since it could happen to any employee at any level in the hierarchy, be it business, industry, trade-unions, politics, government, armed forces, religion, or education (Peter and Hull, 1969). Nevertheless, it should be made clear that *the Peter Principle is not a law* (Schaap and Ogulinck, 2011), but only a generalized principle, explaining a general tendency. The basic idea is that a new job requires a different set of skills in which the employee did not previously excel and which he usually does not possess.

2.2. Dealing with Peter Principle

There are various processes and characteristics of organization which help the Peter Principle emerge. Out of these, we only mention a few of them, namely *hierarchical exfoliation*, *paternal instep*, and the *political nature of organizations*. If the first one describes how organizations rid themselves of both the least and the most competent employees (as all of them are objectionable), the second one brings into discussion how a family member is suddenly promoted several steps above his level of competence (Peter and Hull, 1969). Moreover, politics usually interferes with the reward and promotion organizational practices and thus real competence is neglected and the pay-back promotions achieved (Beeman, 1981).

Dealing with Peter Principle is difficult because there are employees who never realize that, one way or another, they have reached their level of incompetence. They are "perpetually busy", "never lose their expectation of further promotion", and "remain happy and healthy" while joking instead of seriously analyzing things. Fundamentally, this could be seen as an act of substitution in which the employee replaces real work with other tasks that he is able to carry out. In extreme cases, an employee reaching his level of incompetence can no longer do any useful work. He is overly stressed, mentally disturbed and frequently sick. *Final placement syndrome* is a term describing this situation, and displays a variety of behavioral and psychological clues pointing it out (Peter and Hull, 1969): a) fonofilia (need to use several means of communication to keep close contact with colleagues and subordinates); b) papyrophobia or papiromania (having a clean desk to give the impression of efficiency or keeping the desk full to give the impression of too much work); c) clasofilia (mania for the classification of work documents of fear of not losing them); d) tabag gigantism (obsession with having the biggest office); e) tabulophobia (excluding work desks from the office); f) self-pity (based on previous experiences of competence); f) rigor cartis (abnormal and inflexible preoccupation for elaborating organizational charts, graphs and diagrams); g) unpredictability (as a defensive attitude to hide incompetence) and irrational prejudices related to employees' appearance; h) Coupp syndrome (hiding the inability to make decisions behind a democratic decision making process); and i) structurophilia (excessive preoccupation for buildings instead of for the work that should be done).

Considering the cascade effect that the manifestation of Peter Principle could trigger within an organization, some techniques were thought of for dealing with employees who have reached their level of incompetence. *Percussive sublimation* is a pseudo-promotion technique used to hide the flaws in the organization's promotion policy. It consists of promoting an incompetent employee to a higher position where he has no new responsibility in order to enable a more competent employee to step into the previous position. This supports staff morale and maintains the hierarchy. Reversely, firing the incompetent person might result in him getting a job with a competitor where, despite his incompetence, his knowledge could be dangerous. Another pseudo-promotion is *lateral arabesque* which refers to giving the incompetent employee the impression of a promotion through a more impressive title and then moving his office outside the principal working area, without an actual increase in rank or in pay (Peter and Hull, 1969).

3. Previous studies on Peter Principle

There are scholars who agree with the validity of Peter Principle, and there are also others contesting it. The former are keen on finding explanations that support their point of view and examples confirming it, whereas the latter look for evidence proving that nothing abnormal is happening. In between these extremes, there are others not focused on the frequency of occurrence or the degree of accuracy of the Peter Principle, but rather on finding methods to avoid and/or alleviate incompetence within organizations.

a. Organizational hiring and promotion practices foster incompetence

The way in which employee competence is judged by superiors depends on the level of competence of the latter (Peter and Hull, 1969). If these superiors are still at a level of competence, they will evaluate subordinates in terms of the *performance of useful work*. If the contrary, they will probably rate subordinates in terms of *institutional values* (i.e. supporting rules, rituals, and forms of the status quo). Bernhardt (1995) and Faria (2000) argued that even if promotion is based on the good performance of one task, the skills required by a new one may be quite different. This can lead to the appearance of the Peter Principle as Kane (1970) found that it is unlikely for an employee who has been promoted to perform as well as on his former position, since he has new tasks and responsibilities, and much of his experience is of little help. Moreover, once arrived at a position for which he is no longer competent, the employee is unlikely to be demoted because the employer is aware of the need to pay a bonus to retain a demoted worker (Bernhardt, 1995). Aside, Acosta (2010) showed that the opportunity for future promotion is strongly negatively related to the frequency of prior promotions and that incumbent employees are disadvantaged in comparison to externals.

In 2007, Baleanu highlighted the existence of certain groups within the organization that compete for limited resources and constantly bargain for the fulfillment of their group's desired goal. By utilizing the push and pull method advocated by Peter and Hull (1969), employees are able to meet the goals of their group, while attempting to fulfill the overall objectives of the organization. The end result is that a worker is promoted to levels where his decision making more strongly serves the group, than the larger organizational objectives, and thus the employee appears incompetent. Moreover, Fairburn and Malcomson (2000) showed that motivating an individual to perform well in a certain position by promising a promotion might result in a transfer to another position for which the person is not suited, and that employees can sway performance evaluations with bribes (collude with their supervisors to extract higher wages with no additional effort), which makes promotions based on evaluations biased. On the other hand, by making workers' earnings contingent on their job, and managers' pay contingent on the firm's profits, managers' interests become closely related to those of the owners. Therefore, even in cases of organi-

zations reputed for honest behavior, Peter Principle may have a sound basis unless incentives for promotion are not tied directly to managers' incentive programs.

b. Incompetence is only a temporary/relative state or the result of psychological stress

Patz (1975) researched on the idea that employees have a beginning ability potential, an upper limit (ceiling), and that their ability develops at a rate proportional to the difference between the ability ceiling and the current level. Besides, the ability ceiling itself rises at a rate proportional to the rate of change in ability and, that, given the cyclical nature of ability development, it is possible to simply wait until an employee begins to reassert a level of ability matching the demands upon him. A different approach had Hess (1976). He related incompetence to a certain level of anxiety and depression arising from childhood conditioning which teaches individuals that their success is the defeat of others. As a result, when placed into higher roles, employees shutdown, become ineffective, and consequently, they are considered incompetent. Later on, Lazear (2004) argued that decline in an employee's ability after promotion is actually the natural outcome of a statistical process. It displays regression to the mean and therefore Peter Principle is a necessary consequence of any promotion rule, as the expected ability of those promoted is naturally lower after promotion than before.

c_1. To avoid incompetence, training methodologies should be used

Cummings (1971) and Rimler (1971) stated that proper training and employee development programs are the answer for creating strong and robust organizations. In their opinion, if managers embrace robust learning initiatives, the Peter Principle can be nullified. Moreover, it was emphasized that the performance review process has to be designed for the purpose of self-development with provisions for guiding, counseling and training and all managers have to be taught to motivate, lead and control the activities of their subordinates (Anderson, Dubinsky and Mehta, 1999). Cann and Cangemi had approached, also in 1971, the idea that, in the short run, each employee has a unique competence plateau that could be increased through education and practice.

c_2. To avoid incompetence, organizational design of conventional hierarchies needs to be reconsidered

Shull and Mosely (1970) argued that conventional structures and bureaucratic controls no longer keep pace with technological advances required by firms. They asserted that modern employees must participate and be involved in the management process, and they pleaded for on-going organizational relationships. Consequently, as the nature of the organizational structure partially determines the style of supervision, evaluation and promotion, and implicitly the type of leadership, the former needs to be changed in the same vein. Tracy (1972) concluded that vertical organizational structures are the root of all evil. He also argued that, in order to survive, a dominant hierarchy must create and maintain a "parahierarchy" composed of members of a subordinate class to whom the Peter Principle does not apply.

c_3. To avoid incompetence, more effective promotion criteria have to be identified

In an article on the promotion of engineers to management, Gately (1996) found that technical ability was often the number one factor for promotion. Although the study pointed out the author's concern that technical engineering ability is not a strong indicator of management success, it was asserted that Peter

Principle can be avoided, as long as promotion is based on technical merit and accomplishment. Later on, Buchman (2010) and Pluchino, Rapisarda and Garofalo (2010) explored alternative promotion tactics and concluded that randomization is the most effective strategy, despite the possible poor morale and alienated workers resulted.

After all, it appears that not much has truly changed in the many years since Laurence J. Peter formulated his principle. The literature review performed in this paper is a strong evidence of the fact that the Peter Principle is still thriving and can still be found in most of the organizations.

4. Envisioned studies on Peter Principle

Considering what has been written until now on the manifestation of Peter Principle in organization, we have highlighted a number of areas for future research which would, on the one hand, help solving the dilemma regarding its existence, and, on the other hand, help improve HR promotion strategies.

A. Psychological aspects of Peter Principle

First of all, the psychological profile of those employees most prone to end up in a situation of incompetence after being promoted merits further investigation. Several psychological characteristics such as the need for achievement, Machiavellianism, self-awareness etc. could have an effect on the likelihood of accepting positions for which the person is not entirely qualified. Moreover, there could be some psychopathic traits which make certain individuals desire to be constantly promoted and there could be certain fields of activity in which the desire for career climbing is higher than others. From a different perspective, the psychological effects that the Peter Principle has on those who realize they are in a position of incompetence also deserves further attention, especially in regards to the ways in which these affect the possibility to learn and increase capabilities as argued by Patz (1975). Lastly, the application of Peter Principle to cases of deliberate incompetence is also interesting. These employees perform their work duties at a level of incompetence that does not warrant them being fired and require extra pay for doing serious work. In this case, they rarely make mistakes and they might actually get promoted.

B. Difficulties related to the establishment of criteria used for promotion

Firstly, given the fact that nowadays there is a focus on team work, we need to investigate the means for effective evaluation of the employee proposed for promotion. These would need to distinguish between whole group competencies and those exhibited by the individual employee. Secondly, there is a need to analyze the influence of "favorable circumstances" or "pure luck" and the actual competences and, following Dickinson and Villeval (2012), shed light on the manifestation of Peter Principle in empirical settings by considering selection bias and the measurement of "luck". Thirdly, further research is necessary on how the new employee-employer compact (the agreement between companies and employees in terms of commitment and responsibilities) affects the manifestation of the Peter Principle. Hoffman, Casnocha and Yeh (2013) argue that the current labor market is no longer based on the idea of advancing up the ladder in single company and that employees nowadays tend to seek promotion opportunities outside their current places of employment. Acosta (2010) studied the difference in promotion opportunities for incumbent versus external hires, but there is still more work to be done to establish how these briefer periods of employment affect the probability of a certain organization to fall in the Peter Principle trap. Lastly, if an employee does not perform well on a lower level position due to

various reasons (poor recruitment, unavailable higher positions) should he still be promoted and how well does the Peter Principle apply to this type of situation. Is a new corollary necessary?

C. Establishing the conditions for the Peter Principle in an organization

Firstly, it is necessary to establish how long the acco-mmodation period on a new position should be in order to accurately declare that the employee is incompetent, something which Lazear (2004) discusses in his study. Secondly, research should enlighten how likely a company is to promote a less competent person instead of a more competent one and even push the latter to resign. This is in regards to hierarchical exfoliation: super-competent employees often get stuck in their ranks or get dismissed in order to preserve the hierarchy. The persons on top of the hierarchy, wishing to remain in power, choose associates that are not competent enough to remove them from power. Thus, is there any association between the organizational culture or field of activity and the above-mentioned approached? Thirdly, how can Peter Principle be triggered by paternal in-step when a family member is promoted several steps above his level of incompetence and what are the consequences of this situation for organizational morale (e.g., considerable ill feeling towards the new appointee might arise) and for the individual (e.g., the negative effects of Peter Principle mentioned by Peter and Hull (1969)). Finally, researchers should also look at the way in which Peter's inversion manifests in organizations. This happens when employees have little or no capacity for independent judgment, always obey and never decide. These are the kind of workers who show obsessive concern with executing job requirements correctly, permitting no deviations from the established routine. To a person who follows the professional automaton, paperwork is more important than the purpose for which it was originally designed, in other words, means are more important than ends. Unfortunately, the auto-maton appears to be competent from the hierarchy's point of view and could be considered for promotion and end up in a position where he no longer is capable of making decisions. It is at that point that he reaches his level of incompetence. These people are often managed by incompetent managers who care more about sycophancy and courtesy towards bosses, than one's internal efficiency.

5. Conclusions

There is nothing about being a great surgeon or educator that actually prepares them to manage a hospital or an educational institution. In the same vein, the skills necessary for running a successful political campaign have little to do with those required for governing a county or a country. Uncon-sciously or unconcerned with possible consequences, many organizations promote good performers based on their up to that point achievements, irrespective of their relevancy for the future acquired position. Thus, they often end up with incompetent decision-makers and lose their super-competent employees. On the other hand, painfully funny is that most of the employees that validate the Peter Principle do not realize that reaching such a position in the hierarchy has detrimental effects for both them-selves and the organization. It works similar to a paradox: the more motivated are employees to work hard for proving their competence, the faster is their climb on the hierarchical ladder, and the sooner most of the higher level managerial positions risks to be filled with too poor holder of managerial skills.

However, understanding the triggering factors for this paradoxical situation, the favorable conditions for it to emerge and flourish, as well as its possible consequences would help fighting against it, or, at least, wittingly make decision. This is what the present article pleads for.

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Effect of Market Orientation on Business Performance in MSMEs as Mediating by Dinamic Marketing Capabilities

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Abstract

Effect of Market Orientation (MO) on Business Performance in MSMEs as mediating by Dynamic Marketing Capabilities (DMC) is a topic related to business performance still needs to be done research and assessment, moreover, it is linked to marketing studies. Dynamic marketing capability is an interesting theme to be studied empirically. This study aims to determine whether the DMC can mediate the influence of market orientation on business performance. The research methodology recycled was descriptive quantitative using simple linear regression analysis and using SPSS v 23 and Amos v 23 software calculating tools, through a measurement model using Confirmatory Factor Analysis (CFA) and Product of Coefficient Strategy analysis: Single Mediation Model, with samples 74 MSMEs. This study shows that the DMC variable can mediate the influence of Marketing Orientation and Business Performance on MSMEs in Sukabumi City, West Java, Indonesia in 2018.

Keywords: dynamic marketing capabilities; market orientation; business performance; MSMEs.

1. Introduction

The interesting to be studied within the field of marketing management and is a strategic marketing concept in measuring things that are directly related to topping managerial ties, supply chain integration [1], organizational irregularities [2], innovations carried out [3], Brand orientation in business-to-business marketing [4], even related to the effects of resilience, creative self-efficacy, innovation, and industry experience with a company [5]. In addition, many studies of company performance are related to external matters such as aspects of a country's political connection [6], [7]. ownership within the business industry [8]–[10]. The performance throughout the company will be focused on competitive advantage [11], [12].

Organizational science plays a role in finding determinants in company performance [13]–[16]. Regarding the marketing concept which is related the performance throughout the company, various ways are carried out so that there is a development of ways to assess the constructs that are used then different appraisal of company performance had conceptual and empirical tendencies [17]–[19].

Marketing research serves as a conceptualization, marketing innovation is suggested to improve the company's performance through various available spaces. This is allegedly moderated by the level of radical product innovation the company is currently undergoing and the level through the innovation process undertaken by the company [20]. Research related to customer analysis has a positive effect the performance for a company [21]. Furthermore, the marketing research process plays an important role the performance throughout the company. This means that both things are positively related and influence each other. Regarding this, we recommend that companies must provide sufficient funds to conduct market-related research, provide appropriate and adequate facilities to

improve capabilities in the business environment and make it more responsive to customer needs and establish strategies in terms of development that are placed in order improve staff performance which in turn will increase their contribution to the organization [22]. In addition to this, market orientation has a positive influence on financial and non-financial performance in an industry intensively. It is important for companies, related to ownership of high technology in order to improve performance by implementing a market-oriented strategy, emphasizing on effective and strong market research in order to influence the success of the company in developing macro [23], [24].

Innovations made by businessmen and entrepreneurs can influence the economic development within a country, this is to ruin a country that has a category of developing countries and also advance countries [25]. Below is presented data related to the Development of Micro, Small and Medium Enterprises (MSMEs) in Indonesia.

Based on data table 1. The development of Micro, Small and Medium Enterprises (MSMEs) and sizeable Enterprises in Indonesia in 2012-2013 can be seen the development of business units in that year amounted to 1,361,227 or 2.41%, and the highest increase in the Medium Enterprises of 311 or 6.35%. Whereas in the Big Business, it still experienced an increase even though the number of entrepreneurs was too high, which was 98 Business Units (1.97%). Furthermore, if the development of Micro, Small and Medium Enterprises (MSMEs) and Large Businesses in Indonesia in 2012 - 2013 seen from the number of Workers (People) there was a quite towering increase of 6,873,090 (6.20%) and the highest increase in Small Business amounting to 1,034,262 (22.80%).

Looking at the data above, Indonesia as a developing country makes it potential to become a country that has a high population of entrepreneurs or entrepreneurs, making it possible to improve welfare and alleviate poverty [26]. The following is

No	Unit	Year 2012		Year 2013		Development	
		AMOUNT	(%)	AMOUNT	(%)	AMOUNT	(%)
BUSINESS UNIT (A+B)	**(Unit)**	56,539,560		57,900,787		1,361,227	2.41
A. Micro, Small and Medium Enterprises (MSMEs)	**(Unit)**	56,534,592	99.99	57,895,721	99.99	1,361,129	2.41
- *Micro* Enterprises	(Unit)	55,856,176	98.79	57,189,393	98.77	1,333,217	2,39
- *Small* Enterprises	(Unit)	629,418	1.11	654,222	1.13	24,803	3.94
- *Mediun* Enterprises	(Unit)	48,997	0.09	52,106	0.09	3,11	6.35
B. Big Business	**(Unit)**	4,968	0.01	5,066	0.01	98	1.97
LABOR (A+B)	**(Person)**	110,808,154		117,681,244		6,873,090	6.20
A. Micro, Small and Medium Enterprises (MSMEs)	**(Person)**	107,657,509	97.16	114,144,082	96.99	6,486,573	6.03
- *Micro* Enterprises	(Person)	99,859,517	90.12	104,624,466	88.90	4,764,949	4.77
- *Small* Enterprises	(Person)	4,535,970	4.09	5,570,231	4.73	1,034,262	22.80
- *Mediun* Enterprises	(Person)	3,262,023	2.94	3,949,385	3.36	687,363	21.07
B. Big Business	**(Person)**	3,150,645	2.84	3,537,162	3.01	386,517	12.27

Table 1. Development of MSMEs and Large Enterprises in Indonesia

Source: BPS, 2018

Figure 1. Number of Business Units, Large Industries in West Java by Regency and City
Source: Pusdalisbang West Java, 2018

the Number of Business Units, Large Industries in West Java by Regency and City.

Based on Figure 1, shows that the Business Unit, sizeable industry in West Java by Regency and City in 2011, the highest and in the City of Bandung (1,200), then the District of Bogor (473) and the City of Bogor (395). Moreover, data related the number of MSMEs in Sukabumi. Data from the Office of Cooperatives, MSMEs, Trade, and Industry of Sukabumi City said that the number of MSMEs in Sukabumi City reached 18,310 units. The potential of MSMEs in Sukabumi was quite large, consisting of several fields. The details are that MSMEs is engaged in 2,425 industrial sectors, 6,835 formal trade, 3,570 non-formal trade for PKL, and 5,458 other service businesses. (Office of Cooperatives, MSMEs, Trade, and Industry of Sukabumi City, 2018).

Based on the explanation above, the company's performance needs to get important attention in order to develop and advance the business that is carried out. If you are not at the manage, it will cause the condition of the business unit to be disrupted and in turn be bankrupt. One of the objectives of establishing a business is to be able to maintain the business life cycle so that it can compete with other business units. Company performance if ignored will cause the influence other business elements that exist within the company. Therefore, a marketing strategy needs to be formulated and designed to overcome the deterioration of company management which in turn affects the company's performance. Companies must be able to design the best solutions to overcome existing problems and will emerge in the future.

Enterprises that affect the performance a business is: Market Orientation [23], [24]; Dynamic Marketing Capabilities [27]–[30]; Marketing ability of a company (Marketing Capabilities) [31]; The

marketing research process carried out [22]; Ownership of Business Units [7]–[10]; Political connection with business units [6], [32]; Ownership of Human Resources that are very adequate (Human Resource) [3], [34], [35]. Market orientation (MO) has the consistency in influencing company performance (BP) and also has a relationship with DMC in which valid to business performance improvements

2. Research Methodology

This uses latent descriptive quantitative method simple linear regression analysis and accepting SPSS v 23 and Amos v 23 software calculating tools. The instruments in the form of questionnaires were distributed to 74 research respondents, namely Micro Small and Medium Enterprises (MSMEs) in Sukabumi City, West Java Province, Indonesia. Measurement the measurement model using Confirmatory Factor Analysis (CFA) as well as a test instrument for the validity and reliability of research instruments, the aim is to determine whether the measurement model proposed is a CMM (Congeneric Measurement Model) or not. CMM is achieved: Model measurements fit with sample data; Each indicator only measures a construct with the amount of errors not correlating to each other; and dependable factor weight coefficient in measuring the latent variable (construct). Furthermore, after a fit model is composed, an analysis will be carried out using the Product of Coefficient Strategy: Single Mediation, The Normal Theory Approach [36], [37].

3. Results And Discussion

This research was conducted in Sukabumi City, West Java Province, Indonesia. With the aim of wanting to know whether the variable Dynamic Marketing Capabilities (DMC) can mediate the effect of Market Oriented (MO) variables with Business Performanca (BP) on Micro Small and Medium Enterprises (MSMEs). Furthermore, data related the number of MSMEs in Sukabumi. Data from the Office of Cooperatives, MSMEs, Trade, and Industry of Sukabumi City said that the number of MSMEs in Sukabumi City reached 18,310 units. The potential of MSMEs in Sukabumi was quite large, consisting of several fields. The details are MSMEs engaged in the industry as much as 2,425; number of formal traders 6,835; Non-formal trading for as Many Street vendors is 3,570 and other service businesses around 5,458 units. (Office of Cooperatives, MSMEs, Trade, and Industry of Sukabumi City, 2018).

Sukabumi City Government encourages MSMEs to market their products online by the perpetrators themselves. Later, he continued that products made by this home industry could be expanded to marketing. From the results of monitoring related agencies, many MSME and creative economy actors have entered e-commerce. This step is clear that he will increase sales turnover from MSMEs players. The Sukabumi City

Government has several times trained MSMEs to market their products through e-commerce. This training he said as part the movement towards 100 smart city organized by the Ministry of Communication and Information Technology so that the MSMEs players can market their products through e-commerce and can increase their income. This online MSMEs marketing can increase sales. The marketing process he said through the existing marketplace. It is expected that the buying of Sukabumi MSMEs products can penetrate public and foreign markets so that ultimately it can help federal economic growth and also reduce the number of unemployed [38], this is proof empirically that the marketing in Sukabumi City runs dynamically.

As explained above, that this research is carried out testing stages of measurement models by using Confirmatory Factor Analysis (CFA) to validate the proposed instrument and model.

MEASUREMENT MODEL TEST
CHI SQUARE = 210.106; df = 87; p = .000;
RMSEA =.139; AGFI = .637;
GFI = .737; CFI = .808; TLI = .769
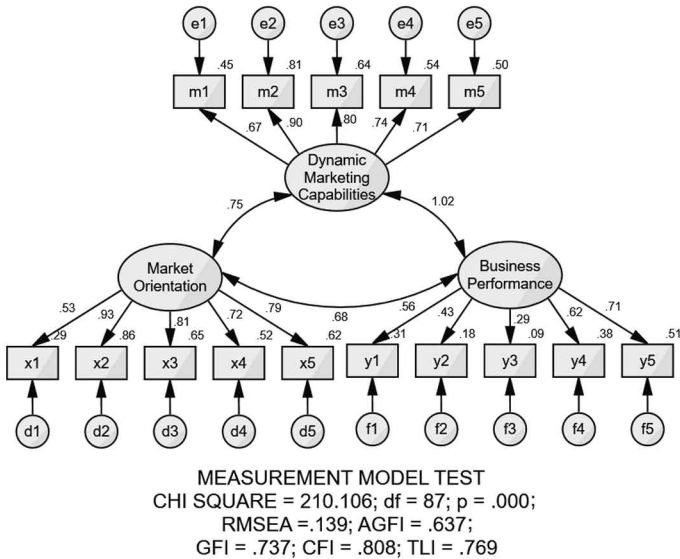
Figure 2. Model Test Measurements (All Items)

Figure 2 above shows the model measurement test for business performance research. From the picture above shows that the calculated value for Chi-square is 210.106, with df = 87 and p-value = 0.000 with the value of Root Mean Square Error of Approximation (RMSEA) = 0.139. Besides that, from the result the output calculation in the estimate of standardize Regression Weigth section, there is a value <from 0.50 so that the item is considered invalid, so the item must be discarded.

MEASUREMENT MODEL TEST
CHI SQUARE = 138.595; df = 62; p = .000
;RMSEA =.130; AGFI = .696;
GFI = .793; CFI = .868; TLI = .834
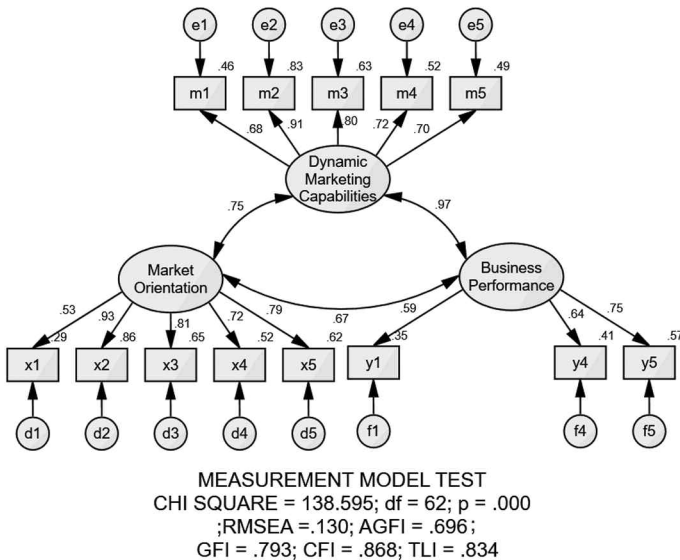
Figure 3. Measurement Model Test (Non-invalid items)

Figure 3 shows the model measurement test without entering invalid item items (items about y2 and y3). Calculated

for Chi-square is 138,595; with df = 62 and p-value = 0.000 with the value of Root Mean Square Error of Approximation (RMSEA) = 0.130. From the results of the model measurement test related to instrument validity and reliability for each item in the study.

Variable	Questionnaire	Item Number	Invalid Item Number *	Alpha coefficient **
MO	MO Scale	1 – 5	-	0.845
DMC	DMC Scale	6 – 10	-	0.872
BP	BP Scale	11 – 15	12 and 13	0.688

* The Estimate of Standardize Regression Weight <0.50.
** Testing is done after an invalid item has been dropped.

Table 2. Summary of Validity and Reliability Test Results (Business Performance Questionnaire)

Table 2 above is a summary from the results to the validity test using CFA and reliability using SPSS v 23. For the variable X (Market Orientation) and the variable M (Dynamic Marketing Capabilities) the items of the research questions are all valid categories, and each has an alpha coefficient of 0.845 and 0.872 both results fall outside the category of very high reliability values. Whereas for Y (Business Performance) variables there are two invalid item items, while the negative coefficient value is 0.688 (high category).

MODEL FIT BUSINESS PERFORMANCE
CHI SQUARE = 138.595; df = 62; p = .000；
RMSEA =.130; AGFI = .696;
GFI = .793; CFI = .868; TLI = .834
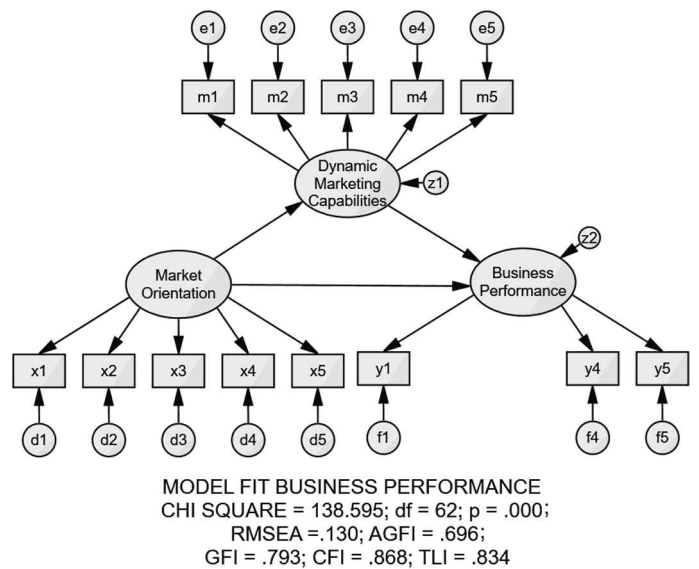
Figure 4. Model Fit Business Performance

From the results of the model measurement test, a model for business performance measurement is produced as shown in Figure 4 above. Furthermore, related to the analysis the influence of Market Orientation on Business Performance mediated by Dynamic Marketing Capabilities variables can be seen in Figure 5 below.
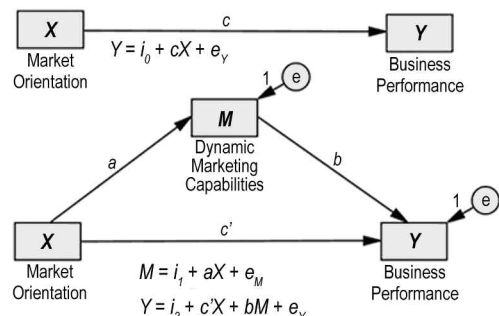
Figure 5. Simple Mediating Models (Dynamic Marketing Capabilities mediate the influence of Market Orientation on Business Performance)

The picture above shows the research model that dynamic marketing capabilities function as a mediating variable between market orientation and business performance. Below is an explanation related to the results of the research analysis.

Antecedent		Consequent					
		M (DMC)			Y (BP)		
		Coeff.	SE	p	Coeff.	SE	p
X (MO)	a	0.530	0.062	< .001	c'	-0.021	0.047	.652
M (DMC)		-	-	-	b	0.435	0.064	< .001
	i_1	8.526	0.685	< .001	i_2	3.431	0.658	< .001
		R2 = 0.509			R2 = 0.595		
		F (1.72) = 74.485, p < .001			F (2.71) = 52.075, p < .001		

Table 3. Summary of Analysis Results, Simple Mediation Model Dynamic Marketing Capabilities

The data above shows that the coefficient c' = -0.021 means that it can be said to be insignificant (p = 0.652> 0.05). Because according to the results of the C 'analysis is not significant, it can be concluded, Dynamic Marketing Capabilities / DMC mediates the influence of Marketing Orientation / MO on Business Performance / BP. The magnitude of indirect effect X (Market Orientation) on Y (Business Performance) = ab = (0.530 x 0.435) = 0.231 (p <0.001).

Many studies have proven the relationship between marketing capabilities with performance [39]–[48], or dynamic ability with performance [42], [49]–[54], in addition to being related to marketing orientation with performance [42], [45], [55]–[59].

In addition to this, research is related to forceful capabilities are seen from the point of marketing of business performance few have conducted research, there are some who carry out the research, including: 1) Preliminary research study related the development through the concept of Dynamic Marketing Capabilities (MDC) conducted through investigation of their development in international joint ventures (IJV) in China shows the effect of MDC on the superiority and competitive performance of IJV [28]; 2) Research literature related to dynamic capabilities and the latest empirical work through the impact of market knowledge on technological innovation, this research gets the concept of dynamic marketing capability and explores its validity through qualitative and literacy-based studies of the performance of pharmaceutical companies, which ultimately creates modern products and changes under the form of brand new-product development [27]; 3) Further research related with the role of IT in enhancing the company's dynamic marketing capabilities, the results can be developed by the model relating to market orientation, IT infrastructure capabilities, and use of IT in customer relationship management (CRM) [60]; 4) The study of the influence of dynamic marketing capabilities on innovation and performance in the context of large service companies conducted on 152 service companies, the results show that operational marketing capabilities affect dynamic marketing capabilities [29] 5) Subsequent research shows the relationship of dynamic capabilities with company performance through marketing results, including marketing responses, marketing excellence and marketing productivity [61]; 6) The mediating role of Consumer-Based Brand Equity in the relationship between Dynamic Marketing Capabilities and New-Product Adoption, this study shows the need for organizations / companies to communicate with customers in hopes of changing their attitudes, perceptions, and beliefs that interest them to be linked the company [62]; 7) further studies related to marketing capability theory to understand the internal dimensions of Dynamic Marketing Capabilities (DMC) and the application of DMC in the export process [63]; 8) Dynamic marketing ability (DMC) has an important role in the reconfiguration of operational marketing capabilities, which in turn will improve organizational performance and then an organization with an enhanced DMC can initiate market disruptions and achieve high performance by defeating competitors [30] 9). Meanwhile Dynamic Marketing Capability (DMC), a key component of dynamic capabilities, to

improve innovation performance [64]; 10) and the last shows that marketing capabilities, especially market orientation, work synergistically with the ability of other organizations to shape Dynamic Marketing Capabilities that enhance corporate innovation [65].

This research provides something new, namely placing Dynamic Marketing Capabilities (DMC) as a mediating variable between the influence of Market Orientation (MO) and Business Performance (BP). In addition, this research was carried out on Micro, Small and Medium Enterprises, which is getting more attention from the government. With the results, this study proves that there is a positive influence between variable's X (MO) with M (DMC) and there is a favorable influence between M (DMC) and Y (BP). Novelty research compared to the foregoing research is that this research is the first research makes the variable DMC as a variable that mediates between Market Orientation variables and Business Performance and is carried out in Micro Small Medium Enterprises; the second, that previous research only studies the relationship with dynamic marketing variables or marketing capabilities with business performance, also between MO and performance. In this, study produced a research model that relates between inconstant MO, BP and DMC, which places the DMC variable as a mediating variable so that it raises a new model that connects the variables studied.

4. Conclusions and Implication

The results from this study indicate that the Dynamic Marketing Capabilities (DMC) variable can mediate the influence between Marketing Orientation and Business Performance on Micro and Small and Medium Enterprises (MSMEs). Furthermore, market orientation has a favorable influence on DMC and so have a positive influence on business performance.

The implication from this research is that the researcher recommends that researchers use variable control in future research, in the form of company age, company location, and so on. So that it can complement and develop existing research treasures. Research can be carried out on larger types of companies or industries that have a wider company network (not just one city as a research sample). Behavioral aspects and organizational culture will be an interesting study in subsequent research that is associated with dynamic marketing capabilities, but this will bring new problems related to exploratory research methodology in order to get different results between the research that has been done and not become conclusive.

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The Determinants of Innovation in Micro and Small Enterprises in the Northeast of Brazil

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Abstract

Given the increasing complexity of the business environment, which has a considerable impact on Micro and Small Enterprises (MSE), innovation becomes the key to creating and maintaining competitive advantages, generating positive results for both companies involved in the process of innovation, and for the economy as a whole. The present research had as objectives to verify how the innovation presents itself in the MSE of the State of Piauí, to identify the determinants of innovation for the MSE of the interior and of the capital. In addition, it was intended to verify if there was an association between the geographical location and the innovation. For this, the study was based on a sample of 617 MSE distributed in six cities of the State of Piauí. The data were collected through the application of the Innovation Radar conducted by the Brazilian Micro and Small Business Support Service's Local Innovation Agents program. Statistical techniques of descriptive, exploratory and multivariate nature were applied. The results showed that the MSE under studied has a capacity for innovation between "Little Innovative" and "Occasional Innovative", and that the found innovation factors suggest the innovation is market driven rather than geographically as is commonly found in the literature on the subject.

Keywords: *innovation; micro and small companies; GAII; management; Brazil.*

1. Introduction

A joint research project between the Brazilian Micro and Small Business Support Service (BMSBSS) and the Getúlio Vargas Foundation (GVF), released in an Executive Report by BMSBSS in February 2015, brought up the strategic importance of MSE for growth and economic development of Brazil. According to this survey, whose data cover the period 2001-2011, the share of Gross Domestic Product (GDP) by MSE in 2001 was 23.2%, rising to 27% in 2011, indicating that more than a quarter of GDP Brazilian company came from small businesses, is the main responsible for generating employment and income in the country.

Even considering the strategic importance of MSE for the economic growth and development of Brazil, there is a high mortality rate among MSE with less than two years of existence. Pereira, Grapeggia, Emmendoerfer and Três (2009), pointed to the lack of entrepreneurial behaviour, deficiencies in planning before opening the companies, deficiencies in management after opening the business, lack of support policies in the sector and depressed economic environment such as main factors explaining the high mortality rate, adding that the companies that were successful were those that used their innovative capabilities in the processes of management and use of new technologies.

Accordingly, innovation becomes the key to creating and maintaining competitive advantages, generating positive results for both the companies involved in the innovation process and the economy as a whole. In the words of Anthony and Chris-tensen (2007, p.19), "innovation is imperative to maintain the health of the company. In fact, the creation of new products, services, processes and operational models contribute to the growth not only of the company but also of the national and global economy". Innovation is the specific instrument of business activity. It is the action that endows the resources of a new capacity to create wealth. Innovation actually creates the resource. A "resource" is something that does not exist until man discovers a use for something existing in nature and thus endows with an economic value (Drucker, 1987).

Knowing the importance attributed to innovation in the current business context, the main objective of this research is to identify the explanatory factors of innovation for MSE in the interior and capital, as well as the relationship between identified factors and innovation in their global context. In addition, it is expected to find evidence that the degree of innovation of the MSE under study is associated with Geographic Location.

The present work is structured in four points, besides this introduction. The theoretical framework of the study is presented below, where the main concepts that guided the investigation are explained. Subsequently, the research methodology is presented, referring to the research objectives and hypotheses, the instrument for data collection, population characterization, sample definition and data processing technique. The third point is based on the analysis and presentation of the results, being the core of the present work. The present research is concluded with the presentation of the main conclusions of the study and suggested lines of future research on the subject in question.

2. Theoretical Framework
2.1. Innovation in Developing Countries

The companies do not operate in total isolation from the environment in which they are inserted. The environment at the same time as it is influenced by the organizations influences the conduct and performance of the same, especially, with respect to the practice of innovation. Small and medium-sized enterprises are the engine of economic development, especially in Developing Countries (DC). In order to respond to changing market circumstances, companies need to develop their organizational capacities, defined as the execution of coordinated tasks and the use of resources in order to reach a predetermined goal (Inan and Bititci, 2015).

According to the Oslo Manual (OCDE and FINEP, 2005), several exogenous factors make up the innovation scenario in the Developing Countries, such as macroeconomic uncertainty, instability, institutional fragility, lack of social awareness about innovation, entrepreneurial nature of risk aversion, lack entrepreneurs, barriers to nascent businesses, lack of public policy instruments to support business and managerial training, which act as an obstacle to innovation activity in these countries, a fact also pointed out by Rojas and Carrillo (2014) that shows that the exposure of Latin American countries with weak administrative, commercial and productive structures to market failures has led to defensive innovation strategies that take precedence over production initiatives and technological dominance with a more strategic focus.

Innovation in DC is characterized by the acquisition of third-party embedded technology to aid in the innovation of existing products and processes, which in turn are only minor or incremental changes that in some DC are the most frequent technological activities (Demonel and Marx, 2015; OCDE and FINEP, 2005). Tidd, Bessant and Pavitt (2008) define this type of relationship as "supplier-dominated" since most innovations in these circumstances refer to processes or innovations conducted by third parties.

Reichert, Camboim and Zawislak (2015) argue that the traditional view of the relationship between firms, innovation and development essentially relies on Research and Development (R&D) investments, patent grants and higher education personnel employed in these activities as the main responsibility for generating breakthroughs which lead to business development. However, as the same authors suggest, the fact that in emerging economies such as Developing Countries such a relationship is not necessarily positive, it doesn't remove the role of development agents from them, which is perfectly applicable to MSE, since in the Brazilian case the same has a 99,1% share in the country's economy and are responsible for 52.30% of all jobs generated (Paula, 2014).

2.2. Innovation in Micro and Small Enterprises

In Brazil, it is Decree No. 5,028, dated March 31, 2004, which gives the guidelines for the conceptualization of what has become an MSE. The decree establishes the gross annual revenue to determine and classify MSE, so that annual gross revenue equal to or less than $ 110,350.60 (One hundred and ten thousand, three hundred and fifty dollars and sixty cents) characterizes micro, companies or individual firms; and gross annual revenue exceeding $ 110,350.60 (One hundred and ten thousand, three hundred and fifty dollars and sixty cents) and equal to or less than $ 542.818,40 (Five hundred and forty-two thousand, eight hundred and eighteen dollars and forty cents) characterizes as a small business.

MSE have characteristics such as the involvement of leaders in operational activities, focus on short-term and survival plans, low standardization and formalization, limited client base, low level of employee training, limited knowledge of operational activities improvement and, especially, innovation based on the needs of improvement and technological clients (Inan and Bititci, 2015).

For Sibirskaya, Stroeva and Simonova (2015, p.510) "the advantages of small innovative enterprises are flexibility, the ability to adapt to the new demands that have been made by scientific and technical progress". Ornek and Ayas (2015) point to a positive relationship between intellectual capital and corporate performance, a relationship that is embodied in the transfer of intellectual capital to innovation. Therefore, the importance of the detention of qualified individuals is evidenced, as well as the existence of mechanisms that help in the development of innovations through the identification, use and sharing of knowledge, and since the MSE have the low degree of training of the collaborators, innovation in these ventures may be undermined.

Given the specific circumstances of small and medium-sized enterprises, which are also valid for micro-enterprises, and because they are the potential key to economic growth, with greater adaptability to changes in the environment, the government must undertake efforts to sustain and create new enterprises collaborative focus on research and development and easy access to the results of collaborative research (Popescu, 2014).

3. Methodology and Methods

The main objective of the present investigation is to identify the explanatory factors of innovation for MSE in the interior and capital, as well as the relationship between identified factors and innovation in their global context. In addition, it is expected to find evidence that the degree of innovation of the MSE under study is associated with the geographical location.

In this context, and in order to determine the innovation factors in the MSE of the State of Piauí, Brazil, and how it relates to innovation in general, the following research hypothesis is established:

❑ Research Hypothesis: Innovation in Micro and Small Enterprises in the State of Piauí is associated with its business environment (Geographic Location).

Research Hypothesis is based on the conceptual framework of Skibinski and Sipa (2015) and Aarstad, Kvitastein and Jakobsen (2016), who assert that MSE because they have limited internal resources, should use external sources of knowledge. In this way, the ability to explore and use the knowledge that comes from the outside becomes a key element for a successful innovation, which makes the environment in which it is located and the development of appropriate tools to exploit it. They further affirm that the geographic environment in which companies are inserted can have important effects on growth, profits and development, including survival and innovative performance.

The data collection instrument used was a questionnaire composed of 32 items that evaluate 13 (Thirteen) innovation dimensions, resulting from an adaptation made by Bachmann (2011) for MSE application of the Innovation Radar by Sawhney, Wolcott and Arroniz (2006), originally constituted of 12 (Twelve) dimensions. The innovation dimensions assessed by the Innovation Radar are: (1) Supply; (2) Platform; (3) Brand; (4) Customers; (5) Solutions; (6) Relationship; (7) Value Aggregation; (8) Processes; (9) Organization; (10) Supply Chain; (11) Presence; (12) Network and (13) Innovative Ambience.

In order to evaluate the reliability or internal consistency of the scale referring to the 13 (thirteen) dimensions of the Innovation Radar, the Cronbach's Alpha was calculated, as a measure of the proportion of variability in responses (Maroco and Marques, 2006). It was obtained a Cronbach's Alpha of 0.771, which can be considered as a reasonable reliability, being between 0.7 and 0.8.

The questionnaires were applied through the follow-up cycle of the program called Local Innovation Agents (LIA) of the

Brazilian Micro and Small Business Support Service from Piauí (BMSBSS-PI), which was conducted by 18 agents, resulting in a database with 617 cases, made available for the present investigation.

For the treatment of the data it was used the software SPSS Statistics in its version 22 and Numbers in its version 3.1. The statistical techniques used were descriptive, exploratory, inferential and multivariate in order to describe, analyse and interpret the behaviour of the attributes under study. Thus, in the first phase we chose to calculate the Global Average Innovation Index (GAII), obtained by means of the simple arithmetic mean of the above mentioned 13 (Thirteen) dimensions of Innovation Radar (Equation 1).

$$GAII = \frac{1}{n}\sum_{i=1}^{n} X_i \qquad (1)$$

Where,

n, corresponds to the number of independent variables of the Innovation Radar;

X_i, corresponds to the independent variables of the Innovation Radar (i = 1, ..., 13)

$$GAII = 1/3(X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + X_9 + X_{10} + X_{11} + X_{12} + X_{13}) \qquad 2)$$

At where,

X_1, Supply; X_2, Platform; X_3, Brand; X_4, Customers; X_5, Solutions; X_6, Relationship; X_7, Value Aggregation; X_8, Processes; X_9, Organization; X_{10}, Supply Chain; X_{11}, Presence; X_{12}, Network; X_{13}, Innovative Ambience.

The identification of innovation factors for MSE in the interior and capital was by means of Factorial Analysis, followed as well as an analysis of correlation to show the relationship between the factors of MSE innovation and the GAII to determine what is the most important factors of innovation.

A final sampling error of 3.94% and a significance level of 5% were assumed to calculate the sample size. In order to make the decisions regarding the research hypothesis, a level of significance of 5% was assumed throughout the analysis.

4. Analysis and Presentation of Results
4.1. Descriptive and Exploratory Analysis

The study sample consisted of 617 MSE distributed among six cities of the State of Piauí, as follows: Teresina 425 (68.9%); Bom Jesus 47 (7.6%); Floriano 40 (6.5%); Piripiri 40 (6.5%); Picos 33 (5.3%) and Parnaíba 32 (5.2%). Regarding the distribution of MSE by activity sectors, 54.6%, 34.5% and 10.9% represent the Service, Trade and Industry segments, respectively. Regarding location, 68.9% of the MSE in the sample are located in the state capital, while 31.1% are located in the interior of the State. The Global Average Innovation Index (GAII) obtained through the average of the 13 dimensions of the Innovation Radar, whose overall mean value was 2.01 points (standard deviation 0.92), denotes globally that the MSE of the study sample have innovative capacity between 'Little Innovative' and 'Occasional Innovative', according to the adopted classification of Neto and Teixeira (2011).

The mean standard deviation of 0.92 indicates that the firms analysed responded to questions related to the Innovation Radar in the same sense, that is, there was little variability around them.

In order to answer the Research Hypothesis, the GAII variable, measured on a metric scale, was transformed into a new variable measured on an ordinal scale. This new scale was called GAII-Classification, which classifies the degree of innovation in 'Low', 'Medium' and 'High', so that it is possible to use the analysis of independence (Chi-Square) to check if there

is an association between the degree of innovation and the Geographic Location. For the values obtained by the Chi-Square independence test, given the value of evidence obtained that was 0.818, higher than the significance level of 5%, it is concluded that there is enough statistical evidence to affirm, at a level of significance of 5%, that GAII-Classification and Location variables are independent.

4.2. Identification of the factors that contribute to innovation in the Micro and Small Enterprises of the interior and the capital

For the capital MSE, the Kaiser-Meyer-Olkin (KMO) and Bartlett test values are found to be 0.800 and less than 0.001, respectively. With these results is possible to conclude that the result of the Factorial Analysis is good, allowing also to reject the hypothesis of identity of the correlation matrix, that is, that the variables are correlated to the level of significance of 5%, reason why it is possible to proceed with the Factorial Analysis.

Table 1 presents the results of the Factorial Analysis for the MSE of the Capital. The factors were renamed as Factor (1) Innovation for the development of new market spaces; Factor (2) Innovation for the development of intelligent interactions with customers; Factor (3) Innovation for value creation; Factor (4) Innovation for the development of intelligent supply channels.

Through the analysis of the internal consistency of the variables that support the latent variable of the degree of innovation, the Cronbach's Alpha was calculated, which suggested the elimination of the Presence variable for the MSE of the interior. In this sense, the variable was removed for the production of the Exploratory Factorial Analysis, since it is not translated as significant for the degree of innovation in the interior. In the Factorial Analysis for indoor MSE, the values obtained from the KMO and the Bartlett test were 0.794 and inferior to 0.001, respectively, in which it was concluded that the result of the Factorial Analysis remains average (KMO between 0.7 and 0.8) so that we can proceed with the Factorial Analysis.

Table 2 presents the results of the Factor Analysis for indoor MSE. The factors were renamed as Factor (1) Innovation for the development of new forms of Management; Factor (2) Innovation for the identification of niche markets; Factor (3) Innovation for value creation; Factor (4) Innovation for intelligent brand positioning.

Considering that the present research also aims identifying the relationship between the innovation factors of the MSE in the interior and of the capital with the Global Average Innovation Index (GAII), to complement the analysis, an analysis of Spearman's correlation (ρ) between the newly created factors for the interior and capital MSE and the GAII, in view of the violation of the normality assumption of the variables.

Table 3 presents the results of the Spearman correlation between the innovation factors of capital MSE and GAII, in which it is observed that the factors Innovation for the development of new market spaces and Innovation for the development of intelligent interactions with the customers have the highest correlations, 0.635 and 0.506, respectively, with GAII. For the MSE located in the capital, this relationship is strong and positive ($\rho > 0.5$) for the first two factors and weak and positive for the other factors ($\rho < 0.5$).

Table 4 presents the results of the Spearman correlation between the innovation factors of the interior MSE and the GAII. For the MSE located in the interior, the factors that have the highest correlations with the GAII are Innovation for the development of new forms of Management and Innovation to identify market niches, with correlations in the values of 0.574 and 0.516, respectively, indicating a relation strong and positive ($\rho > 0.5$) with GAII, while the other factors, Innovation for value creation and Innovation for intelligent brand positioning, although presenting positive correlations with GAII, are significantly weak ($\rho < 0.5$).

Factors	% Variance explained	Eigenvalues	
Factor 1 – New Market Spaces	25.592	3.327	
	Variables		
	Supply (0.663a; 0.441b)	Customers (0.606a; 0.494b)	Organization (0.571a; 0.477b
	Processes (0.548a; 0.391b)	Presence (0.548a; 0.404b)	Innovative Ambience (0.545a; 0.423b)
	Brand (0.407a; 0.323b)		
Factor 2 – Smart Interactions	**% Variance explained**	**Eigenvalues**	
	10.352	1.346	
	Variables		
	Relationship (0.789a; 0.699b)	Network (0.770a; 0.690b)	
Factor 3 – Value Creation	**% Variance explained**	**Eigenvalues**	
	8.452	1.099	
	Variables		
	Solutions (0.797a; 0.646b)	Value Aggregation (0.740a; 0.585b)	
Factor 4 – Smart Supply Chains	**% Variance explained**	**Eigenvalues**	
	8.040	1.045	
	Variables		
	Platform (0.803a; 0.693b)	Supply Chain (0.558a; 0.552b)	

**a: Factor Load; b: Communalities after extraction.

Factors	% Variance explained	Eigenvalues	
Factor 1 – Innovation (Management)	31.605	3.793	
	Variables		
	Organization (0.739a; 0.635b)	Supply Chain (0.687a; 0.616b)	Supply (0.417a; 0.325b)
	Processes (0.683a; 0.554b)	Innovative Ambience (0.545a; 0.423b)	
Factor 2 – Innovation (Niches)	% Variance explained	**Eigenvalues**	
	11.571	1.389	
	Variables		
	Relationship (0.764a; 0.647b)	Network (0.740a; 0.706b)	Customers (0.422a; 0.421b)
Factor 3 – Value Creation	% Variance explained	**Eigenvalues**	
	9.382	1.126	
	Variables		
	Solutions (0.794a; 0.692b)	Value Aggregation (0.779a; 0.653b)	
Factor 4 – Innovation (Positioning/Brand)	% Variance explained	**Eigenvalues**	
	8.798	1.056	
	Variables		
	Platform (0.818a; 0.726b)	Brand (0.595a; 0.741b)	

**a: Factor Load; b: Communalities after extraction.

GAII	Innovation (New market spaces)	Innovation (Smart interactions)	Innovation (Value Creation)	Innovation (Smart supply chains)
	0.635**	0.506**	0.252**	0.427**

**, The correlation is significant at the level of 0.05 (2-tailed).

Table 3. Spearman correlation between the GAII and the innovation factors of the capital

GAII	Innovation (Management)	Innovation (Niches)	Innovation (Value Creation)	Innovation (Positioning/Brand)
	0.574**	0.516**	0.270**	0.465**

**, The correlation is significant at the level of 0.05 (2-tailed).

Table 4. Spearman correlation between the GAII and the innovation factors of the Interior

Based on all analysis presented previously, it is concluded that the Research Hypothesis have not been validated, that there is no association between the degree of innovation of the MSE and the Geographic Location, and Research Hypotheses is refuted.

5. Conclusions, Limitations and Future Research

The results obtained differ from the studies conducted by Skibinski and Sipa (2015) and Aarstad, Kvitastein and Jakobsen (2016), considering that in the case in question, there is no association between the geographic environment and the innovative performance of the Micro and Small Enterprises studied.

Walter, Veloso, Fernandes and Ribeiro (2017) analysed 550 MSE from the State of Piauí using exploratory and inferential techniques, found statistical evidence that indicated a certain degree of homogeneity in the innovation capacity of these companies. These authors attributed this finding to the Regional Innovation System, which, although incipient, believed to exert influence in providing a level of innovation between 'Low' and 'Occasional'. However, the results obtained in the present research indicate that there is statistical evidence to affirm that innovation capacity and geographical location are not associated. In this sense, it can be concluded that it is not the geographic location that determines the innovation of Micro and Small Companies in the state of Piauí, but other factors. The analysis of the correlations between the factors that determine innovation in capital and interior MSE with GAII leads to

indications that it is the Market, not the location which plays an important role in the innovative performance of the companies analysed; since results obtained to a greater or lesser degree point to a concern to innovate with market orientation. In addition, the low GAII value of 2.01 points (standard deviation of 0.92), characterising MSE between 'Little Innovative' and 'Occasional Innovative' may be related to weaknesses in MSE innovation capacity. Bayarçelik, Tasel and Apak (2014) were postulate that innovation can only occur if there is capacity for innovation in the company, better understood as the availability of resources, collaborative structure and processes for problem solving.

In this sense, the results obtained provide an important practical contribution to the management and monitoring of innovation in MSE, presenting an indicator that reflects how much innovation is present, serving as a parameter for possible actions of improvements to be adopted by both companies and by the public policies in the form of public policies that foster innovation in these enterprises. Within this framework, the encouragement of the establishment of partnerships between MSE and local universities and research institutes, with a view to obtaining the necessary resources for innovation, networks between MSE, as well as the implementation of a policy of financial subsidies by join the innovation networks, can be of great importance for the gradual increase of the innovation capacity of the companies studied.

As theoretical contributions, the results obtained provide evidence that the Market itself exerts a considerable influence on the way Micro and Small Enterprises innovate, contrary to what is commonly seen in the literature on the subject, that the Regional Innovation System is the the main catalyst for innovative performance. As in any study, there are some limitations. One of the limitations is that the available database has information restricted to the results of the application of the Innovation Radar.

As future research, it is suggested to explore whether the bureaucratic barriers encountered by Doruk and Söylemezoglu (2014) as crucial impediments to innovation in developed countries are present in developing countries' MSE. To consider the connection between innovation and economic growth pointed out by Pece, Simona and Salisteanu (2015) in the case of MSE. And to check what obstacles and incentives are present in MSE for the development and exploitation of open innovation networks in developing countries, since McCormack, Fallon and Cormican (2015) and Solleiro and Gaona (2012) present open innovation as a possible solution to the resource limitations of MSE in order to become more innovative.

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Evaluation of Employees Job Satisfaction through Training, Development, and Job Stress in Bank Maluku, Indonesia

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Abstract

This study aims to analyze the effect of training, development and job stress at Bank Maluku, Ambon Province. The research is explanatory research, which explains the relationship between variables through hypothesis testing. The sample in this research is employees of the bank of Maluku counted 196 employees with the technique of purposive Random Sampling. Data collecting using questionnaire with Likert scale 1-5. The data analysis in this research uses Structural Equation Model (SEM) with the help of IBM Amos 18 software. The findings show that training and development have a positive loading factor of 0.052, p <0.05 (0.039<0.05) and CR value of 2.236 while job stress negative relationship on employee job satisfaction with loading factor coefficient of -0.124, p <0.05 (0.010 <0.05) and CR value of -2.441. This research found that training and development contribute to increasing the employee satisfaction. Job stress should be minimized to create employee job satisfaction at Bank Maluku, Ambon. In addition, Maluku Bank is required to fill the positions of officials of the Bank with human resources (HR) who have competence and expertise in the field of risk management as certified by the Professional Certification Agency.

Keywords: training and development; job stress; job satisfaction; structural equation modeling (SEM).

1. Introduction

Human resources is one of the key success factors to win the competition in the era of globalization and free trade. As the implications of increasing the level of competition, the demand for quality human resources is increasing as well. So it is necessary to make efforts to improve the quality of human resources, among others can be done by training and development of human resources. PT Bank Maluku is a regional owned business bank with large assets in Maluku, which is growing every time.

Development of human resources in Bank Maluku is part of the company's internal management. Increased competition among banks in the Maluku Province in particular and Indonesia in general has made Bank Maluku clean up in the management of profitable and professional management without having to remove the characteristics of regional and function as a state-owned enterprise. Various training and development programs continue to be done so that employee business is increasingly competitive and growing to provide excellent service quality especially in terms of customer needs (Paais, 2013).

For the current condition, employee training and development activities conducted by Bank Maluku have successfully improved the performance of Bank Maluku employees. Today Banking performance in Maluku shows an increasing trend compared to the same period in 2014, which was marked by increasing the Third-Party Funds (DPK) as well as credit. DPK grew by up to 15.69% and the rate of loan growth increased by 31.84%. An increase in credit growth, which is much higher than the growth of DPK, encourages the increase in LDR Maluku banking from 90.86% to 78% - 100%, in line with the impro-vement of credit performance which is indicated by a decrease of Non-Performing Loans (NPL) from 2.46% in 2012 to 16.31% in 2014. In addition, this can be seen in the development of the Bank Maluku networks and now there are 45 office networks spreading in 11 regencies and thee municipalities in North Ma-luku, Maluku province. Hence, the development and volume growth of the Bank Maluku show improvement from the years 2012 to 2014 (Paais, 2013).

According to Angelina & Widjaya (2017) that employee development that is relevant to today's organizational change is an employee development that allows employees to become more aware and aware of their values, strengths, weaknesses and interests. In addition, employees can obtain information about employment opportunities within the company and be able to identify development goals and can develop a plan to achieve career goals. The Company engages in training and development activities, as training and development play an important role in determining the quality of work of employees within a company. Without training and development, the company can not achieve its goals. The results according to Raymond Noe's concept (2009: 228) that training and development is a business planned by the company (organization) to facilitate learning employee-related competence. Training and development is inseparable from the System and Procedures, where there are problems in the System and Procedures that have never been evaluated, training data and employee development are not in accordance with their skills. In addition, the fact shows that so far the board of commissioner of Bank Maluku is not held by professional group, but more dominant by group of politicians.

In addition to training and development, Job satisfaction is a

very important part for an organization. In the organization many people are working for the sake of money and profit. If the workers of an organization are not satisfied with their work, the Riaz et al., 2016). According to (Benavides & Venegas, 2018) that customer satisfaction is regarded as a crucial factor for the success of all market organizations. Bank Maluku in facing the era of globalization is facing problems in human resources that is training and development is not done based on the System and Procedures, so that employees who are recruited are given training is not in accordance with its ability to the needs. should the Banks are subject to a lot of financial risks. Credit risk is the most important one. Banks also have to manage the objective of maximum profit on one hand, the prudential rules on the other hand (Suvova, 2002).

Tampi et al., (2017) argues that the increasing competition and demands of professionalism lead to a great deal of pressure – the pressures that individuals must face in the work environment. The very harmful impact of anxiety disorders that are often experienced by society and employees in particular is called stress. This is experienced by employees of Maluku bank caused by work demands that are not in accordance with the employee's competence in addition there is pressure from outside the Bank with a prolonged social conflict occurred in Maluku, which is a national issue and also international, bringing tremendous impact especially for economic growth in Maluku is a declining business that hampers economic growth.

According to Wirawan (2012) that stress is an unexpected reaction arises as a result of the high demands of the environment to someone. Job stress is an important aspect for the company, especially its relation with job satisfaction. Stress that is not addressed properly usually results in the inability of a person to interact positively with the environment, both in the work environment and out of work. Given the magnitude of the effect of stress on employees on job satisfaction, things of concern in a company organization, including in banking. The bank is supposed to satisfy its employees because they are a valuable asset for the bank. This employee satisfaction effort is important so that employees can perform well, especially in providing services to customers.

Maluku Bank can be more developed optimally, so maintaining a continuous and harmonious relationship with employees becomes very important. This is because job satisfaction or employee dissatisfaction will determine whether or not the organization's goal setting is achieved (Iskandar and Sembada, 2012). Employees who are satisfied with their work are likely to be more enthusiastic about working and able to meet their job targets, but employees who are dissatisfied because of their working conditions will hamper their work activities, in other words dissatisfaction is the starting point of problems that arise in organizations such as conflict, absenteeism, turn over, and many other problems that cause disturbed process of achieving organizational goals. Therefore, to know how the training and development and job stress, affect the job satisfaction, will be studied in this study, especially at the Maluku Bank in Maluku Province Ambon.

2. Method of Research

This research is explanatory research, which explains the relationship between variables through hypothesis testing. Data consists of qualitative and quantitative data. Qualitative data obtained through interviews and focus group discussions. Quantitative data are obtained via survey using questionnaire with 5 points Likert scale (Davis and Consenza, 1993). The respondents are Maluku Bank employee. Questionnaire distributed to 196 employees using purposive sampling approach. The data analysis used is Structural Equation Modeling (SEM). SEM as an analytical approach that simultaneously combines factor analysis and linear regression models for theory testing. With this approach, latent variables (factors) represent the concepts of a theory, and data from measures (indicators) are used as input for statistical analyses that provide evidence about the relationships among latent variables (Williams et al., 2009). The tool for analysis used is IBM Amos 18 program. The analysis in this study includes 1) Measurement of Model that is testing the dimensions of invalid constructs through confirmatory factor analysis (CFA). 2) Structural Model that is testing the relationship of causality among variables.

3. Result

3.1. Measurement Model of each latent variable with Confirmatory Factor Analysis (CFA)

In the first part of SEM analysis is the interpretation of measurement model or measurement model. The measurement model presents the measurement of variables (as unobservable variables) of each measuring indicator (as an observable variable). The measurement model was conducted on each research variable. This measurement model is equivalent to Confirmatory Factor Analysis (CFA). The coefficient measurement model or so-called loading factor indicates the size or contribution of the indicator as a variable measure. The indicator with the highest Loading factor indicates that the indicator as the strongest measure of the measured variable. The indicator is expressed as a significant variable if the value of p-value <0.05, or indicator is fixed

3.2. Measurement Model Latent Variable of Training and Development (X1)

Hypothesis one (H1) stated that the requisite training and development, the type of training and development, compliance and development of training materials, methods of training and development, the benefits of training and development contributed significantly to the training and development. Based on the results of the hypothesis testing one as in Table 1.

Indicator	Lambda / Factor Loading		CR	P
	Unstandardized	Standardized		
Terms (X1.1)	1.00	0.366	2.253	Fix
Type (X1.2)	1. 73	0.397	2.329	0. 020
Material conformity (X1.3)	1. 31	0.331	2.149	0. 032
Method (X1.4)	1. 15	0.367	2.238	0. 025
Benefit (X1.5)	1. 73	0.412	2.377	0. 017

Table 1. T test (CR) Indicator on Training and Development
Source: Primary Data Processed (2017)

The result of analysis shows that training and development requirement, obtained p-value less than 0.05 with unstandardized loading factor of 1.00, standardized loading factor amount 0.366 and CR value of 2,253. This value proves that indicators of significant development and training requirements as a measure of training and development. The high level of training and development is determined by the high level of training and personal development. Type of training and development, obtained p -value smaller than 0.05 with unstandardized loading factor of 1.73, standardized loading factor amount 0.397 and CR value of 2.329. This value proves that indicator of the type of training and significant development as a training and development measure. High lows training and development is determined by the high level of training and development. The suitability of training and development materials, obtained p-value smaller than 0.05 with unstandardized loading factor of 1.31, standardized loading factor amount 0.331 and CR value of 2.149. This value proves that indicators of conformity of training materials and significant development as a training and development measure. High lows training and development is determined by the high level of suitability of training and development materials. Training and development method, obtained p -value smaller than 0.05 with unstandardized loading

factor of 1.15, standardized loading factor amount 0.367 and CR value of 2.238. This value proves that indicator Training and development methods are significant as a training and development measure. High lows training and development is determined by the high level of training and development methods. Training and development method, obtained p -value smaller than 0.05 with unstandardized loading factor of 1.73, standardized loading factor amount 0.412 and CR value of 2.377. This value proves that indicators of significant training and development benefits as a training and development measure. High lows training and development is determined by the high level of training and development benefits.

The magnitude of the highest loading factor coefficient is in the type and benefit indicator training and development as the strongest gauge of training and development That is, training and development (X1), especially seen from high indication type and benefits of training and development. Thus, the research hypothesis which states that the terms of training and development, the type of training and development, compliance and development of training materials, methods of training and development, the benefits of training and development contributed significantly to the training and development can be proven.

3.3. Measurement Model Latent Variable of Work Stress (X2)

Hypothesis two (H2) stated that an extra *stressor* organization, organizational *stressor*, *stressor* groups, individuals contribute a significant stressor on work stress. Based on the results of analysis On testing the two hypotheses as in Table 2.

Indicator	Lambda / Factor Loading		CR	P
	Unstandardized	Standardized		
Extra organizational *Stressor* (X2.1)	0.870	0.375	2.425	0.015
Organizational *Stressor* (X2.2)	1.227	0.530	2.277	0.023
Stressor Group (X2.3)	0.712	0.388	2.210	0.027
Individual *Stressor* (X2.4)	1.000	0.311	2.521	fix

Table 2. T Test (CR) Indicator toward Work Stress Variables
Source: Primary Data Processed (2017)

The results show that Extra Organizational *Stressor*, obtained p -value smaller than 0.05 with unstandardized loading factor of 0.870, standardized loading factor amount 0.375 and CR value of 2.425. This value proves that the extra *stressor* indicator of the organization significant as a work stress gauge. High lows work stress determined by its low height extra *stressor* organization. The results show that *Stressor* Organization, obtained p -value smaller than 0.05 with unstandardized loading factor equal to 1.227, standardized loading factor amount 0.530 and CR value of 2.277. This value proves that the Organizational *Stressor* indicator significant as a work stress gauge. The height of the working stress is determined by the low height *Stressor* Organization. The results show that *Stressor* Group, obtained p -value smaller than 0.05 with unstandardized loading factor of 0.712, standardized loading factor of 0.388 and CR value of 2,210. This value proves that the *stressor* indicator group significant as a work stress gauge. The height of the working stress is determined by the low height *Stressor* Group. The result of the analysis shows that Individual *Stressor*, obtained p- value less than 0.05 with unstandardized loading factor amounting to 1.000, standardized loading factor amount 0.311 and CR value of 2,521. This value proves that Individual *Stressor* indicator significant as a work stress gauge. The height of the working stress is determined by the low height Individual *Stressor*.

The magnitude of the highest loading factor coefficient is in the Organizational *Stressor* indicator as the strongest measure of work stress That is, work stress (X2), especially seen from high indication *Stressor* Organization at Bank Maluku. Thus, the research hypothesis which states that extra-organizational

stressors, organization stressors, stressors groups, individuals contribute a significant *stressor* on work stress is proven to be true.

3.4. Measurement Model Latent Variable of Job Satisfaction (Y1)

Hypothesis three (H3) states that rank, position, financial security, and social security, quality of supervision contribute significantly to job satisfaction, where rank/rank gives dominant contribution. Based on the analysis results at the four hypothetical tests as in Table 3.

Indicator	Lambda / Factor Loading		CR	P
	Unstandardized	Standardized		
Rank / class (Y1.1)	1. 000	1.245	3.623	Fix
Position / position (Y1.2)	0. 482	0.165	2.092	0. 036
Financial security and social security (Y1.3)	0. 944	0.190	3.360	0. 001
Quality of supervision (Y1.4)	1. 045	0.234	3.337	0. 001

Table 3. T Test (CR) Indicator toward Job Satisfaction
Source: Primary Data Processed (2017)

The results show that Rank / class, obtained p -value is smaller than 0.05 with unstandardized loading factor of 1.000, standardized loading factor amount 1.245 and CR value 3.623. This value proves that Rank / class significant as a measure of job satisfaction. The high level of job satisfaction is determined by the high low Rank / class. Position / position, obtained p -value smaller than 0.05 with unstandardized loading factor of 0.482, standardized loading factor amount 1,165 and CR value 2,092. This value proves that position / position is significant as a measure of job satisfaction. The high level of job satisfaction is determined by the high low position / position. Financial security and social security, p-value is less than 0.05 with unstandardized loading factor of 0.944, standardized loading factor amount 0.190 and CR value of 3.360. This value proves that financial guarantees and significant social security as a measure of job satisfaction. The high level of job satisfaction is determined by the high low Financial security and social security. Quality control, obtained p-value smaller than 0.05 with unstandardized loading factor of 1.045, standardized loading factor amount 0.234 and CR value of 3.337. This value proves that quality of supervision is significant as a measure of job satisfaction. The high level of job satisfaction is determined by the high low Quality of supervision. The amount of the highest loading factor coefficient is in the indicator rank/class as the strongest measure of job satisfaction That is, job satisfaction (Y1), especially seen from the high indication rank/position on employees at Bank Maluku. Thus, the research hypothesis which states that rank (position), position (position), financial guarantees and social security, the quality of supervision contribute significantly to job satisfaction proved true.

3.5. Estimated Releases a main Structural Full Model of Job Satisfaction

The theoretical model on the conceptual framework of research is said to be *fit* if supported by empirical data. The test results of *goodness of fit overall model* (Table 4) in accordance with the results of Structural Equation Modeling (SEM) analysis are presented in Table 5 .

Goodness of Fit Overall test results based on Table 4. shows that 8 criteria of CMIN / DF, RMSEA, Chi Square and p-value, GFI, TLI and CFI show good models. According to Arbuckle and Wothke in Solimun (2009), the best criteria used as an indication of model goodness are Chi Square / DF values less than 2, and RMSEA below 0.08. In this study, the CMIN / DF and RMSEA values have met the *cut off* value, the SEM model in this study is suitable and feasible to be used, so that interpretation can be done for further discussion.

Criteria	Results	Critical Value	Model Evaluation
Chi-square (χ^2)	49.524	$\leq 52,192$	Good
Probability	0.60	≥ 0.05	Good
CMIN / DF	1.183	≤ 2.00	Good
GFI	0.915	≥ 0.90	Good
AGFI	0.918	≥ 0.90	Good
CFI	0.994	≥ 0.95	Good
TLI	0.987	≥ 0.95	Good
RMSEA	0.040	≤ 0.08	Good

Table 4. Testing Goodness of Fit Model
Source: Primary Data Processed (2017)

Relationship		Lambda / Factor Loading	SE	CR	P
Job satisfaction <-	Training and development	0.052	0.127	2.236	0.039
Job satisfaction <-	Work stress	-0.124	0.161	-2.441	0.010

Table 5. Test t (CR) Effect of Training and Development and Job Stress on Job Satisfaction
Source: Primary Data Processed (2017)

Hypothesis testing The structural model is the interpretation of a structural or structural model. Structural model presents the relationship between research variables The structural coefficient of the model states the magnitude of the relationship between variables one to other variables. There is a significant influence between one variable to other variables, if the value of P-value <0.05. Results analysis SEM is presented in Table 5.

Based on the results of Structural model analysis in Table 5, the hypothesis testing The structural model is described as follows:

H4: Training and development and work stress have a significant effect on job satisfaction. Hypothesis four (H4) is described as follows:

1. The result of Structural Model Analysis in Table 4, shows that Training and Development, obtained p-value smaller than 0.05 with the loading factor coefficient amount 0.052 and CR value of 2,236. This value proves that training and development significant as a measure of job satisfaction. The high level of job satisfaction is determined by training and development. Thus the hypothesis (H4a) which states that training and development have a significant effect on job satisfaction proven true.
2. The result of Structural Model Analysis in Table 5 shows that job stress, obtained by p- value less than 0.05 with the loading factor coefficient amount -0.124 and CR value of -2.441. This value proves that work stress significant as a measure of job satisfaction but negative meaning the higher the work stress on Employees at Bank Maluku then job satisfaction will decrease. The high level of job satisfaction is determined by work stress. Thus the hypothesis (H4b) which states that job stress has a significant effect on job satisfaction proved true.

4. Discussion

4.1. The Influence of Training and Development on Job Satisfaction

Results of the research show that the training and development are affecting job satisfaction. This research is similar to the research done Nisa and Retno (2014) and Supatmi et al. (2013) that training has positive effect on job satisfaction. Therefore, any employee in running his work should be able to foster his satisfaction. Training for employees is a learning process that is able to carry their responsibilities and in accordance with the standards. The training that followed by employees during this time encountered obstacles from the

technical benefit side of the associated banking activities. The fulfillment of the employee needs to be accomplished by training and development in accordance with their needs. This means that to respond quickly and perceptively on job satisfaction, organizations needs to consider the variables used in this study as well as the indicators that make up variables.

The results of Anwar, & Shukur (2015) suggest that development will have positive impact on job satisfaction in private banks in Erbil. Employee training will assist a business management in order requirements and needs, also enhancing business' market value. Training considers an added value to individuals who will be trained, as the same time training will add value to the organization itself. The aim of the training is to obtain the capability which links to the group or an individual within an organization in order to achieve an effective performance. Human capital considers as a core of the business's success, such us employee's experience, capabilities, knowledge and skills. Consequently, it is enormously significant to frequently educate the individuals and develop their possible and information. Training goals to increase performance standards and efficiency by changing individual's behavior within an organization, the process of training contains development, analysis, design, execution and assessment (Jehanzeb & Bashir, 2013). Development considers as an importance function in human resource management, it provides an excellent opportunity to individuals to enhance their level of performance standards and to clarify organizations' future directions (Hameed, 2011).

Research (Tugçe, 2016) The results show that training and development programs have positive impact on motivation of employees in banking sector

The results of this study is supported by research conducted Adisaksana (2017), that job training has a positive and significant impact on job satisfaction, which means that job training applied by the leadership to subordinates will increase employee job satisfaction. Lisdiani (2017) states that job satisfaction can be influenced by career development factors, with the development of a good career then employees will feel motivated to create a sense of satisfaction in carrying out the work. Job satisfaction is not a single factor, but high job satisfaction is highly dependent on training factors (Simaremare and Isyandi, 2015). Training is a set of activities designed to improve the skills, knowledge, or individual attitude changes. Training and development needs to be designed and delivered to meet the needs of all employees but also to increase job satisfaction that affects work discipline (Sulaefi, 2017).

Based on the results of empirical findings in the field that rank / class is the main indicator in forming job satisfaction. The rank (class), on the work that bases the different levels (classes), so the job gives a certain position to the person doing. If there is an increase in wages, then a little more will be regarded as promotions, and the pride of the new position will change his behavior and feelings. Sergiovanni (1973) said that welfare is a factor of job satisfaction. One way to improve welfare is to be encouraged to try to improve rank. The rank for employees is a symbol of achievement, status and achievement, even a very real psychological need and must be met.

It is objective that in managing Bank Maluku it is highly needed human resources with special competence and expertise in finance and banking, especially at the management level (commissioners and directors). This is very important to note because every strategic decision taken of course through the decisions of the board of directors and board of commissioners. Technically the board of commissioner of Bank Maluku is the Governor and the regents / mayors of local exofficio because of the position factor as shareholder, besides that other boards of commissioners are needed especially professionals who are scientifically or reality are people who really understand the twists problems in the field finance and banking. In other words that have scientific background as well as experience in finance and banking, must follow fit and proper test at Bank

Indonesia. In addition to the fit and proper test, the candidate board of commissioner of Bank Maluku must also have the aspect of propriety. These considerations should be put forward, regardless of the other aspects. Because if not appropriate human resources then this will be very span to planning process, decision making and management of operational management of Bank Maluku. Consideration and political equality is not important in this aspect, because if this became the key aspect then believe that this is a wise consideration.

The fact shows that so far the board of commissioner of Bank Maluku is not held by professional group, but more dominant by group of politicians. In fact, it is also not a problem as long as the politician has the competence of knowledge and expertise in banking finance. It must be realized that the banking business has a very high risk, so it cannot be underestimated, and cannot be managed like an ordinary company, therefore every Bank Maluku official must have a license or certificate in risk management. The importance of risk management certification for Maluku Bank administrators and officials is in applying effective and planned risk management, Maluku Bank is required to fill the positions of officials and officials of the Bank with human resources (HR) having competency and expertise in risk management as evidenced by management certificates risks issued by Professional Certification Bodies. The ownership of a risk management certificate for the management and officers of the Bank is one aspect of the assessment of competency factors in the Fit and Proper Test. Bank Maluku is obliged to prepare a plan and implement human resources development program in order to increase competence and expertise in risk management especially and banking and finance management in general.

Thus the rank and status of a person's fluency promotion, would lead one to feel satisfaction. Job satisfaction cannot be measured only with the high rank of a person, but the low rank of a person can also affect the level of one's welfare, and ultimately can lead to job satisfaction when getting the welfare as expected in accordance with the effort reached. Thus between the rank and job satisfaction are two continuum, the rank has a very large role in improving job satisfaction although not the only factor that leads to job satisfaction.

4.2. The Influence of Job Stress on Job Satisfaction

The results of the study show that job stress has negative effect towards job satisfaction. This research is in line with research done by Fadilah (2010) and Hendiyansah (2011) who mentioned that job stress influenced on job satisfaction. The negative effect of stress can occur in the form of a biological response, such as emotional response, and the rising accidents in the workplace. Work-related stress is a vital factor to job satisfaction. When functioning as a motivator, work-related stress results in creativity and satisfaction and consequently removes boredom and mundane (Hoboubi et al., 2017). The results of the research supported by Ramzan (2013) show that there is a significant negative relationship between job stress and job performance on the employees of banking sector of Pakistan. The result also shows that because of job stress the performance of an individual was reduce. Zeb & Rehman, (2015) finds out that the performance shows that job stress reduces the performance of the employees.

Research (Riaz et al., 2016) that Job satisfaction means how much persons feels confident about their work and how much they work are different. Job satisfaction impact on a person physical health and intellectual happiness and also reduce the absenteeism of an employee and turnover rate in an organization. The earlier education recommends that the upper level of job impressions a little amount of job satisfaction. Dwamena (2012) Talk about in their thesis how job stress impact on employee productivity. The main objective of that study is to find the job stress employee productivity. Employee dissatisfaction can be expressed in a number of ways (Robbins and Judge, 2008) , such as, moving out (exit), in this case the behavior that is intended to leave the organization and find a new position and resigned; aspirations (voice), that is actively and constructively trying to improve conditions, including suggesting improvements, discussing the issue with superiors, and some activities of work alliance; loyalty, that is passively but optimistic waiting for improving conditions, including defending organizations when facing external censure and trusting organizations and its management to "do the right thing"; and neglect, that passive let the conditions get worse, including the absence or delay of performance, continuously, decreasing employees performance, and increasing error rate. If these things do not get serious attention from the company, they will lead to job stress suffering from exhaustion physically, emotionally, and mentally (burn out). Excessive stress will lower work efficiency, lead to negative emotions and even various illnesses (Han et al., 2017).

The results of Shofiah et al. (2017) suggest that s tress work is the pressure felt by employees because of the imbalance between personality characteristics with the character aspects of his work. The results of this study supported by research Wibowo, Riana and Putra (2015) work stress has a negative effect on job satisfaction, meaning that work stress experienced by employees can affect what can be perceived both the work and the results they receive. The results of this study are supported by Shofiah, et al. (2017), which states that job stress has a significant and negative influence on job satisfaction, this means that low or decreased stress levels will significantly affect the achievement of job satisfaction.

In brief, empirical findings show that job stress gives negative impact on job satisfaction. The results are useful for improving job satisfaction then job stress should be on the manage in minimize way. This indicates that job stress of Bank employees in Maluku is derived from the condition of the organization. However, this study is very limited in sampling, because it studies only the Maluku bank which is a bank belonging to the Maluku region, future studies need to examine the existing banks in Indonesia, so that the results of this study can be generalized in general. Despite these limitations, this research contributes to PT Bank Maluku, particularly on training and development as well as work stress. For that then attempts enhancing the role of the Bank Maluku can be through forms of cooperation both within the province of Maluku and outside the province of Maluku. At this point the Governor, Regent / Mayor must have strong political will to encourage and cooperate with the Bank of Maluku in seeking and exploiting the opportunities available to improve the performance of my bank for the future.

5. Conclusion

Training and a development influence positively and significantly on job satisfaction whereas job stress effect negatively on job satisfaction. The findings mean that to increase job satisfaction training and development needs to be enhanced while job stress should be minimized, so that it does not give bad impact on job satisfaction. It is recommended to conduct further study on the importance of training and developments as well as the stress of work that is managed minimize and probably it will contribute to job satisfaction. In addition, Bank Maluku is required to fill the positions of officials and officials of the Bank with human resources (HR) who have competence and expertise in the field of risk management as evidenced by risk management certificates issued by the Professional Certification Agency. This study is very limited in sampling, because it studies only the Maluku bank which is a bank belonging to the Maluku region, future studies need to examine the existing banks in Indonesia, so that the results of this study can be generalized in general. Despite these limitations, this research contributes to PT Bank Maluku, particularly on training and development as well as work stress. Therefore, efforts to increase the role of Bank Maluku can be

through forms of cooperation both within the province of Maluku and outside the province of Maluku. At this point the Governor, Regent / Mayor must have strong political will to encourage and cooperate with Bank Maluku in seeking and exploiting the opportunities available to improve the performance of my bank for the future.

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Building Green Behavior as a Corporate Sustainability Strategy Study on a Green Company in Indonesia

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Abstract

The occurrence of natural damage has prompted the emergence of awareness and commitment of the company to implement the concept of green business in its activities. Although many studies show positive sides of implementing the green business concept, few companies have carried out this concept in their activities. Still, one way through which a green business sustains is building environmentally friendly behavior. The article discusses the results of exploration of various determinants that encourage the implementation of green business, identifies modes of implementation of green business to build green behaviors, and identifies the various impacts of implementing green business in a company.
The article is written based on an exploratory study on the environmental practice of a reputable environmentally friendly company. The results show that the application of green business is driven by internal and external determinants. The company leader is committed to incorporate green principles into the company's vision and mission and create green company values through several company programs. The implementation of Green Business in the company has positive impacts on employees and the organization, which in turn can be used as a corporate sustainability strategy.

Keywords: green behavior; green business; sustainability strategy.

1. Introduction

One of environmental conservation efforts is the concept of being environmentally friendly or often referred to as "Go Green". The notion "Go Green" in industries began known in the 1980s, due to various external and internal factors, including environmental crises, increasing customer pressures, organizational needs, and environmental functions (Heiskanen 2002). Currently, the concept of environmentally friendly is widely applied as a business strategy, both in the fields of production, marketing, human resources and other fields. The implementation of the green concept within a company is called Green Business. Green Business represents a company's commitment to implement the principles of environmental sustainability in their operations, endeavor to use renewable resources, and determination to minimize the negative effects of their activities (Čekanavičius, Bazytė, and Dičmonaitė 2014). The institution or company that carries out the implementation of the environmentally friendly notion is known as an environmentally friendly company (Green Company). Awareness of environmental ethics has prompted the emergence of green company concepts and has become a business demand in the globalization era.

Gotschol, De Giovanni, and Vinzi (2014) have conducted studies on the concept of environmentally friendly and organizational sustainability. Gotschol further explains that environmental management positively affects the sustainability of the organization. In the Indonesian context, there are currently quite a number of phenomena of environmental damage that indicate low green behavior. Indonesia's environment quality in 2016 was ranked 107th of 180 countries with a score of 65.85 on The Environment Performance Index (EPI), that is countries' performance on high priority environmental issues. In comparison, the two closest neighboring countries in Indonesia were in a much better position; they are Singapore, ranked 14th at 87.04, and Malaysia, ranked 63rd at 74.23. These data indicate that environment quality in Indonesia is low, and therefore needs improvement and enhancement on the implementation of green business as an effort to contribute to the preservation of the natural environment while offering solutions to environmental problems.

A company requires a determinant that can drive the implementation of green business. In addition, a good grasp of the impact of the application of green business is required so that the company can increase green enthusiasm. The application of the Green Business concept is an effort to implement environmentally friendly values in every company activity. It has an orientation to increase company capability and the development of green culture and behavior for all stakeholders of the company. Green behavior and culture is a company's trait that ultimately gives impacts on resource efficiency to achieve sustainable competitive advantage.

This article aims to identify various determinants that drive the implementation of the green business concept in an environmentally friendly company. This article also aims to identify the modes of green business implementation and the impacts resulted from the implementation of green business in an environmentally friendly company. This article contributes to the know-how of building green behavior in green business, including driving determinants of green business, the forms of green business implementation, and the impacts of green business as a sustainability strategy.

2. Literature Review

The triple bottom line theory emphasizes the importance of "3P's" in order that a company can sustain. Not only does it pursue earnings (Profits), but a company must also be concerned with and involved in fulfilling the welfare of the society (People) and contribute actively in maintaining the environment (Planet) (Wibisono 2007). In addition, Barney (1986) has developed the resource-based view, which has an important role in strategic management. The concept states that organizations will achieve sustainable competitive advantage if they have valuable, unique, rare and inimitable resources. Resource-based view highlights internal organizational factors and criticizes the industrial organization approach which only emphasizes the external factors of the organization. By resource-based view, an organization can determine and carry out the strategy suitable to its organizational capabilities. In line with the resource-based view, the Green Business implements environmentally friendly values in every organizational process, improves organizational capabilities and establishes environmentally friendly culture and behavior for all stakeholders of the company.

The Resource-Based View (RBV) describes several competitive advantages as a result of developing organizational capabilities, such as continuous innovation, organizational learning, and pro-environment strategies (Sharma and Vredenburg 1998). Green behavior and culture are competitive advantages for companies as they give impacts on resource efficiency to achieve sustainable competitive advantage. The study of RBV shows that organizational resources and organizational capabilities relate environmental strategy and organizational performance. Christmann (2000) shows that the ability to charge advantages is obtained when companies apply "best practice" in environment management.

2.1. The driving determinants of Green Business

Bansal and Roth (2000) maintains that awareness of environmental responsibility motivates companies to behave environmentally friendly, and Jackson et al. (2011) argues that corporate leaders' environmental responsibility must be consistently in accordance with their desire to achieve competitive advantage. In other words, the awareness and commitment of company leaders govern the implementation of green behavior in the company. Further, Erdogan, Bauer, and Taylor (2015) show that organizational commitment influences the green behavior of employees and supervisors. In addition, Renwick, Redman, and Maguire (2013) suggest that predictors such as leadership, commitment profiles, organizational climate, and / or individual dispositions may be assessed on their driving roles in adopting Green HR behavior. Yusoff et al. (2015) in their study also found that most of the companies under study put Green HRM on high priority. This indicates companies' determination to work for environmental sustainability. Meanwhile, Erdogan, Bauer, and Taylor (2015) shows that management's commitment to the sustainability of environment correlates positively with organizational commitment, and especially when employees perceive to have received support from the organization. The key to employees' behavior is how the organization treats them.

Yusoff et al.(2015) reveals that policies and rules are related to the implementation of green behavior in the management of human resources in organizations. This is in line with the results of previous research conducted by Zaman (2012) which shows that regulation is a determinant that can explain company's commitment to environmental ethics in Malaysia. Calza, Adele Parmentola, and Ilaria Tutore (2017), affirming the above opinion, emphasized that regulation is one of drivers of the implementation of the Green Business concept in a company. The stakeholder theory explains that a company is an entity that operates not only for its own sake but also for the benefits of its stakeholders (shareholders, consumers, society, suppliers,

government, analysts, and other parties). In line with stakeholder theory, Calza, Adele Parmentola, and Ilaria Tutore (2017) argue that proactive green innovation is primarily driven by internal corporate features, leadership, culture, and capabilities, while reactive green innovation is more related to environmental regulations and stakeholders' expectations. The implementation of the Green Business in the company is certainly oriented to the demands and needs of the company's stakeholders. Harsono (2003) also maintains that companies must continue to respond to environmental issues even if they do not get competitive advantage from this action. In other words, environment management is a stakeholders' demand that a company must meet in order to operate normally.

2.2. Impacts of Green Business

Wagner (2013) proves that the greater the implementation of environment management systems is, the higher the human resource economic benefits a company gains. In fact, a study in Indonesia shows the occurrence of budget savings, especially in the use of electricity and water, through "reduce and reuse" (Ekasatya 2014). In addition, Cherian and Jacob (2012) states that implementing the green business increases the rate of employee retention as well as attracting better employees, strengthens public image, increases productivity and sustainability, reduces environmental impact of the company, and increases overall competitiveness and improved performance. The same opinion has also been conveyed by Omer (2008), who argues that green concept requires saving various resources. In other words, green behavior undoubtedly reduces the use of energy, water, and other resources.

3. Method

This exploratory research used qualitative data obtained through Focus Group Discussion (FGD), in-depth interviews with a number of key informants, and observations in the office area and production plant of an Indonesian cement company reputable of its green behavior. It was also supported by secondary data obtained from 2016-2017 company development reports. The research informants were Organization & Human Resource Director, Corporate Environment & Sustainable Development Manager, and Corporate Social Responsibility Manager. These leader informants were chosen for their vital role in implementing Green Business in the company. These company leaders were initiators, decision makers, as well as company policy regulators. In other words, they were appropriately selected as they understood and were highly knowledgeable in both strategic and operational issues on Green Business implementation in the company. The other informants were two employee informants who were unambiguously involved in executing Green Business in the company.

4. Findings and Discussion
4.1. The driving determinants of Green Business

The driving determinants found in this study were classified into internal and external determinants. The internal driving determinants of the implementation of the Green Business include the awareness and commitment of the company's leaders. The external driving determinants involve various regulations enforced both nationally and internationally, and demands and expectations of the company's stakeholders, including consumers, shareholders and the surrounding community.

Stakeholders' demands, environmental crises, increasing customer pressure, organizational needs, and environmental functions (Heiskanen, 2002; Sarkis et al., 2010), as well as green demands from global / parent companies are used as a

reference in company operation. Interest in stakeholders corresponds to the stakeholder theory claiming that a company is an entity that operates not only for its own sake but also for the benefits of its stakeholders (shareholders, creditors, consumers, society, suppliers, government, analysts, and other parties). A company's life, therefore, is strongly influenced by the support provided by its stakeholders.

As mentioned previously, national and international regulations also drive the implementation of green business. Zaman (2012) maintains that regulation is a determinant that binds the company's commitment to environmental ethics. Similarly, Yusoff et al. (2015) reveals that policies and regulations corresponds to the implementation of green behavior in the human resource management within organizations. In line with Yusoff's finding, this company refers to the results of the United Nations Conference on Climate, COP21, which took place in Paris, to operate in green behavior. In addition, the company also refers to the policies established by the Ministry of Environment as the basis to set up green behavior in its activities. A leader informant said: "*We adhere to government policies and regulations, both globally and nationally.*"

There are two main national regulations that were used as guidelines. The first is Law of the Republic of Indonesia Number 31 of 2009 concerning environment protection and management, and the second is the Regulation of the Minister of Environment of the Republic of Indonesia Number 1 of 2012 concerning the Green Indonesia Program. Along with the stakeholders' increasing awareness on the preservation of the natural environment, their demand has motivated the company to implement Green Business.

The demands of the stakeholders and requirements by national and international regulations have alerted the company leaders' to the importance of environment conservation in their business activities (Bansal & Roth 2000; Renwick et al. 2008 ; Jackson et al. 2011). Further, Keraf (2010) argues that the emergence of environmental problems is a moral problem; the problem of human behavior towards the environment is not merely a technical matter. Likewise, the current global ecological crisis is a moral issue, a global moral crisis. The company leaders are aware of the potential harms the production plant may cause, and therefore, they voluntarily hold a moral and ethical responsibility to reduce the environmental impair by green behavior in operating their business. They effectuate their environmental awareness by using the Triple Bottom Line (TBL) theory, which is a further development of Ecocentrism, as a reference in operating the company. The three pillars of Profit, People, and Planet are fundamental features in their effort to the accountable implementation of procedures in carrying out sustainable development. A leader informant explained this in the following statement:

"We are aware that the cement plant has the potential to damage the environment. Therefore, from the beginning we created it to operate in an environmentally friendly manner. With this awareness we have a green solution for our products."

Awareness of the importance of environmental preservation has eventually motivated the company leaders to be committed in green business activities. The role of leadership within a company is important in an organizational activity, and likewise is in the implementation of Green Business. Erdogan, Bauer, and Taylor (2015) also found that organizational commitment had an influence on the green behavior of employees and supervisors. Management / organizational commitment is also referred to as one of the determinants in the implementation of green behavior. Similarly, Renwick et al. (2013) argues that leadership is one of the driving predictors of adoption of Green HR behavior in the workplace.

Internal Driving Determinants	External Driving Determinants

Environmental Ethics Awareness
✓ The management are aware of the potential harms that the cement plant may cause. Having this awareness, the company hold a moral and ethical responsibility to strive to reduce the environmental impair with a commitment to behave environmentally friendly in its business operations.
✓ The environmental awareness is realized by referring to the Triple Bottom Line (TBL), using the three fundamental dimensions of Profit, People, and Planet for sustainable development.
 	
Leadership Commitment
✓ The top management commitment is manifested in various efforts to practice Green Business in company activities.
	Rules / Regulations
	✓ Using the results of Paris UN conference on Climate, COP21, as a reference in practicing green behavior in company's operations.
	✓ Referring to Ministry of Environment policy as the basis to practice green behavior in company's activities.
	   ▪ Law of the Republic of Indonesia number 31 of 2019 concerning environmental protection and management.
	   ▪ Regulation of the Minister of Environment of the Republic of Indonesia number 1 of 2012 concerning the Green Indonesia program.
	
	Stakeholder demands and expectations
	✓ Expectations / demands from consumers / customers for the availability of green products
	✓ Expectations / demands from the parent company as shareholders
	✓ Demands and urges from the surrounding community

Table 1. Driving / Stimulus Determinants of Green Business Implementation
Source: Research results (2017)

4.2. Modes of Green Business Implementation

Corporate leaders' awareness of environmental preservation has prompted the emergence of green commitment, which then effectuate green behavior in various company activities. There were seven modes found in the implementation of green business. First, the company included green values and principles in its vision and mission. The second was to implement an Eco-office program, which was to perform office activities using environmentally friendly principles. The third was the Green Production program, in which the company endeavored to carry out the production process and produce products based on an environmentally friendly concept. The fourth was the Geocycle, Climate & Water program, which represented the company's efforts to reduce production waste, reduce emissions or exhaust gases in the production process, and carry out efficiency of exploration and water use in the production process. The fifth was the restoration and reforestation program. Here, the company utilized ex-mining areas into productive land of various food crops consumable for the surrounding community. The sixth was the establishment of an education forest –an artificial forest around the production plant intended for environmental conservation education. The seventh was the implementation of a green corporate social responsibility program.

The company's green implementation goes in line with researchers' opinion that the commitment of a company's top management is to be outlined in the company's vision and disseminated to all employees in order that all members of the organization have a sound grasp of it and refer to it as guidelines in ompany's operations and activities. Companies may exhibit green behavior by its defined vision and mission, policies in green behavior, provision of green technology, provision of infrastructure and facilities to enable all stakeholders to behave environmentally friendly, and various work programs related to

green behavior (Unnikrishnan and Hegde 2007; Lane et al. 2009; Renwick et al. 2013; Erdogan, Bauer, and Taylor 2015).

Having expressed its green commitment in its vision and mission and its work programs, the company also found it necessary to perform in production functions, office operation and human resource management as well. In the production function, the company followed environmentally friendly principles in the production process. The conducts of this aspect comprised being efficient in the use of energy and water,

minimizing the impact of emissions, and produce environmentally friendly products. In the office operation, the company employed an eco-office program, which included utilizing information technology in office activities, reducing the use of printers, minimizing the use of paper, working in energy-efficient office layout with the use of natural light, using live plants as office décor, and building an environmentally friendly culture and behavior in the office.

Areas	Modes of Implementation	
	Programs	Activities
Strategic	Vision, Mission, Values	✓ Incorporating green values in company vision and mission
Offices	Eco-office	✓ Minimizing the use of electricity in office areas concerning lighting systems and air temperature settings. ✓ Minimizing the use of paper. ✓ Utilizing green office technology. ✓ Using live materials for office decor.
Production Plant	*Green* Production	✓ Using of energy and water, and reducing CO_2 emissions. ✓ Producing environmentally friendly products.
Employees	*Green HRM*	✓ Incorporating environmentally friendly values into human resource management functions.
Surrounding Environment	Geocycle Program	✓ Reducing industrial waste as Geocycle contributes to making the earth cleaner by presenting sustainable and responsible waste management solutions.
	Restoration and Reforestation	✓ Developing ex-mining area into productive land of food crops by involving the surrounding community.
	Education Forest	✓ Involving a university team to develop 65 hectares of Education Forest.
	CSR	✓ Inviting the community to be able to find its own potential and the company as a partner. ✓ Trying to be a company that is able to bring values to the community, including the environmentally friendly values

Table 2. Forms of Green Business Implementation in the Company
Source: Research results (2017)

4.3. Impacts of Green Business Implementation

The research results identified a number of positive impacts of the implementation of Green Business on individual employees and on the organization. Firstly, on the individual employees, Green Business implementation developed and improved employees' green competencies. Employees have now acquired knowledge and understanding of the green concept; In fact, they had been introduced to this concept, got acquainted, and practiced it since they commenced work. An employee informant provided the following evidence:

"We have been given training through an orientation program, and one of the materials we receive is about the principles of the company, and it is about how we behave environmentally friendly in every area of our duties, so we become aware of and able to behave green."

The second impact on employees is job satisfaction. It is characterized by employees' sense of pride to be part of the organization – a company that has a green commitment to the environment. An employee informant expressed,

"As a Holcim person I also feel proud of being able to work for a company that has received a lot of environmental awards."

Employees, furthermore, had reached a decent level of welfare. This was evidenced by the provision of wage that has met welfare standards. The employees wage and welfare is the impact of the company's performance supported by employees' green behavior. This series of impacts on the employees go in line with several opinions that the individual impact is an increase in employee competence in green behavior (Busck 2006) Collier & Esteban 2007; Garavan et al. 2010; Sudin 2011; Zoogah 2011; Cherian and Jacob 2012; Renwick, Redman, and Maguire 2013; Gotschol et al. 2014), and that the application of

the green HRM concept can also improve employee satisfaction and employee welfare (Stenzel 2010; Cherian & Jacob 2012, Renwick et al. 2013).

According to Cherian & Jacob (2012) a company is identified as a green organization if both the organization and the individuals have a strong commitment to behave environmentally friendly. Furthermore, the application of Green Business results in efficiency in various resources, such as energy and other materials (Edwards 2006; Omer 2008; Shaikh 2010; Mandip 2012). The study shows that the Green Business implementation has granted an image of green company. Their persistent efforts to implement green business had been rewarding; the company received various awards, both nationally and internationally. The company proved its Green identity by the following awards:

2013	2013	2015
• Green Industry Award from the Ministry of Industry of the Republic of Indonesia.	• Green Company Awards 2013 from SWA Magazine	• Green office (Eco-Office) certificate from the Singapore Environmental Council
2015	2015	2017
• Green Industry Awards	• Gold PROPER Award from the Ministry of Environment of the Republic of Indonesia	• Social Business Innovation & Green CEO 2017 from Warta Ekonomi

Figure 1. Some of the Company's Achievements in Green Business in recent years
Source: Sustainable Development Reports and Other Sources (2017)

The above facts give a positive influence on the develop-

ment of company's image as a reputable company, both nationally and internationally. In the office environment, the impact obtained was the efficiency of resources: efficiency in the use of consumables such as paper, and equipment, such as printers. In the production process, the impact was on energy savings, the use of chemicals and the use of water. These efficiencies reduced company's operating costs so as to improve the company's performance, which, in turns, improved the welfare of stakeholders including employees.

By implementing Green Business, a company will be rewarded with an achievement of competitive advantages that will ensure sustainability (Stenzel 2010; Sneha 2016; Leonidou et al. 2017; Lazar 2017). Meanwhile, the Resource-based view theory states that companies with valuable, rare, resources, inimitable and incompatible can achieve sustainable competitive advantage. In this study environmental resources are used by companies as the main resource. Attention and focus on the environment through the implementation of Green Business is used as a strategy to achieve sustainable competitive advantage for the company.

Impacts on Individual Employees	Impacts on the Organization
Employees' Improved Green Competence • Employees acquire comprehension of the green concept from company's green orientation when they commence working and continue to practice the behavior.	**Company Image** • Various efforts to implement green concept have rewarded the company with a number of awards, both nationally and internationally. • The company is likely to enjoy the positive impact as being nationally and internationally reputable.
Employee Job Satisfaction • Employees feel proud to be part of the company with green commitment. • Employees are at a decent level of welfare.	**Resource Efficiency** • In office environment: efficiency in use of office consumables and equipment, such as paper and printers. • In production process: efficiency in use of energy, chemicals and water. • These all reduces company's operating costs, resulting in improvement of company's performance and welfare of stakeholders including employees.

Table 3. Impacts of Green Business Implementation
Source: Research results (2017)

From the results of the research and discussion that has been done can be illustrated about the pattern of determinants of green business drivers, the form of green business actions and the impacts resulting from green business actions, as follows:

Figure 2. Determinants and Green Business Actions in the Company's Sustainability Strategy efforts

Source: Research results (2017)
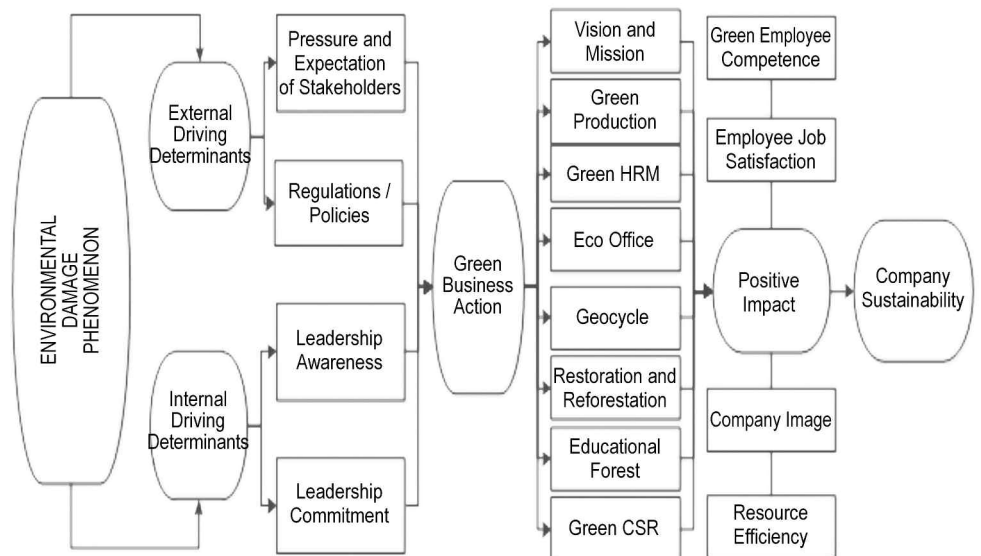
5. Conclusion

There are three stages through which efforts to build green behavior in the company are carried out; they are: identifying driving determinants, determining modes / forms of green business and programs, and obtaining the impacts. Both internal and external determinants drive the implementation of the Green Business concept in organizations. The internal determinant is the organization leader's eco-friendly awareness which then raises organization's commitment to be environmentally friendly. The external determinants are national and international regulations, and urges or demands of stakeholders – consumers, shareholders and the surrounding community.

The modes / forms of the implementation involve establishing green principles into the company's vision and mission and incorporating building company's green values, creating green production programs, Green HRM, eco-office programs, green corporate social responsibility (CSR) programs, establishment of education forests, geocycle programs, and restoration and reforestation of ex-mining land.

The positive impacts of the implementation of Green Business reach the employees and the organization. The impact on employees is an improved green competence and job satisfaction, while the impact on the organization is an improved company's image and resource efficiency. Both impacts on employees and organization can ultimately strengthen the organization's strategy for sustainability.

6. Research Recommendations and Limitations

This qualitative, exploratory research was conducted only at one company, therefore the results may not describe the broad situations nor the integratedness of information about the driving determinants of green business, how the modes of Green Business are carried out, and the impacts obtained. The authors then recommend that further research on the same topic be carried out with more companies, in order to discover more driving determinants, other modes of green business implemen-

tation, as well as other impacts obtained from the implementation of green business.

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From Environmental Knowledge to Conservation Behaviour

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Abstract

Conservation behaviour is a topic that always evolving in the study of the consumerism behaviour. Conservation behaviour is behaviour that leads to consume products that protect nature, leading to environmental conservation efforts while concerning the benefits that can be gained in the present and future in sustainable. The purpose of this study was to analyze the causal factors of conservation behavior in the term of internal consumer aspect. Research is conducted on the community located in the Yogyakarta Province, Indonesia which consists of 5 districts. The analysis unit in this study is individual. Data are collected from respondents who are shopping in supermarkets and shopping centre in five districts in Yogyakarta Province. The number of samples of each district is 60 people, but the lack of questionnaires of 268 respondents. Statistical technique is using AMOS. The result explains that there is a significant positive effect of; (1) environmental knowledge (EK) on awareness of consequences (AOC); (2) environmental knowledge (EK) on environmental attitudes (EA); (3) awareness of consequences (AOC) on personal norm (PN); (4) personal norms (PN) on conservation behaviour (CB) and (5) environmental behaviour (EA) on conservation behaviour (CB).

Keywords: environmental knowledge; awareness of consequences; environmental attitude; personal norms; andconservation behavior.

1. Introduction

Conservation behavior is a specific behavior. A specific behavior is usually thought to be a product ofan opportunity and intent, the latter of which is a product of knowledge and attitudes (Fishbein 1967, Zimbardo and Ebbesen 1969). Lately, consumers have changed their behavior toward environmental sustainability (Nguyen et al., 2016), that called as conservation behavior. Usually, conservation behavior is mostly associated with purchasing green products. The emergence of conservation behavior is based on changes in consumer behavior. Consumer behavior has many oriented to environmental protection (Sugandini et al., 2018b). Consumers prefer to consume goods that are not damage the environmental and harmless to his body health.

Some theories that underlie conservation behavior are the theory of reasoned action (TRA), theory of planned behavior (TPB) and the norm activation theory (NAT). The innovation adoption theory of Rogers (2003) is also used to observe consumer adoption behavior related with conservation behavior. TRA developed by Ajzen and Fishbein states that the best prediction of someone's behavior is intention. Behavioral intention is based on two main factors, namely: attitudes and subjective norms. TPB is an extension of TRA that is someone's intention on behavior is shaped by three main factors, namely: attitude toward the behaviour, subjective norms and perceived behavioral control (Fishbein and Ajzen, 1975; Azjen, 1991). NAT theory assumes prosocial behavior is the result of the personal norms activation which is defined as a moral action to perform or refrain from certain actions (Schwartz and Howard, 1982).

NAT states that personal norms are already active when a person is admitting and responsible for a certain pro-social behavior that have certain consequency. If the consumer does not act prosocial, it would have a negative consequency on others (Awareness of consequences) and being responsible on pro-social action that has certain consequency (Ascription of Responsibility). If the personal norm is not enabled, no pro-social action is admitted as usual and no pro-social action would follows.

Some pro-environment products can be categorized as innovative products. The previous literature on the adoption of innovative products is not always easily accepted by consumers with certain characteristics (Horsky, 1990; Rogers, 2003; Martin and Bateson, 2007). Holness (2004) adds that the adoption or non-adoption decisions of product innovation always involves the formation of attitudes toward innovation. Considerations for not easily adopting innovative products include risk perceptions, lack of consumer knowledge of product use and the presence of inappropriate marketing strategies.

This study discusses the issue of attitude influence on behavior. Attitude relationshipon pro-environment behavior still need to be reviewed because there are several different findings. Previous research Schultz et al., (2004); Albayrak et al., (2013) suggest that the attitude's role toward environmental behavior has varied relationships. The attitude toward environment has not always influence on the pro environment behavior. In fact, Akehurst et al., (2012); Nittala, 2014) indicating that the relationship of attitudes and environmental behavior is very weak. Kasier et al., (1999) reinforce that some research results show moderate, weak and even no relationship between pro-

environment attitudes and behavior. Kasier et al., (1999) findings confirm that there is a positive relationship between environmental attitude and ecological behavior and also find a significant correlation between environmental knowledge and value of environment. According to Kasier et al., (1999), knowledge and environmental value are a prerequisite for the intention of behaving ecologically which area prerequisite for pro-ecological behavior.

This study focuses on the effect of attitudes on behavior. The underlying reason for this research is that the decision to adopt pro-environment products requires complex decisions. Complex decision making with high involvement requires rational decisions, meaning that consumers can still determine other alternatives. The conservation behavior phenomena is in line with the Holness (2004) research result which shows that the adoption and non adoption decision of product innovation always involves the formation of attitude toward innovation.

2. Literature Review and Hypothesis Development
2.1. Conservation Behaviour

This research based on some basic theory, such as TRA, TPB and NAT. In general, TRA, TPB and predictors models of environmental behavior explain the linear model of the environmental knowledge influence that leads to environmental awareness and concern and it will impact on pro-environmental behavior. Kollmuss and Agyeman (2002) explain that there is a linear relationship between knowledge, attitude, and behavior. Knowledge and attitudes affect behavioral intentions which can shape behavior and actions.

Kaharanna (1993) shows that positive attitudes and intentions are not always followed by positive behavior. There are several factors that cause the attitude-to-behavior relationship is not unidirectional. One of them is a situational factor. According to Belk (1975), this situation aspects can cause a person who already has a positive attitude on the purchase of a product discouraged to buy. Fitzimon (2000) states that situational factors cause a person's positive attitudes are not followed by behavior.

The study that do not address the effects of attitudes to behavior are more accurately explained by the behavioral approach which gives less emphasis on thought processes and consumer behavior. The most relevant behavioral approach is used when consumer cognitive activity is minimal. This happens when the consumer is in a low-involvement situation. When in a low-involvement situation, the consumer is in a passive condition and purchases products that have previously been purchased as long as it is satisfactory for them.

In contrast with the more relevant cognitive approach applied to important products with high involvement. In this situation, there is a consumer problem solving involving information retrieval and product evaluation (Schiffman and Kanuk, 2010). Wheninvolvemet is increases, consumers have stronger motivation to pay attention, understand, and elaborate information related to their purchases. In other words, the higher level of a person's involvement, the higher degree of information retrieval. Important implications in understanding consumer attitudes made marketers easy to influence consumers before deciding on a particular action.

It is conducted by arranging a certain strategy before the consumer decides a particular action. When conservation behavior is explained by the attitude or cognitive aspects of the consumer, it will bring important understanding in practical way. Marketers gain an understanding of certain aspects that can be modified to influence consumer decisions in the long term. On the consumer side, consumers learn the most important innovation aspects so that consumers obtain some informations to decide on purchase (Sugandini et al., 2018b).

Conservation behavior's motive is unique for every consumer. Usually,the conservation behavior occurs within a community. The community of people who love the environment, usually has the intention of behaving towards a high conservation (Sugandini et al., 2018a). One rational reason is people who have the motivation to preserve the environment have unique consumption motivations that are different from other consumers and they support each other to preserve the environment. The conservation behavior occurs voluntarily. Conservation behavior makes consumers more careful in consuming their products. For example, consumers choose environmentally friendly products such as bio-diesel for fuel, low pesticide products, recyclable products and energy-efficient products. Conservation behavior is a consumer behavior that leads to environmental sustainability by considering the sustainability of its products (Kaiser, et al., 2005).

Stern (2000) defines conservation behavior as a behavior to preserve a sustainable environment. Stern (2000) also states that conservation behavior will change resource availability and protect ecosystems. Gough (2002) says that it is difficult to justify conservation behavior properly because conservation is not simple. Sometimes conservation options can disrupt ecosystem habitats, even in a small degree. For example, when we need environmentally friendly solar products, many forests are converted to plantations. Many forests are cut down to expand the jatropha plantation area as biodiesel feedstocks.

McKenzie-Mohr and Smith (1999) suggest that understanding conservation behaviors is important for defining behavior clearly. Conservation behavior is a specific action that leads to environmental activities. Stern (2000); Winther, et al., (1994) and Hungerford and Volk (1990) describe five points to understand conservation behaviourbetter: (1) become environmental activists by actively participate in environmental conservation activities, (2) politically participate in signing petitions leading to environmental sustainability, (3) consumer behavior by purchasing green products, recycling products, reducing energy use (buying an efficient hot water heater), and changing consumption habits (e.g using public transport, changing environmentally friendly soaps when washing), (4) ecosystem behaviors (e.g putting up bird boxes, planting sea oats, counting wildlife populations, promoting prescribed fire) and (5) other behaviors in the workplace, such as reducing waste production, energy efficiency and sued environmental polluters.

❑ ***Environmental knowledge, Awareness of consequences and Environmental Attitude***

Pro-environmental behavior is defined as a conscious behavior that attempts to minimize the negative impact of one's actions on nature (Kollmuss and Agyeman 2002). The initial model of pro-environment behavior is based on environmental knowledge that leads to environmental awareness, which in turn is considered to lead pro-environment behavior. There are three types of environmental knowledge (1) knowledge of the environment, (2) knowledge of environmental conservation; and (3) knowledge gained from one's involvement in nature and the environment.

Many theoretical frameworks have been developed in an attempt to understand and explain pro environmental behavior and have identified several factors that have an influence on positive or negative pro-environmental attitudes. Van Liere & Dunlap (1980); Kollmuss & Agyeman (2002); Evans et al., (2007) have identified factors that influence pro-environment attitudes, namely: demographic factors, external factors (institutional, economic, social and cultural) and internal factors (motivation, pro-environmental knowledge, awareness, value, attitude, emotion, and locus of control). Kasier et al., (1999) confirm that there is a positive relationship between environmental attitudes and ecological behavior and find a significant correlation between environmental knowledge and environmental values. According to Kasier et al., (1999), environmental knowledge and values are a prerequisite for ecological behavior intentions which is a prerequisite for pro-ecological behavior. Sugandini et

al., (2018a) conducted a study aimed at analyzing the adoption behavior of mangrove conservation. The results showed that the decision to conserve was influenced by perceived environmental responsibility, human nature orientation, environmental knowledge and environmental attitudes.

H1: There is a significant positive relationship of environmental knowledge (EK) on awareness of consequences (AOC)

H2: There is a significant positive relationship of environmental knowledge (EK) on environmental attitude (EA)

❑ *Awareness of consequences and Personal Norms*

Awareness of the consequences combined with increased social responsibility enhances moral behavior or personal norms. Schwartz's (1977) altruistic behavioral model is linear. Altruistic behavior has positive and negative effects on other community members. According to this altruistic model, a person determines his behavior if there is a connection between awareness of consequences and personal norms. Furthermore, Schwartz's model asserts that norm activation is likely to occur when individuals have two types of belief. First, the acting individual must be aware of the consequences of his actions on the subject of the norm. Second, the individual must responsible for the cause and prevent this consequence. If the individual values these norms but his decision harms his personal interests, he should implement defensive strategy. Later, he could reject the consequences of the behavior of neutralizing norm (Schwartz, 1977)

H3: There is a significant positive relationship of Awareness of Consequences (AOC) on personal norms (PN)

❑ *Personal norms and Conservation Behaviour*

Personal norms are personal internal conditions that reflect how far person's responsible to act morally when faced an ethical situation (Haines et al., 2008). Personal norms are self-concept that reflects feelings and moral obligations to perform certain behaviors (Schwartz, 1977). Compliance of personal norms is associated with pride feelings, while disobedience to personal norms is associated with guilt feelings (Onwezen et al., 2013). In an environmental context, research shows that people who have a moral duty to protect the environment are tend to reduce the consumption of non-environmentally friendly products (Thøgersen and Olander, 2006). Personal norms have close relationship with behavior.

Personal norms are the main determinants of one's actions to adopt pro-environment behavior (Stern, 2005). Sanctions and rewards are related to personal norms and are usually attached to self-concept. Personal norms are personal expectations to gain self-esteem, pride, and security. Conversely, non-compliance with personal norms leads to loss of self-esteem, depression, and guilt (Tangney, et al., 2007). Several studies have investigated the relationship between personal norms and the willingness to involve in pro-environment behavior (Dolnicar, 2010). Mehmetoglu (2010) finds that the moral obligation to protect the environment is positively related to pro-environment behavior. Interestingly, personal norms are stronger predictors of other psychological variables (eg personal values, environmental concerns) or socio-demographic characteristics (eg age, education level, political orientation). Additional support for the view that personal norms may influence pro-environmental behavior stems from field experiments conducted by Brown et al., (2010). Thøgersen (2006: Van der Werff and Steg, 2015) shows empirically that people morally obliged to involve in environmentally responsible behavior. Furthermore, a consumer survey by Whitmarsh (2009) argues that personal morality is the dominant motivation for environment action.

H4: There is a significant positive relationship of Personal norms (PN) on conservation behavior (CB)

❑ *Environmental attitude and Conservation Behaviour*

In studying environmental attitudes, it is important to understand pro-environment behavior (Fransson and Gärling, 1999).

In a broad, Environmental refers to general attitudes toward the environment and special attention about how one's behavior and the behavior of others towards various environmental issues (Fransson and Gärling, 1999; Kim and Choi, 2005). The operational definition of environmental attitude varies in various studies. By using environmental values, Schwartz (1992) and Stern et al., (1993) develop an ecological value typology that composed of altruistic (ie values that reflect concern for human welfare), biospheric (ie values emphasizing the quality of the environment and biosphere) and value-oriented egoistic (ie values that focus on maximizing personal outcomes) (Dietz et al., 2005; Steg et al., 2014).

Environmental attitude is important for understanding consumer's ecological awareness (Chan, 2001). Environmental attitude reflects emotional reactions to issues such as food contaminated by pesticides, pollution caused by company operations, and government efforts to control pollution (Chan and Lau, 2000). Attitude is one of the internal factors that has strong influence on behavior. In general, attitudeis harmonious with behavior, although it takes other psychological factors that bridge the intention / behavior intention (Fishbein and Ajzen, 1975). Sheth (1981) argues that, attitude is one of the internal factors that has strong influence on behavior. Attitudeis an evaluative predisposition. Attitude has consequences for the way people act on others and the taken actions.

According to the attitude theory of Schiffman and Kanuk (2010), the consumer's positive attitude toward something is followed by positive behaviour. It shows when consumers have positive beliefs about the consequences of choosing something, consumers decide to behave appropriately with their beliefs. Chan and Lau (2000) revealed that ecological affect gives indirect effect to buying behaviour of green product, through buying intention. Other studies by Li (1997) and Fraj and Martinez (2007) suggest a positive relationship of ecological affect, green product consumption and ecological behaviour. Sugandini, et al., (2018a), examined the environmental attitude effect and environmental behaviour in predicting the conservation behaviour of mangrove forest. The results showed that environmental knowledge affects the environmental attitude and conservation behaviour. Sugandini et al., (2018b), also conducted research to analyzethe behavior of nature batik adoption for craftsmen in Special Region of Yogyakarta, Indonesia. The result states that there is perceived influence on environmental responsibility to the environmental attitude and the adoption of batik nature staining.

H5: There is a positive relationship of environmental attitude (EA) on conservation behavior (CB)

3. Research Method

This study embraces the positivism paradigm. The positivist paradigm holds that reality is something that is singular, real, divisible and emphasizes the occurrence of causal relationships whose tests are conducted on a free value basis (Lutz, 1989). So far, there has been no dominant paradigm in consumer behavior (Hunt, 1989). All paradigms are considered capable to underlie the study of consumer behavior. This positivism paradigm focuses on the causes of consumer decision making so that research results are directed to the purpose of marketing practice. This study was conducted in two stages of research. First, the study begins with an exploratory study which is an inductive approach to obtain a clearer picture of phenomena associated with conservation behavior. Second, the research is conducted by deductive approach using survey design to test the causality relationship between the constants studied.

This study uses survey because it observes a number of factors that explain the existence of the studied phenomenon Lutz, (1989); Simonson, Carmon, Dhar, Drolet and Nowlis, (2001). The survey is a field study that provides valuable insight into the real context, information about the strength of

phenomena, real environmental conditions, and able to identify variables related to the internal and external individual conditions (Simonson et al., 2001). The used data is primary data that obtained through in depth personal interviews and questionnaires filling. In-depth personal interviews are used to explore environmental knowledge, personal norms, awareness of consequences, and environmental attitudes toward conservation behavior. Questionnaires are used to obtain data that are general and that have been described by the theory.

Population in this research is all people in Special Region of Yogyakarta who have conducted conservation behavior. Sampling is conducted by purposive sampling. Criteria of respondents are individuals who involved in the family decision-making process. Respondents may act as initiators, influencers, users, or decision makers at the household level. The unit of analysis in this study is individual. Data were collected from respondents who are shopping at supermarkets and shopping centers in the five regency in Special Region of Yogyakarta. Respondents were asked to voluntarily complete a survey on site and gifted provided souvenirs by the researcher. The sample size of each district is 60 people and the total number of samples are 300 people. After the questionnaire was distributed, only 268 respondents were eligible for further analysis. The time period for data collection is one month from November to December 2017. The number of samples taken is refers to Hair et al., (1998) which states that the minimum number of samples for a data test to have statistical power that can be accountable is five to ten times the parameters analyzed. The number of parameters analyzed in this research is 50. So the minimum sample is 250

respondents. It has already qualified for sample adequacy.

Environmental knowledge, personal norms, awareness of consequences, environmental attitudes and conservation behaviors are essentially subjective. Thus, it based on individual respondents. These five variables are measured using a 5-point Likert scale. This method provides a number of possible alternative responses that can help reduce realibility of errors. Each question item is rated by "1" (Strongly Disagree), "3" (Neutral), and "5" (Strongly Agree). Environmental knowledge measurement was adapted from studies conducted by Kaiser et al., (1999); Kaiser and Scheuthle (2003), Chan and Lau (2000) and Sugandini et al., (2018a). Environmental attitude is adapted from the study of Chan and Lau (2000) and Sugandini et al., (2018b). Awareness, personal norms and conservation behaviour is adapted from Kaiser et al., (2005); Nguyen et al., (2016) and Sugandini et al., (2018b). Each vaiabel is measured using 10 question items. The statistical technique used in this research is AMOS.

3. Results
3.1. Profile of Respondent

Respondents identity categorized by sex, age, education, occupation and income can be seen in Table 1. Table 1 shows that of 268 respondents 51% are male and 49% are female. The most respondents are 41-50 years old (50%), bachelor degree (47%), private employment (45%), income range IDR 3,000,000 – IDR 4,000,000 (37%).

Table 1. Profile of Respondent

Demographics	Characteristics	%
Sex	Male	51
	Woman	49
Age	< 20 years old	1
	20 -30 years old	8
	31 – 40 years old	41
	41-50 years old	50
Education	Highschool/equals	10
	Diploma/academy/baccalaureate	31
	Bachelor Degree	47
	Master Degree	12
Occupation	Private employee	45
	State-owned enterprise employee	26
	Entrepreneur	20
	Students	9
Income (IDR)	< 1000.000	5
	1.000.000 - 2.000.000	5
	> 2.000.000 - 3.000.000	31
	> 3.000.000 - 4.000.000	37
	> 4.000.000	22

3.2. Hypotesis Testing

Table 2 described the goodness index of fit research model. A low chi-square value with significance level less than 0.05 or 0.01 indicates that the actual input matrix is different from the predicted input matrix (Hair et al., 1998). Chi-square value in this

study amounted to 33.9 and has significance level of 0.01. The high value of goodness of fit shows the model ability to extract high empirical data variance. The study result indicates that the conservation behavior model developed as expected. Table 3 shows that all proposed hypothesis are accepted.

Goodness of fit type model	Goodness Index of fit Model	Recommended value	Results	Description
Absolute fit measures	Chi-Square Statistic (χ2 atau CMIN)	Small	23.10	Excellent
	P	≥ 0.05	0.012	Excellent
	GFI	≥ 0.90	0.965	Excellent
	RMSEA	≤0.08	0.081	Excellent
Incremental fit measures	AGFI	≥ 0.90	0.919	Excellent
	CFI	≥ 0.94	0.971	Excellent
Parsimonious fit measures	Normed χ2 (CMIN/DF)	1≤ Normed χ2≤ 5	3.725	Excellent

Table 2. Goodness of Fit Value the Main Empirical Model

	Relationship	Expected Direction	Actual Direction	Coefficient Path	CR	Description
H1	AOC ← EK	+	+	0.256	3.092	Supported
H2	EA ← EK	+	+	0.211	3.936	Supported
H3	PN ← AOC	+	+	0.335	2.538	Supported
H4	CB ← PN	+	+	0.394	4.896	Supported
H5	CB ← EA	+	+	0.232	2.687	Supported

Table 3. Summary result of direction test and significance relationship between hypothesized variable

The result shows that the EK effect on AOC is significant, the coefficient path value of 0.256 with a positive direction, and CR value of 3.092. The EK effect on EA is significant, coefficient path value of 0.211 with positive direction, and CR value of 3.936. The AOC influence on PN is significant, coefficient path value of 0.335 with positive direction, and CR value is 2.538. The PN effect on CB is significant, coefficient path value of 0.394 with positive direction, and CR value 4.896. The EA effect on CB is significant, coefficient path value of 0.232 with positive direction, and CR value of 2.687. Thus, it can be concluded that at the level of significance of 0.01, all hypotheses are accepted.

4. Discussion

The purpose of this study is to examine the conservation behavior model that is influenced by EA and PN. The results show that all hypotheses are accepted. *The first and second hypothesis* state that environmental knowledge has a significant positive effect on awareness of consequences is supported. This indicates that the consumer's knowledge about the good environment is related to the perception of the consequences that resulted from the environmental sustainability orientation. In addition, environmental knowledge can also affect consumer attitudes toward nature. A consumer who understands the natural protection will protect the nature. This research supports the research results of Sugandini et al., (2018b); Can and Lau (2000); Nguyen et al., (2016) and Kaiser et al., (1999).

A third hypothesis states that awareness of consequences has a significant positive effect on personal norms is supported. Consumer who are aware if the consumers do not protect the nature, they would receive consequences for nature destruction and feels guilty. This guilty feeling causes personal norms of a consumer are increasing. The better the awareness of the consequences of their behavior, the more it increases consumer's personal norms. The results of this study support a statement from Stern et al., (1993) using social psychological theory and norm activation model that Schwartz (1977) argued. Awareness of consequences will increase social responsibility that will ultimately increase moral behavior or personal norms.

The fourth hypothesis states that personal norms have a significant positive effect on conservation behavior is supported. It means that if one is aware of the behavior consequences that he did to nature, the behavior toward conservation becomes increased. Consumers will avoid products consumption that can damage nature. Consumers are morally responsible for protecting nature so that their behavior tends to lead to protect the nature. The results of this research support the research of Haines et al., (2008); Schwartz (1977); Onwezen et al., (2013); Thøgersen and Ölander, (2006); Stern, (2005);Tangney et al., (2007); Dolnicar, 2010; Mehmetoglu (2010); Brown et al., (2010); Thøgersen, 2006; Van der Werff and Steg, (2015) and Whitmarsh (2009).

The fifth hypothesis states that environmental attitude has a significant positive effect on conservation behavior is supported. Means that if the consumer has an attitude towards the protection of good nature, then the behavior tends to protect the preservation of nature and the environment. For the consumers who love the environment, the consumption behavior will choose products that are environmentally friendly. Consumers usually will think when taking decision to consume products. The most likely consideration is whether the product can damage the environment or not. The results of this study support studies conducted by Fransson and Gärling (1999); Kim and Choi (2005); Dietz et al., (2005); Steg et al., (2014); Chan, (2001); Chan and Lau, (2000); Nguyen et al., (2016), Fraj and Martinez (2007), and Sugandini, et al., (2018b).

5. Limitation and Future Research Directions

Limitations of this study is indicated by the existence of research scope in certain settings. This study can only be generalized on the research scope that has subject criteria and certain research objects. Research is also limited to the environmentally friendly products category that provide benefit for nature conservation so it can not be generalized to other products. Future research is expected that the research setting is not only on environmentally friendly products but also green products and organic products so that able to reinforce the justification for these three products types and the generalization is more acceptable.

Brucks (1985) describes three categories of consumer knowledge of product class used in consumer behavior research: (1) *subjective knowledge*; the individual's perception of how many consumers know the product (2) *objective knowledge*; the measure of what an individual really knows the product 3) *The previous experience*; the amount of purchase or consumer experience of using the previous product that have already consumed. According to Philippe and Ngobo (1999), subjective measurement is based on the interpretation and perception of knowledge possessed by individuals, not based on actual knowledge levels. The actual use of knowledge level will be helpful because it can test the real consumer's understanding. Subjective knowledge is related to the use of personal information and other sources when making decisions (Brucks, 1985).

This study only analyzed conservation behavior from the consumer side who have conducted conservation or consumer in consuming the products have already oriented to the nature sustainability. Future research is expected to analyze conservation behavior from consumer side who have not willing to do conservation or refuse to preserve the environment so that there is comparison result from all those three and increase generalization of research findings.

This study only analyzed the factors that influence conservation behavior in terms of environmental knowledge, awareness of conservation, personal norms and environmental attitude. There are other factors that can be used to predict conservation behavior, such as volunteerism, risk aversion, environmental value, environmental utility, social interaction, intention to conserve, environmental concern, moral obligation and perceived consumer effectiveness.

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The Environmental Aspect and Impact Assessment for Heavy Industries: Empirical Study on Steel Fabrication and Shipyard Operations in Batam Indonesia

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Abstract

The Environmental Aspect and Impact Assessment (EAIA) is required to identify and evaluate the technical and environmental issues in industries particularly the business involved with steel fabrication and shipyard operation in Batam Island, Indonesia. Environmental impacts of these facilities were categorized based on the activity, type, level and degree of its effect. During the operation of these facilities, the potential adverse impacts will include soil pollution from painting works, air pollution from increased concentration of volatile organic compounds, metal particulates, and combustion gases, hazardous waste generation and disposal and depletion of natural resources in terms of electricity and water usage. On the other hand, the identified beneficial impact during the operation is economic and social in nature. The boundaries considered for the environmental aspects are limited inside the premises of the yards and its immediate surroundings. A quantitative assessments have been the main approach analysing systems' environmental impact. There is rating scheme is used to identify the significance of the environmental aspects of each activity, product and service. Various steel construction and fabricators cannot be modelled the assessment method statically properly. Static assessment lacks the ability to predict how the environmental aspects use and apply effectively. However, the modelling of assessment methods are data intensive and require more resources and knowledge. This paper elaborates on when to use the proper methods and calculations to assess these yards' environmental aspect and impact. In short, appropriate methods as a modelling process can be efficient when there is a need for both productivity assessment and environmental assessment. The result is a comprehensive assessment package including two models of EAIA matrix has to be developed by Environment, Safety & Health Professional, Project Management Team, and Yard Operation and Maintenance Engineer in order to provide their business with proper methods of assessment so that it could be complied with Indonesian Government Regulation as well as the Environmental Management System ISO 14001:2015 requirement.

Keywords: environmental aspect and impact assessment; assessment matrix; environmental management system.

1. Introduction

Batam is one of the maritime areas in Riau Islands (Kepulauan Riau) province with an area of 1,570.35 Km^2 (refer to Act of the Republic of Indonesia No. 53, Year 1999), while based on the outer area limit of Regency/City as far as 4 nautical miles so that the area of Batam City is 390,900 Ha (Refer to the Local Government Regulation of Batam City No 2, Year 2004). One of the maritime industry areas where companies are engaged in the fabrication and construction of offshore and ship platforms are Tanjung Uncang, Kabil, Sekupang and Batu Ampar and become research options potentially contributing to the destruction of coastal and marine environment. In managing environmental in industry as required by the government regulation is the Environmental Impact Assessment (EIA), in Indonesia is called AMDAL where the company needs to detail the analysis into the term of Environmental Aspect and Impact Assessment, abbreviated EAIA, by identifying and evaluating ecological, social and economic issues associated with the operation of the yard' fabrication and construction.

Environmental impacts of these facilities were categorized based on the activity, type, level and degree of its effect. During the operation of these facilities, the potential adverse impacts will include soil pollution from painting works, air pollution from increased concentration of volatile organic compounds, metal particulates, emission of combustion and greenhouse gasses, e.g. CO_2, CH_4 having impact to global warming, ozone layer depletion caused by ODS (ozone depleting substances), e.g. halon, CFC, HCFC, hazardous waste generation and disposal and depletion of natural resources in terms of electricity and water usage, water pollution, noise pollution, etc. On the other hand, the identified beneficial impact during the operation is economic (increasing regional and local economy) and social issues in nature, e.g. job and business opportunity, customary rights, structure and social interaction to the local community. The result is a comprehensive assessment package including two models of EAIA matrix has to be developed by Environment Safety & Health Professional, Project Management Team, and Yard Operation and Maintenance Engineer in order to provide their business with proper methods of assessment so that it could be complied with the Indonesian' Government Regulation as well as the Environmental Management System ISO 14001:2015 requirements.

2. Methodology of EAIA

Various methods of EAIA are to be discussed in order to comply with EIA requirement and industrial codes. In order to calculate the environmental impact value, a model corresponding to the typical steel fabrication and shipyard operation is required; Frequency of Impacts and Degree of Impacts by establishing matrix of environmental impact. Initial baseline assessment shall be performed by simply enumerating and analyzing the fabrication and shipyard processes, activities, services products and relate their interaction with the environment. Once the aspects of the environment are established, these do not change unless the activity is shut down or a new activity has started.

The boundaries considered for the environmental aspects are limited inside the premises of the yards and its immediate surroundings. A semi qualitative-quantitative assessments have been the main approach analyzing systems environmental impact. There is rating scheme is used to identify the significance of the environmental aspects of each activity, product and service. Various steel construction and fabricators cannot be modelled the assessment method statically properly. Static assessment lacks the ability to predict how the environmental aspects use and apply effectively. However, the modelling of assessment methods are data intensive and require more resources and knowledge. This paper elaborates on when to use the proper methods and calculations to assess these yards' environmental aspect and impact. In short, appropriate methods as a modelling process can be efficient when there is a need for both productivity assessment and environmental assessment.

3. Research Methodology

This study of modelling of Environmental Aspect and Impact Analysis has been made based on primary data analysis obtained by the researchers from his knowledge and experience as a consultant and lecturer in the form of scientific methods including the application of EAIA to its customers in Indonesia and overseas and it has been analysed by referring to various literature review. Additional informations are also needed based on empirical data collected through closed and open-ended questions with ESH Managers/Supervisors, and through social media communication, telephone calls and also by making direct contact to the Chief of Environment Services, Batam City and the Environmental Safety & Health Managers around. The study was held for 5 companies; 2 Offshore Fabricators and 3 Shipyards) as the customers of Researcher. However, another data / information from the rest 80 steel work industries surrounding Batam (in Tanjung Uncang, Kabil, Sekupang and Batu Ampar) has also been used for the reference.

Primary data is the main source of information for the study. However, some secondary sources of data would be employed. The secondary sources of data would include International Standard Organizations, published electronic and print journals and information from Environmental, Safety and Health Professional in Indonesia.

4. Results

4.1. Environmental Management System (EMS) ISO 14001:2015

Due to the low price of crude oil over the past two years globally and the impact of reduced offshore platform construction projects and the ship building in Batam Island, nearly 20 fabricators and shipyard are not operating. From around 80 industries active in operation in Batam Island when this paper is prepared more or less 25% runs ISO 14001 Environmental Management System even integrated with Occupational Health & Safety Management System / OHS-MS OHSAS 18001 and / or Indonesian' OHS-MS, and 35% have not certified with ISO 14001 but they are implementing OHS-MS OHSAS 18001 and / or Indonesian' OHS-MS, and others not identified.

The study was held for 5 companies that are 2 offshore fabricators and 3 shipyards. From our observation that various EAIA methods has been implemented by 3 observed companies they use the accepted standard, and the other one does not fully comply with regulatory and EMS requirements. According to the requirements of Environmental Management System (EMS) ISO 14001:2015 in the Clause 6.1.2 on Environmental Aspects stating that: "Within the defined scope of the environmental management system, the organization shall determine the environmental aspects of its activities, products and services that it can control and those that it can influence, and their associated impacts, considering a life cycle perspective", the industry with potential adverse (negative) impacts shall implement this requirement.

The EAIA program shall be complied with ISO 14001 to document information of its; environmental aspects and associated with environmental impacts; criteria used to determine its significant environmental impacts; significant environmental impacts. Meanwhile, concept of quantitative risk (environmental impact and ecological) assessment by LaGrega et al. (2010) is defined as probability of suffering harm or loss. When the resulting harm is measurable, risk may be calculated as probability of an action occurring multiple by the severity of harm if the action does occur:

Risk = (probability) x (severity of sequence)

Two different EAIA matrix as the modelling are considered to be an important part in the implementation of the site assessment to match the Company's maturity in the application of the Environmental Management System.

4.2. Environmental Aspects

Janson (2016) in assessing the green performance of shipyards – Developing and testing the GP states that that the environmental performance assessments is measuring the environmental performance for acquiring insight in aspects that have a high impact on the environment. The environmental performance can be assessed by applying different methods, models, measures and sets of indices. The term environmental assessment is mostly known for assessing the environmental consequences both positive and negative for a plan, policy, program or project. Fabricators and shipyards in Batam have complied the environmental aspects that are the normal activities, products and services over which facility can control or have an influence were considered for the assessment.

Emissions and Consumptions of resources	Hazardous waste and materials
- Emissions of Volatile Organic Compounds - Emissions of Particulate Matters - Emission of Combustion Gases - Consumption of Electricity - Consumption of Fuel - Usage of Water - Consumption of Raw Materials - Discharge to Land - Discharge to Surface Water - Generation and Disposal of Non-hazardous Waste	- Generation and Disposal of Hazardous Waste - Generation and Disposal of Sewage or Effluent - Generation and Disposal of Biohazards / Medical waste - Nuisances (concerns raised by community; noise, odour, dust, overspray, appearance, etc.) - Generation of Radiation - Generation of Heat - Generation of Fire or Explosion - Others

4.3. Potential Environmental Impacts

There are potential impacts to ecosystem, social and economy issues considered when evaluating the aspect above are shown below.

Impact to Ecosystem	Impact to Social Issue	Impact to Economy
• Air Pollution • Water Pollution • Soil Pollution • Depletion of Natural Resources • Global Warming • Depletion of Ozone Layer • Habitat degradation • Nuisance to the local community, included Public health and Environmental Health	• Job and Business Opportunity • Customary Rights • Structure and social interaction to the local community	• Local Economy • Regional economy

4.4. Frequency of Impacts

By referring to the International Sustainability Rating System / ISRS[7] of Omega Workbook, 7th Edition, DNV what the study did, both Frequency of Impacts and Degree/ Severity of Impacts has been modified through analyzing the collected data (as lesson learned) of these industries within a year of 2016-2017. In this study, the frequency of the environmental impacts of the activities to the receiving environment are divided into two models of assessment methods (Model 1 and Model 2). Both beneficial (positive) and adverse (negative) impacts are presented together with the assessed degree of impact.

Model 1	Model 2

There are classified into Improbable / Never, Abnormal, Long term, Short Term, Frequent and Continuous and these are rated as shown below:
1 = Improbable/never:
    Impact has never occurred or is highly unlikely (e.g. accidents, fires, emergencies); Happens once in 50 years.
2 = Abnormal:
    Occurs in abnormal situations (specific accidents, sabotage, incompetent worker); Happens once every 3-5 years.
3 = Long term:
    Occurs once every 6 months to 3 years;
4 = Short term:
    Happens once every 1 month to 6 months;
5 = Frequent:
    Happens once every 15 days to 1 month
6 = Continuous:
    Impact occurs on an ongoing basis or continuous during   operating times
	There are classified into: Almost certain, Likely, Possibly, Rare, and Almost incredible, and there are rated as shown below:
	100 = Almost certain
	 80 = Likely
	 50 = Possibly
	 10 = Rare
	  5 = Almost incredible

4.5. Degree of Impacts

The degree of the identified potential impacts are presented into two models, as shown below.

Model 1:	Model 2:
The degree of the potential impacts are rated without considering the existing conditions of the receiving environment. 1.5 = No impact (unlikely to have an adverse effect on human health or the environment) 2.5 = Minor impact (permitted) 3.5 = Moderate impact (regulated control over the impact) 8.0 = Serious impact (likely to result in severe and widespread damage to human health and environment.	The degree of identified impacts to be assessed with six variables; (A) the Decree of Impact Spread, (B) Components Affected, (C) Impact Intensity, (D) the Number of People Affected, (E) the Nature of Impact Accumulation, and (F) the Level of Negative Impact Hazard

(A) The Degree of Impact Spread:
100 = More than 50Km
 80 = Between 10-50Km
 50 = Between 1-10Km
 10 = Fenced Area
  5 = Local
	(B) Components Affected
	100 = 5 affected components
	 80 = 4 components
	 50 = 3 components
	 10 = 2 components
	  5 = 1 component

(C) Impact Intensity (TLV-TWA)
100 = Above (Extreme)
 80 = Close to TWA (Serious)
 50 = 0,7 x TWA (Medium)
 10 = 0,5 x TWA (Low)
  5 = 0,2 x TWA (Very Low)
	(D) The Number of People Affected
	100 = > 201 persons
	 80 = 101-200 persons
	 50 = 51-100 persons
	 10 = 11-50 persons
	  5 = < 10 persons

(E) The Nature of Impact Accumulation 100 = Accumulative and difficult to reduce scientifically 80 = Accumulative but scientifically reducible 50 = Quite accumulative 10 = Less accumulative	(F) The Level of Negative Impact Hazard 100 = Loss of natural resources 80 = Damage but cannot be recovered 50 = Damaged but can be recovered by intervention 10 = Damaged but can be recovered naturally

4.6. Operation Control

Measures that is considered in evaluating the level of control that the facility has over the aspect include but not limited to procedures, work practices, material purchasing and control, control equipment and/or facilities, reuse/recycling, containment, and training.

Model 1:
The operational controls shall be evaluated are rated as follows:
1.00 = None: There is no control equipment, training or operational procedures
1.25 = Low: There are only operational practices, which are not documented
1.50 = Medium: There are documented procedures or practices
1.75 = High: There are controls in place and procedures where human intervention is necessary
2.50 = Beneficial Aspect: There is a benefit to the environment.

Model 2:
Level of impact, is the sum of;
(FI) Frequency of Impacts **+** (A) the Decree of Impact Spread **+** (B) Components Affected **+** (C) Impact Intensity **+** (D) the Number of People Affected **+** (E) the Nature of Impact Accumulation **+** (F) the Level of Negative Impact Hazard.
Priority of Control, Category and Action Plan shall be carried out by referring the following information:

Table 1: Environmental Aspect and Impact Assessment Matrix – Model 1

Level of Impact	Priority of Control	Category	Action Plan
350-700	1	Very Important	• Very dangerous, must be repaired. Program and target shall be made • Activity must be stopped until the impact value is reduced
200-349	2	Important	• Urgent – serious, hard to repair. Recommended for program and target • Pay attention immediately within a period of not more than 30 days
100-199	3	Quite Important	• Moderate, could be repaired – remedial action within a period of not more than 90 days • The value of impact shall be eliminated without stopping the activity, but the situation is not too critical
<99	4	Less Important	• Minor effects that are easily remedied • The activity can be done normally by following existing procedures

4.7. Significance of Potential Impacts

Additional consideration, particularly for model 1, the following seven criteria shall be used in the determination of significance:
Model 1:
1. Legal obligation
2. The risk of an environmental spill incident
3. Past environmental incidents
4. Nuisance to neighbours
5. International protocols or Company policies / procedures
6. Lack of information available to decide on the impact
7. Operation control

The following methodology shall be used as the significance calculation.

Where:
$$Significance = \frac{(F * D)}{C}$$

F = Frequency of Impact
D = Degree of Impact
C = Operation Control

The following aspects and their associated impacts shall be considered automatically significant:
• If there is legal requirement against it
• If there is a company policy/procedure against it
• If the degree of impact number is higher than 3 or lack of information available to decide on the impact caused
• If the calculated significance is greater than or equal to 15

However, the bellow table shall be considered for Company/Management actions.

Table 2: Environmental Aspect and Impact Assessment Matrix – Model 2

Level of Significance	Level of Impact	Action Plan
> 14	(High)	• Recommended for EMS objectives and targets • Straight to comply with legal requirement • Straight to comply with EMS req. and its procedure(s)
8-13	(Medium)	• Comply with legal requirement • Comply with EMS and its procedure(s) • Maintain good communication with internal & external
3-8	(Low)	• Comply with EMS requirements • Maintain good communication with internal & external
< 3	Beneficial impact	• To maintain the Environmental Program

4.8. Hierarchy of Control

Once environmental impact have been identified, a hierarchy of controls should be in place to manage the impact level. Engineering/design controls are the first choice to eliminate risks where possible. Administrative controls including procedures, rules, work permits and warning signs are the next choice to mitigate risk, including personal and environmental protective equipment. Emergency response measures are supported with adequate procedures, tools and human resources.

5. Conclusions

The objective of this paper is to study different modelling for methods of environmental impacts of various environmental aspects and to find out significant environmental aspects and mitigation purposes for steel fabrication and shipyard operation in Batam Island. The analysis shows that the offshore fabrication and shipyard industries cause considerable impact on the environment, and its environmental upgrading lags behind on other companies. Fabricator and shipyard that are intrinsically

motivated to reduce their impact on the environment are missing, however the need to implement environmental friendly improvements is increasing, in order to comply with Indonesian' laws and regulations. Through observing operational these industries in Batam Island, and analyzing the obtained data, specific 2-methods of EAIA are formulated and brought together appropriate frameworks to assess the environmental performance of the offshore fabrication and shipyard as required by EMS ISO 14001. The potential adverse impacts from such industries includes soil pollution from painting works, air pollution from increased concentration of volatile organic compounds, metal particulates, emission of combustion and greenhouse gasses (e.g. CO_2, CH_4) creates global warming, Ozone Depleting Substances (e.g. halon, CFC, HCFC) creates ozone layer depletion, hazardous waste generation and disposal and depletion of natural resources, water pollution, etc. So, the potential impacts to earth and human are the most significant aspect arising from the yards due to more frequency of impact, and more degree of impact (combination of: Degree of Impact Spread, Components Affected, Impact Intensity, the Number of People Affected, the Nature of Impact Accumulation, and the Level of Negative Impact Hazard), and steel fabrication and shipyards have to take much care about it and has to implement the appropriate methods of EAIA and to make its monitoring plans.

Generation of noise is the most significant environmental aspect as it is more repetitive as compared to other environmental aspects. It produces noise pollution environmental impact from all industries to greater or small extent. So, fabricator and shipyard have to think about this aspect. Meanwhile, the negative and/or positive impacts to social community (e.g. job and business opportunity, customary rights, structure and social interaction to the local community), and impacts to the economy (e.g. global and local economy) are the less significant environmental aspects as compares to with impact to the ecosystem. The Management of these companies has to include it to their assessment.

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Typical Environmental Impact Register

These are various drivers for steel works which are observed from the site survey and literature review and also important for Fabricator and Shipyard operations environment in Batam. The list of overall list of drivers are given below.

NO.	MAIN PRODUCT, SERVICE, AND ACTIVITY	SUB-CATEGORIES	ASPECTS	POTENTIAL IMPACTS
1	Welding & Oxy/LPG- Cutting	SAW (Submerged Arc Welding); Stick (Shielded Metal Arc Welding); Flux Cored Arc Welding -Self Shielded; Flux Cored Arc Welding- Gas Shielded	Emission of Metal Particulates, Combustion gases	Air Pollution
			Emission of Shielding Gases	Air Pollution
			Electricity Consumption	Depletion of natural resource
			Generation of Fire or Explosion	Air Pollution
		TIG (Tungsten Inert Gas)	Emission of Shielding Gases	Air Pollution
			Electricity Consumption	Depletion of natural resources
			Generation of Fire or Explosion	Air Pollution
2	Abrasive Blasting	Blasting	Emission of particulate	Air Pollution
			Generation and disposal of silica sand/ waste	Increase load to landfill
		Blow Down	Emission of Particulates	Air Pollution
3	Painting	Spraying	Emission of Particulates (overspray)	Air Pollution
			Generation and disposal of Hazardous Waste (Paint, thinners, empty paint cans, soiled rags)	Soil/Water Pollution Increase load to landfill
			Spill to Land	Soil/Water Pollution
			Emission of VOCs and particulates	Air Pollution
		Equipment Cleaning	Generation and disposal of Hazardous Waste	Soil/Water Pollution Increase load to landfill
			Spill to Land	Soil/Water Pollution
		Mixing	Spill to Land	Soil/Water Pollution
4	Rigging & Lifting	Overhead Cranes	Generation and disposal of Hazardous Waste (spill pads, rags)	Disposal of Hazardous Waste
			Spill to Land (oil and grease)	Soil/Water Pollution
			Electricity Usage	Depletion of Natural Resources
		Material Transportation: Operating Crawler, Cranes, Forklifts, Winch, Trucks-Cheery Picker, etc.	Generation and disposal of Hazardous Waste (spill pads)	Soil Pollution; Water Pollution;
			Discharge to Land (oil and fluid spills)	Soil and Water Pollution
			Fuel Usage	Depletion of natural resources
			Emission of Particulates, Combustion Gases	Air Pollution
5	Maintenance	Vehicle Washing	Generation and disposal of Industrial Waste (spill pads, used oil) and difficult waste (tires)	Increase load to landfill Soil/Water Pollution
			Electricity Usage	Depletion of natural resources
		Rigging and Heavy Equipment Maintenance	Discharge to Land (Oil and fluid spills)	Soil Pollution
		Maintenance & Service Building Facility	Generation and disposal of Hazardous Waste (fluorescent tubes, AC, Ceiling, etc.)	Increase load to disposal facility
			Electricity Usage	Depletion of Natural Resource
		Electrical Maintenance	Electricity Usage	Depletion of Natural Resources
6	Utilities	Power Plant Operation	Fuel Consumption	Depletion of Natural Resources
			Emission of Combustion Gases	Air Pollution Global warming
			Noise Generation	Nuisance
			Generation of Hazardous Waste (used oil)	Soil Pollution; Water Pollution
			Spill to Land	Soil Pollution; Water Pollution
		Usage of portable generator	Fuel usage	Depletion of natural resources
			Spill to Land	Soil Pollution; Water Pollution
7	Non-Destructive Testing	Radiography & film processing	Generation and disposal of Hazardous Waste (wastewater from film development)	Soil/Water Pollution
			Generation and disposal of hazardous waste (empty cans of aerosols)	Increase load to landfill Soil/Water Pollution Depletion of ozone layer
8	Warehousing	Forklift Operation	Fuel Usage	Depletion of natural resources
9	Shipping and Receiving	Forklift Operation	Electricity Usage	Depletion of natural resources
			Discharge to ground/land (spill of oil and gear tube)	Soil Pollution
10	Waste Handling	Waste Segregation	Spill to Ground	Soil/ Water Pollution at disposal facility
		Transport to disposal facility	Spill to Ground	Soil/ Water Pollution at disposal facility
		Waste Handling	Generation and disposal of Hazardous Waste	Soil/Water Pollution
			Spill to Ground	Soil/Water Pollution
			Generation of Fire or Explosion	Air Pollution

Table 3. Environmental Aspects and Impacts Register for Steel Fabrication and Shipyard Operation

Resource Potential and Production Efficiency High-Quality Organic Products in Russia

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Abstract

Today, the degree of development of agriculture, and in the future, the level of food security of the country, the health of the population and its quality of life are largely determined by innovative developments in the field of alternative agriculture, the preservation of natural resources and, above all, the main production facility – land. Along with this, the unfilled market capacity of organic products and the significant land potential for the development of organic farming create all the necessary prerequisites for improving the competitiveness of Russian rural manufacturers.

Keywords: organic agriculture; organic products; land resources; fallow land; zonal agro-eco cluster; land use ecology; food security.

1. Introduction

In modern society, there is an awareness of the current environmental situation in the world. As a result, over the past two decades, the interest of agricultural manufacturers in organic or environmentally oriented land use methods, which provide a gradual natural restoration of soil fertility and help maintain the balance of natural ecosystems of territories, has noticeably increased (Altukhov, Kundius, 2009). This agricultural technology of agricultural production serves as an alternative to modern industrial land use (Avarsky, Taran, 2014)

As a result, the development of issues related to the prospects of environmentally friendly agricultural production and the rationale of the feasibility of involving fallow and unused agricultural land for the making of environmentally safe food becomes relevant.

2. Methodology

The theoretical and methodological basis of the study consisted of the works of domestic and foreign scientists on the problems of agricultural production of organic food; land development issues; scientific research and recommendations of the Russian Academy of Agricultural Sciences, laws of the Russian Federation, decrees of the President and resolutions of the Government of the Russian Federation, regulations of the constituent entities of the federation, the EU regulations on the development of ecological agriculture, IFOAM standards.

The source materials were annual reports of agricultural organizations, materials of the Russian Federal Register, the Russian Geographical Society, data from the Federal State Statistics Service of the Russian Federation, the Ministry of Agriculture of the Russian Federation, materials of authoring, technical and reference literature. The methodological basis was a systematic approach, which ensured comprehensiveness and purposefulness. Analytical, abstract-logical, economic-statistical, economic-mathematical, monographic and experimental research methods were also used in this research.

3. Results

The generalization of foreign experience in the production and consumption of organic food suggests that the greening of agricultural production is a dynamically developing direction. The situation in the market for organic products is as follows: the leaders in consumption of organic products are the most developed countries and the leaders in producing are the developing countries (Krilatih, 2008)

Despite the attractiveness of the market for organic products, its formation in Russia is not proceeding at a fast enough pace. Russia has all the prerequisites for the production of ecologically clean food: long-term agrarian traditions, labor resources of rural areas, huge (often unused) land resources, and also relatively small, in comparison with economically developed countries, use of agricultural fertilizers and chemical plant protection agents in agricultural production. Organically oriented agriculture is a closed production cycle, where a significant proportion of manual labor is used instead of chemical methods of crops treatment (Voronkova, 2014).

Russian agricultural manufacturers of environmentally friendly products need a unique segment of the food market, oriented to consumers who care about their health and ecological safety of the environment. Consumers of environmentally friendly products can be children (baby and diet food); people with poor health; patients on rehabilitation; persons suffering from food allergies; people who adhere to a healthy diet, and other categories of users. The demand for organic products in Russia is satisfied only by 30% (Luri, Goryachkin, 2010).

Russia has a unique natural potential; it has enormous resources for the production of environmentally friendly products. This is 20% of the world's freshwater reserves, 9% of the arable land of the planet (115 million hectares), 58% of the world's

black earth reserves. In the world, the main volume of production of environmentally friendly crop products falls on farms and private subsidiary farms. In the Altai Region, these categories of farms account for a third of all arable land, and in the production of potatoes, vegetables and melon crops, farms and private farms account for more than 90% of the total production (Zhuchenko, 2012).

Arable land abandoned or unused in agricultural production for more than one year theoretically refers to fallow land, which in turn can be an important territorial reserve in the direction of greening land use and producing environmentally safe food. In the Altai Region, a significant part of arable land emerged instead of destroyed steppes during the development of virgin and fallow lands in the middle of the last century.

Undoubtedly, fallow and unused arable land should play a significant role in the transition of agricultural enterprises to environmentally oriented land use. In the Russian Federation, a vast array of data on land statistics and land records is regularly compiled. The main problem is that it is not possible to find out the real area of fallow lands on the basis of data provided by land records. Thus, in the statistical data, fallow lands are put into a separate category, but only that part of unused arable land, which is officially transferred from arable land to fallow, is included in this category of land (Miloserdov, 2012).

The authors have attempted to estimate the actual area of fallow and unused lands on the basis of statistical materials, and specifically on the basis of the digital array of annually provided information on the number and structure of sown areas by regions of the Russian Federation. Thus, by comparing the total area of arable land for land registration and the sown area, it is possible to identify unplanted or unused arable land (Smoluk-Sikorska, Luczka-Bakula, 2013). However, in order to give a realistic estimate of the total area of unused arable land, it is required to isolate the disused area from the total arable land out of crop.

As the upper limit indicator of the disused area, one can apply the prevailing indicator of the pre-reform level. By the beginning of 1990, the average arable land out of crop share in the main agricultural regions was about 13%. Taking this value as the upper limit of the technologically justified disused area, one can try to estimate the real area of unused arable land. By calculating the difference between the total area of arable land and the sown area of the corresponding year, adding to the obtained value the officially registered area of fallow land less the potentially possible disused area (+13% to the sown area of the corresponding year), one obtains the value to which the authors have applied the term "reserve of lands suitable for organic products", of which 10% of arable land is recommended to be left disused.

In the Russian regions, the area under crops decreased most rapidly from 1990 to 2000, followed by a three-year stabilization period, then again there was an insignificant decrease, and starting from 2007, a short increase followed, and the last years of observation saw approximately the same level (Nikitina, Bannova, 2005). In fact, since 2003, the sown area in the regions of the Russian Federation has been approximately 76.7 million hectares. The area of non-sown arable land over this period also changed little, remaining approximately at the level of 38.5 million hectares.

According to the authors' estimates, approximately 10 million hectares of this area may be the maximum for agricultural fallow land. The calculations showed that the actual area of unused and fallow land in the regions of Russia by 2016 was almost 33 million hectares. Of these, the official fallow area is 4.4 million hectares, or about 13.3% of the actual value, and a small part is officially transferred to hayfields and pastures.

Studies show that about a quarter of the total area of arable land in the Russian Federation is not used for its intended purpose – agricultural food production. Of course, it can be assumed that, in the first place, unproductive and inconveniently located areas of arable land left the industrial circulation, but this was not always the case. However, the analysis conducted in the context of administrative districts of the Altai Region showed that there is no clear relationship between the productivity of arable land and the degree of its use.

According to a leading agricultural scientist, academician of the Russian Academy of Agricultural Sciences V. Miloserdov, one of the measures necessary for the release of the Russian agro-industrial complex from a protracted crisis is the development of neglected agricultural lands [19]. Thus, the averaged data indicate that at present in every constituent entity of the Russian Federation approximately 28.5% of the arable land is not sown and is not used in agricultural production. However, the gap between individual regions is very significant. In five regions of Russia, 60-75% or even more arable land was fallow. Almost half (43-47%) of the main area of arable land is not used in agricultural production in the Volgograd, Tula, Krasnoyarsk and Trans-Baikal Regions. It should also be noted that, of all the regions of the Russian Federation, only in the Trans-Baikal Region and the Republic of Tyva the area of unused arable land currently exceeds the sown area. In these regions of Russia, the decrease in acreage over the past two decades shows a kind of negative anti-record – more than 90% in the Tyva Republic and about 85% in the Trans-Baikal Region.

To estimate the actual area of unused arable land, the authors have proposed a technique that allows one to estimate the reserve for increasing the area under crops from the number of unused arable and fallow lands. The presented method assumes taking into account the area disused, on the basis of scientifically based standards of agrotechnical requirements, as applied to a specific soil-climatic zone.

$$Rs = Sp - Sy - Sk + Sz, \qquad (1)$$

where

Rs – reserve for increasing the area under crops,

Sp – arable land area assigned to a business entity, administrative district, group of districts, region of Russia,

Sy – all sown area of a business entity, administrative district, group of districts, region of Russia,

Sk – the upper limit of the scientifically based norm of the disused area, in relation to a specific soil-climatic zone,

Sz – fallow land area assigned to a business entity, administrative district, group of districts, region of Russia.

To assess the economic efficiency of parallel agricultural production using organic and traditional systems, the authors propose to optimize the structure of sown areas in economic and mathematical modeling, where an additional block of organic criterion constraints is introduced into the value of the objective function: reserve of lands suitable for the production of organic products, gross organic production, costs of organic production.

In the authors' opinion, it is possible to ensure a gradual transition to the principles of organic agricultural production and increase the competitiveness of Russian agricultural makers of organic products in the organization of local agricultural, scientific and innovative formations (clusters) focused on the production, processing, storage and sale of environmental agriproducts, to which the authors propose to apply the term "zonal agro-eco cluster".

Based on general interpretations, the authors define a "zonal agro-eco cluster" as a local agrarian, environmentally oriented scientific and innovation integrated formation, which includes agricultural production, processing and marketing organizations, scientific and educational production facilities of regional research centers and universities, marketing and analytical, laboratory and certification, tourist and recreational, cultural and educational sectors, exhibition center, developed infrastructure of logistics and warehousing.

In contrast to traditional cluster network-centric structures, the creation of laboratory-certification, tourist-recreational, and environmental-cultural-educational sectors is justified in the project of the zonal agro-eco cluster. The expediency of carrying out an "umbrella certification" of organic products and production

systems of the agro-eco cluster has been rationalized.

In zonal agro-eco clusters, all processes related to planning, scientific substantiation, production, processing, storage, sale, and certification of ecological products of the agro-industrial sector, i.e. from the inception of the business idea to its realization in the final product, are united into a single cycle. The zonal approach to the formation of agro-eco clusters is due to the significant differences in the individual territories of the regions in terms of their natural and climatic potential, soil fertility, population density, level of infrastructure development, road and transport accessibility, availability of markets for products, and the tourist and recreational potential of the area. The formation of zonal agro-eco clusters, in the authors' opinion, is of particular importance for the development of the economy of an agro-industrial region and the attraction of investment to the agro-industrial sector. Moreover, public support for the creation of zonal agro-eco clusters and an awareness of their role in the strategic development of the country's agriculture will be important here.

The developed model of the zonal agro-eco cluster includes the following key sectors: production and processing, supply, transport and logistics, service, marketing, and sales, which allows building an effective chain "production – processing – sales of organic agricultural products". To ensure the vital activity of the zonal agro-eco cluster and the development of additional areas of its activity, the following are highlighted: the sector of management, coordination, finance, and personnel; innovation and research and education sector. In the draft structure of the zonal agro-eco cluster, the creation of laboratory-certification, as well as tourism, recreation, and environmental cultural and educational sectors was proposed.

The formation and development of agriculture, focused on the production of organic products, based on the involvement of fallow and unused land resources in the turnover, is possible through the promotion of organic agricultural technologies, alternative farming methods and agricultural innovations through the system of agricultural information and consulting centers, organization of presentations of organic products, advertising campaigns, participation in trade fairs at the regional and national levels.

The authors believe that the activities of the zonal agro-eco clusters can have a significant positive effect on the level of economic, social and environmental development of rural administrative territorial entities of the region by enhancing the regional market of both organic and traditional agricultural products, full and ecologically balanced use of land resources, development of innovative agrarian technologies, increasing the level of employment of the rural population, activation of agro-tourism, formation of ecological infrastructure of the territory, expanding the taxable field, increasing the sustainability of agricultural organizations and innovative activity in the region.

The relatively healthy ecological position of the foothill zone of the Altai Region, its tourist and recreational, as well as land and resource potential, were the main criteria for choosing this territory in the development of the project of the zonal agro-eco cluster. In the process of scientific research, it was substantiated that the formation of agriculture, focused on the production of organic products, does not mean the abandonment of industrial agricultural production. In connection with this conclusion, the authors have developed an economic-mathematical model of the functioning of the zonal agro-eco cluster "Foothills of Altai" based on the parallel functioning of both the traditional industrial land use system and the ecologically oriented, or organic, system.

It seems expedient to compile three variants of an economic-mathematical model for the agro-eco cluster "Foothills of Altai". The first option provides for the optimization of the existing structure of sown areas while fully preserving the traditional system of farming. The second option is the introduction of a reserve of land suitable for the production of organic products in the amount of 50,000 hectares. The third option is the involvement into the agricultural turnover of the whole area of land reserves suitable for the production of organic products in the foothill zone of Altai Region – 87,463 hectares. In the second and third variants, it is provided to obtain organic products from the area of the reserve of lands suitable for making organic products (Table 1).

Indicators	1st option: optimization of the traditional system of agricultural production		2nd option: additional introduction of 50,000 hectares from a reserve of land suitable for the production of organic products (parallel production)		3rd option: additional introduction of 87,463 ha from a reserve of land suitable for the production of organic products (parallel production)	
	ha	%	ha	%	ha	%
Grain	456,988	62.8	462,454	59.4	489,287	60.0
Engineering	75,671	10.4	76,925	9.9	65,238	8.0
Potatoes and vegetables	10,475	1.4	11,227	1.5	12,232	1.5
Feed crops	141,752	19.5	165,135	21.2	167,173	20.5
Disused	43,093	5.9	62,238	8.0	81,548	10.0
Total acreage under crops	727,979	100	777,979	100	815,479	100
Reserve of lands suitable for the production of organic products, ha	87,463		37,463		0	

Table 1. Draft structure of the acreage of the agro-eco cluster "Foothills of Altai", taking into account the introduction into production of a reserve of land suitable for the production of organic products (economic-mathematical model)

The calculations with the use of an additional block of organic criterion constraints in calculating the economic and mathematical model allow concluding that only by optimizing the structure of the sown areas of the traditional agricultural production system, an increase in the level of profitability is observed to 17.3%, while in 2013 it was at the level of 14.9%.

Under the second option – with the partial introduction into the agricultural turnover of the reserve of lands suitable for the production of organic products, profitability was 22.9%, and under the third option, taking into account the full involvement in the production in agricultural turnover of the reserve of lands suitable for the production of organic products, it approached 40%.

The calculation of three variants of the economic and mathematical model showed the economic efficiency of a gradual transition to agricultural production of organic products. When calculating economic and mathematical models, the authors developed and applied a method of parallel optimization of the structure of sown areas with the traditional system and the system of organic farming. The calculation of the proposed options for optimizing the structure of sown areas, including partial and full involvement in the agricultural turnover of the reserve of land suitable for the production of organic products, suggests the viability of the proposed project of the zonal agro-eco cluster "Foothills of Altai".

4. Discussion

For a systematic transition of part of agricultural organizations to the principles of organic agricultural production, successful experience in the functioning of organizations focused on the production of organic products, as well as innovative developments in the agricultural sector, which can be implemented at the regional level through a system of zonal agro-eco clusters, is necessary (Lysenko, 2008). All of the above is possible with an appropriate level of coordination of participants and an effective organizational and economic mechanism of state support and stimulation of agricultural entrepreneurship activities focused on the production of organic products, which, in turn, should be considered as an important component of the domestic organic products market structure being in the stage of dynamic development (Grzelak, Maciejczak, 2013).

Actual deposits, or unused arable lands, where they have not been chemicalized for a long time, are an important strategic reserve of agriculture in the Altai Region for the production of environmentally friendly and safe food. With a competent marketing strategy that focuses consumers on the ecological purity of the Altai nature, the products of Altai manufacturers will be in demand outside the region. The economic efficiency of the greening of land use is due to higher prices for the sale of certified environmentally friendly (organic) products, compared with products manufactured via traditional technologies. The gradual involvement of fallow lands in agricultural turnover will create a positive multiplicative effect in the farming, processing and marketing branches of the agro-industrial sector. Thus, the unemployment rate in the region will be partially reduced, many agricultural manufacturers of the region will be able to find their niche in the market for organic food, and consumers will be able to get food that is safe for health.

It is advisable to consider the direction of ecologization of land use as an integral part of the system of sustainable agricultural development and environmental protection. Organic (environmentally friendly) agricultural products are those, the technological chain of making which, starting with the preparation of raw materials and ending with the last technological operation, must meet environmental requirements, which are reflected in environmental standards (Sycheva, Permyakova, 2015). Therefore, for the successful development of markets for organic products, a system of national certification of environmentally friendly (safe) food, harmonized with international standards, must be created.

In the authors' opinion, it is necessary to develop and introduce a mechanism of state support for domestic agricultural manufacturers of organic food. Indirect support can be provided in the form of assistance in passing the certification of organic products, conducting laboratory studies, providing information and consulting services, financing scientific research, insurance, carrying out measures to restore and improve soil fertility, environmental protection. According to the WTO requirements, the scope of this support is unlimited.

5. Conclusion

The authors believe that an important task of modern agrarian economic science is a comprehensive substantiation of the formation of the process of development of an agricultural economy of a new type – more highly efficient and environmentally oriented, serving as an important part of the national economy. In the authors' opinion, the integrated development of organizational and economic principles of the gradual involvement of unused and fallow arable land in agricultural circulation in the direction of the ecological and economic sustainability of land use will increase the country's domestic food security, as well as open access to foreign organic food markets for domestic agricultural manufacturers. The concentration of land, material, financial, labor resources in the direction of agricultural development, focused on the production of organic products, not only opens up the possibility of increasing the production of domestic organic products but also reduces the dependence on imports, and will also contribute to improving the quality and environmental safety of products, development of the diversification processes in agriculture and related branches of rural areas.

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Food Security and Land Grabbing in Low-Income Countries of the Sub-Saharan Africa

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Abstract

The fight against hunger and poverty has long been at the heart of international policies in favour of Less Developed Countries. The first two Sustainable Development Goals (SDGs) of 2030 Agenda strategy are just "No poverty" and "Zero Hunger". Notwithstanding the results achieved in the recent past, in the poorest and low-income Countries, especially Sub-Saharan Africa, lots of people continue to suffer from hunger and poverty. In these Countries, the perspective for economic growth and development of agricultural productivity, as currently measured, is not able to assure the elimination of poverty and hunger. These problems will probably tend to focus right in this area, where the maximum demographic increase is also forecast. Despite of the increase of agricultural productivity is paramount for food security, in the Poorest Countries it is, up to now, strictly linked to farm new lands. In the last years, in the Sub-Saharan Africa low income Countries, investments in new lands have been affected by Land Grabbing.
The aim of this paper is to verify whether and to what extent the Land Grabbing operations have affected both the variation of agricultural land and the development of agricultural activities for food security in the Countries concerned.

Keywords: food security; land grabbing; sustainable development goals; agricultural productivity.

1. Introduction

The many problems affecting the Least Developed Countries (LDC) usually have one sole cause: the poverty.

Since their institution, the primary objective of International Organizations working in favour of developing Countries, first of all Working Bank (WB), has been the fight against poverty.

Among the many consequences of poverty, problem concerning access to food and, consequently the breakdown of food security, is one of the most important. Although combating poverty has long been a primary goal of international policies, a strategy to tackle the issue of poverty, in its different dimensions, was launched only in 2000 with the adoption, by United Nations (UN), of the Millennium Development Goals (MDGs) (UN, 2000). It is not by chance that, among the eight MDGs, the fight against poverty and hunger are considered in the same goal: goal number 1 (Eradicate extreme poverty and hunger).

As is well known, in 2015, the time for implementing measures aimed at achieving the MDGs has ended. The subsequent adoption, by the United nations, of the document "Transforming Our World", defining the new strategy, called Agenda 2013, opened a new political phase.

Agenda 2030 is a long-term strategy and sets out 17 sustainable goals articulated in 169 targets to be achieved by 2030 (UN, 2015a).

The fight against poverty and hunger has remained absolutely central in this new strategy respectively with Goal 1 (No poverty) and Goal 2 (Zero hunger).

The target defined by objective of Millennium development Goal 1 intended to cut the proportion of both people, living on less than USD 1.25 per day, and people suffering from hunger, by half by 2015.

In the framework of Agenda 2030, the related targets are more politically ambitious and include: the eradication of extreme poverty (less than USD 1.25 per day) and the halving of the proportion of people living in poverty by 2030; the elimination of hunger and of all types of malnutrition, thanks to the twofold increase in agricultural productivity and in the income of small-scale food producers and the implementation of food sustainable production systems, by 2030.

Referring to MDGs, important results for the purpose of eradicating poverty and hunger have been achieved on a global scale. From 1990 to 2015, people lived on less than USD 1.25 per day decreased from 47% to 14% in 2015; the percentage of malnourished people decreased from 23.3% of the two-year period of 1990-1992 to 12.9% of the two-years period 2014-2016 (UN, 2015b). Following this, and in order to better understand the extent of actions that need to be implemented for the attainment of the Sustainable Development Goals (SDGs), we need to consider that, in 2015, 736 million people lived in condition of extreme poverty and 794 million suffered for hunger (average 2014- 2016).

The global data, although important, cannot, however, fully account for the underlying realities. For example, if we take into consideration the Sub-Saharan Africa (SSA) and the Southern Asia (SA), representing the two areas in the world where about 93.0% of people living in extreme poverty and 61.0% of people suffering for hunger, the results seem to be less comforting than might appear to be from the reading of aggregate data. In the period 2000-2015, covered by the measures for achieving the MDGs, the proportion of people living in condition of extreme poverty declined significantly, both in SA (from 38.8% to 16.2%) and in SSA (from 57.7% to 41.1%), but, in absolute terms, the number of extremely poor people has been greatly reduced only

in SA (from 554 to 274 million; -50.5%); as far as SSA, the number significantly increased (from 376 million to 413million; +9.8%) (WB, 2018a). In the same period 2000-2015, for people suffering from hunger, the downward movement in the percentage (SSA from 29.75 to 20.9%; SA from 18.1% to 15.6%) cannot give full account of a situation that, both in SSA and in SA, is rising in absolute terms: SSA from 181 to 204 million people (+12.7%) and SA from 264 to 284 million people (+7.6%) (FAO, 2018a).

It follows that, in order to ensure a more correct data reading, we cannot ignore population growth. In fact, always with reference to the period 2000-2015, SA has experienced a population growth of 25.5% (from 1.45 to 1.82 billion people), while in SSA the number of people increased from 645 to 969 million people (50.2%) (UN-DESA, 2017a).

From the above, it can be deduced that the issues of poverty and hunger, even if serious also in other parts of the World, especially in SA, tend to be concentrated in the poorest areas of SSA, where they seem to be difficult to manage than elsewhere.

To confirm this, we must consider that: 27 of the 48 Countries falling in the geographical area of SSA, are classified as Low-income Countries and 14 as Middle Income Countries; Low-income Countries, as classified by WB (Goss National Income (GNI) per capita of USD 995 or less in 2017) (Fantom and Serajuddin, 2016) (WB, 2018b) are 34 and 27 of these are located in SSA; among the 47 Countries classified as Least Developed Countries (LDCs), 33 fall in the geographical area of SSA and only 4 (Afghanistan, Bangladesh, Nepal and Bhutan) in that of SA.

In total, always with reference to the WB classification methods, among the 48 Countries falling in the geographical areas of SSA, 27 are low income Countries, 14 are lower-middle income Countries (USD 996 to USD 3,895 in 2017); only 6 are upper-middle income (USD 3,896 to USD 12,055 in 2017) and 1 (Seychelles) is high income Countries (USD 12,056 or more in 2017).

The OECD fragile States list 2018 (OECD, 2018) includes 58 States, 35 of them are in the area of SSA (27 low income Countries and 8 middle income Countries). This list shows all the Countries incapable to manage their risk and, consequently, they are more exposed to riots, coups d'état, humanitarian emergencies or other forms of crisis.

The framework given seems to be complex and, it is an oversimplification to think that the issue of food security, in the poorest Countries of SSA, can be deal with only with reference to the possibility to increase both production and agricultural productivity.

In the geographical area in question, achieving food security target is dependent on the ability to promote and support sustainable development processes, consistent with the territorial opportunities and the needs of people.

It is, however, necessary to make some considerations in this regard, both on the agricultural variables and the main factors that, in the next future, will be, probably, crucial towards the start of a development process capable of lifting the poorest Countries of SSA from the grip of hunger and poverty.

2. Overcoming underdevelopment in order to obtain food security

One of the main variables to be considered in ensuring the development of the poorest Countries of SSA is the demographic one. In the Past and for a long time, SSA had been considered an unpopulated geographical area but rich of land.

This scenario has quickly changed in the last decades and it is likely to change even more rapidly in the future.

In this respect, it is to be noted that: in 1950 the population of SSA was about 179.6 million people; in 1980 it was about 372 million people; in 2000 about 645 million people and today it is almost billion people (UN, 2018a). However, it is likely that more

than half of the growth of world population, between 2015 and 2050, will be concentrated in SSA (WB, 2016).

In particular, the UN projections estimate a strong concentration in the SSA Countries with the lowest incomes, therefore in-cluding the 6 upper-middle income Countries in that area: Botswana, Equatorial Guinea, Gabon, Mauritius, Namibia, South Africa.

This is primarily a result of a fertility rate that, although in constant decline, is, at present, the highest in the world (4.9 births for woman in 2016) and it will continue to be the case in the future (4.1 in 2030 and 3.9 in 2050) (UN-DESA, 2017b).

In this regard, it is to be noticed that, in the world, in the 30 Countries where the highest rates of demographic growth are forecasted between 2015 and 2050, 29 belongs to SSA and, among these, 13 have, at present, a fertility rate from 5 up.

It follows that, in the SSA Countries, especially in the low-income ones, the demographic growth and the resulting increase in food demand will be one of the main factors to be considered for their food security in the future. Projections are not positive in this regard.

The strong demographic growth will affect both food demand and the composition of the population. In fact, it is forecast that, between 2015 and 2050, in SSA the number of children will increase of around 305 million against the 148 expected for the rest of the world. As consequences, the number of working-age people will increase, whose annual growth rate is estimated to be the highest in the world: more than 2.5% per year in the period 2015-2050, compared to 0.8% estimated for SA and 1.2% expected for the Middle East and North Africa.

To confirm this, it should be noticed that, according to UN projections, it is estimated that, in 2050, 41% of birth and 37% of under 18 years worldwide will be in Africa (in 1950 they were only 10%). Moreover, according to FAO, in 2030 about 380 million of Africans will be entering the job markets and 58% of them (about 220 million) will found themselves in rural areas (Mercandalli and Losch, 2017).

The demographic growth will lead, not only to an increase in food demand, but also in labor supply.

In both cases, only a real process of development may help to fulfill those conditions.

In this regard, it should be considered that, according to ILO data (ILO, 2018), in the low-income Countries, at global level, from 2000 to 2015, the rate of employment in agriculture has gone from 76.0% to 69.5% and the expected rent is 67.6% in 2020 (Table 1). In the same period, the incidence of employees in industry and service sectors has gone respectively from 8.1% to 9.8% and from 15.9% to 20.7% and it is expected to be 10.1% and 22.3% in 2020 (ILOSTAT, 2018). Although the situation showed by these data seems to be serious, it is however slightly better than that of SSA Low-income Countries, where, both for 2015 to 2020, the incidence of employment in agriculture is higher on average, while the incidence of employees in industry and service sectors is lower. In general, this means that in all the Low-income Countries, especially those of SSA, the dynamics of development are in a grip of a sort of paralysis who stops them to create new job and income opportunities alternative to agriculture.

	2000	2005	2010	2015	2018*	2020*
Agriculture	77.4	76.2	73.5	70.3	69.2	68.3
Industry	7.1	7.8	8.1	9.7	9.7	9.9
Services	15.5	16.0	18.5	20.2	21.1	21.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 1. Sub-Saharan Africa's Low-Income Countries: Employment by Sector (%)
Source: Our elaboration on ILOSTAT, 2018

The level of underdevelopment of the SA Low-income Countries, is observable both by the sectoral distribution in employment levels and the incidence of agriculture for Gross Domestic Product (GDP) that, on average, is high and sub-

stantially stable during the period 2000-2017 (WB, 2018c). This broadly stability is recognised both for the generality of Low-income Countries and the whole SSA region, where the average incidence is lower for the presence of a most advanced economy, such as those of South Africa, Angola and Nigeria. Table 2 shows that, in 2017, 7 of the SSA Low-income Countries experienced an incidence of agriculture on GDP more than 30%, and only 4 of them had this incidence lower than 20%. Anyway, the element which seems to associate the different Countries is

the broadly stability of the different incidences, over time. This stability, in turns, denotes a slowed down developed dynamics, or even stopped (Senegal) or in decline (Sierra Leon, Guinea Bissau, Mali).

In this regard, it should be pointed out that, notwithstanding the presence in this group of 33 Countries of SSA in a total of 47, the LCD were defined as having a more relevant reduction in the agriculture contribution to GDP, than other Countries considered in table 2.

	Agriculture		Industry		Services	
	2000	2017	2000	2017	2000	2017
Low Income Countries	28.0	26.0	30.0	39.0	42.0	35.0
Least Developed Countries (2000-2015)	29.7	21.7	35.9	33.5	44.4	47.1
Sub-Saharan Africa – Total	17.0	16.0	36.0	33.0	47.0	51.0
Sub-Saharan Africa - LCIs	28.2	27.0	27.5	31.2	44.2	41.7
- Sierra Leon	53.0	60.0	11.7	7.6	35.3	32.4
- Guinea Bissau	45.0	49.0	15.6	18.7	39.4	32.3
- Central African Republic	50.0	40.0	20.3	20.7	29.7	39.3
- Mali	33.0	38.0	31.5	25.3	35.5	36.7
- Ethiopia	41.0	34.0	17.2	29.1	41.8	36.9
- Liberia	45.0	34.0	4.8	12.4	50.2	53.6
- Rwanda	29.0	31.0	21.6	22.6	49.4	46.4
- Gambia	29.0	17.0	17.9	17.2	53.1	65.8
- Guinea	17.0	16.0	38.6	43.3	44.4	40.7
- Senegal	15.0	15.0	31.1	31.2	53.9	53.8
- Zimbabwe	11.0	10.0	38.7	33.7	50.3	56.3

Table 2. Agriculture, Industry, Services, Value Added (% of GNP) in Low Income Countries, Least Developed Countries and Sub-Saharan Countries in 2000-2017
Source: Our elaboration on World Bank Open Data

In a such a complex situation, it seems evident that the growth prospects will depend, to a considerable effect, by the policies to be implemented to support them. In particular, actions aimed at increasing investments, improving health conditions, increasing the educational level and reducing gender inequalities should be implemented (WB, 2018d) (Zecca and Rastorgueva, 2017).

In the light of the above, the current WB projections show that, without considering Angola, Nigeria and South Africa, i.e. the largest economies of the region, in the period 2017-2027, the others SSA Countries could achieve growth rates between 5.2% and 5.8%, according to the policies that will be conducted.

Always without considering Angola, Nigeria and South Africa (with which the annual rates would be reduced to a level between 3.2% and 3.8%), the growth levels would lead the Countries concerned to a level on average higher than estimated, for the same period, for the other Developing Countries (4.8%).

It should, however, be considered that even when the growth forecasts highlighted above are confirmed, they couldn't lead to a considerable improvement in terms of GDP per capita, in view of the awaited significant population growth. It follows that, the current growth forecast appears insufficient in order to lead to a significant reduction in poverty and, consequently, to create particular progress in improving food security.

The projections relating to the level of achievement of SDGs, especially goal 1(No poverty) and goal 2 (Zero hunger), should be considered worrying.

According to ODI data (ODI, 2018), of 58 Countries included in the OECD fragile list, only 5 (9%) could achieve the goal 1 "end to extreme poverty" and only other 8 (14%) could be considered on the track to meet it. Much better projections, but not enough to meet the planned objective, concern the generality of Low-income Countries and Middle-income Countries; in these Countries it is, in fact, expected that about 31% could achieve the objective and 40% could be on the track to meet it.

Since then, according to ODI, we should only expect a strong concentration of extremely poor people in a few Countries. In particular, it is expected that, in 2030, 85% of

extremely poor people will be concentrated in the fragile Countries according to the OECD designation, compared to 57% you find there now.

Similar considerations can be related to goal 2 (Zero hunger). According to ODI projections, it is expected that, among the Countries of the OECD fragile list, nobody is able to achieve goal 2 and only 7% can be considered "on track". The same for the complex of Low-income Countries and Middle-income Countries, in respect of which it is expected that only 9% could achieve the goal and 12% is "on track" (UN, 2018b)

Considering all the projections concerning the possibility to meet the targets in the poorest Countries, it is clear that, in all probability, the results which may be achieved for extremely poverty reduction won't such as to have positive effects in combating hunger.

The framework is, undoubtedly, even less reassuring in the case of SSA Low-income Countries that, as we have seen, are in the OECD fragile list 2018.

If, as is quite possible, the expected levels of economic growth will not be sufficient to start a development processes able to provide satisfactory answers in significantly combating hunger and poverty, we should only expect that phenomena, such as regional and international migratory and the shift towards urban centres, are going to be more pronounced (IOM, 2017). International migration shifts the problem of insufficient economic development to Countries where migrants hope to find better working and income conditions. At the same time, the movement into urban centers, with fewer people farming, accentuates the need to an agriculture development consistent with the need to ensure food supply to a growing number of people no more engaged in farming in that Countries.

Here again, attention should be paid to what extent, due to the expected demographic evolution, the increase in food demand might actually lead to a real demand that, on the one hand, can be supported by an appropriate level of income and, on the other hand, can be satisfied from boosting internal agricultural supply.

In this regard, it should be considered that, at present, in the average for the SSA Countries, the main source of caloric intake is staple foods (cereal, roots and tubers); in particular, 49% of energy intake is provided by cereals alone and, among these, the white maize account for 19% of caloric intake.

According to FAO-OECD projections (OECD-FAO, 2018), for the period 2018-2027, the above-mentioned dietary composition, typical of less developed Countries, will continue to be so and the role of cereals will increase up to 50% in 2027.

This confirms, on one side, the poor economic growth prospects and, consequently, the shift towards more different and "richer" eating habits in comparison with cereals, on the other side, the need to significantly increase the production of cereals as a result of the population growth. In fact, only for white maize, the expected increase is of about 18 million tonnes in the next ten years: a quantity of half of the expected increment of corn food consumption over the next ten years.

In confirmation of the role of economic development and population growth in affecting both economic growth and food consumption, it should be noticed that the amount of consumption of products of animal origin, that generally increases with income increasing, will rise in total quantities but will decrease for per capita consumption.

In particular, the total consumptions of fish, meat and dairy products are expected to raise respectively of 28% and 24% while per capita consumptions are estimated diminishing 3% meat and fish and 7% dairy products.

Notwithstanding other considerations in respect of the role of the current outlook for economic growth in combating poverty and hunger, it is essential to meet the needs of the growing food demand following the population growth.

As stated above, in the Low-income Countries of SSA, agriculture absorbs 70% of labour force and fundamentally affect the GDP (27%). In addition to this, at present, about 70% of the poor live in rural areas (WB, 2018). It follows that, in this context, the development cannot ignore both agriculture and the implementation of policies aimed at improving the general context, favouring the movement of workforce to high-productivity sectors.

In this perspective, agriculture has a dual role: activating and supporting the general dynamics of development and responding to the growing demand of food products.

To that end, the ability to realise productivity gains will be crucial, making it possible both to respond to the increasing of demand and, at the same time, to ensure environmental, social and economic sustainability of production processes.

As is well known, the relationship between production and the combination of inputs used to set it determines the Total Factor Productivity (TFP) index that refers to how efficiently and intensely inputs are used in the production process. While in the advanced Countries, the areas of agriculture are tending to dwindle and the productive growth more and more depends on the combined use of various inputs, in Low-income Countries land is the main productive factor to increase production; it is estimated that more than 45% of the current productivity gains is determined by land expansion (WB, 2013).

This aspect is particularly important because the heaviest concentration of the global total of the unused lands suitable for sustainable production expansion (about 45%) is in the Low-income Countries of SSA (FAO, 2017) (AGRA, 2018). This is also the case with water resources, that, to this day, are still widely unused or under-utilised (only 2% on average 5% around the world) and contribute slightly (about 2.5%) to current productivity improvements.

As is known, the target 2.3 of the SDG 2 (zero hunger) determines of doubling agricultural productivity and income of small-scale food producers. According to USDA data (USDA-ERS, 2018), the current growth rates of agricultural productivity, in the Low-income Countries, are far below (less than half) than what is necessary in order to reach the said objective. The situation is particularly serious in the low-income Countries of SSA where it is expected that the current rates of agricultural

productivity are sufficient to meet only 8% in the additional demand expected to result from the population growth (Global Harvest Initiative, 2017).

From the above, it appears clear that, lots of important implications from the point of view both of the sustainability and the observance of the local populations' rights are emerging within this context, where the increase in productivity is strictly linked to land expansion and to the use of new water resources. These are such big issues, also taking into account the particular fragility conditions characterizing these Countries that, among other things, are those where agricultural productions are far more exposed to the negative effects that, in the near future, might result from the climate changes now underway. For this reason, particular attention must be paid to the sustainability of current and future agricultural activities.

3. Land expansion and land grabbing in the Low-income Countries of SSA

Over the past few years, financial players have highly recommended to invest in land (FAO, 2009). This situation is actually unprecedented; its main motivation is the serious economic crisis in financial markets (tech stocks, sub-prime, sovereign debt) since 1998, that drove investors to look for forms of investment alternative to the traditional one. Both cyclical circumstances and the forecasts of the main international Organizations, such as FAO, OCSE and WB, have influenced this evolution. In fact, the projections argued that agricultural production and productivity should be increased in order to face the expected population growth; they contributed to shaping a long-term environment more conductive to international investments in agriculture. For this reason, interest in land focused inevitably in the areas of the World where it would have more easily been acquired, because of the existence of non-cultivated areas and the lack of legal systems on property rights and access to land (Von Braun and Meinzen-Dick, 2009).

The cultivation of new lands needs to be organized in a sustainable way. For this reason, only areas of low population density, areas not covered in forests and not environmentally protected areas should be considered for this purpose.

According to WB (WB, 2013) and other studies (Deininger, et al., 2011), many areas in Africa have such characteristics (about 45%) and about 30% are in 8 Countries of sub-Saharan area (Angola, Democratic Republic of Congo, Madagascar, Mozambique, South Sudan, Sudan, United republic of Tanzania and Zambia).

Amongst the many investment operations on land carried out in Developing Countries in the recent past, cases have also been recorded of breaches of human rights and detriment of local people (Davis, D'Odorico and Rulli, 2014).

These operations, commonly known as Land Grabbing (LB), although identified, have not been officially listed, because of the absence of an agreed definition which make it impossible developing official statistics.

Despite this, the Lang Grabbing has, universally recognized, negative connotations with the result that most of International Organizations, Governments and economic operators involved in various way in investments on land, have regulated their operations in order to avoid, or at least limit, any negative impacts.

At present, the commonly agreed definition of Land Grabbing is the one included in the Tirana Declaration, promoted by the International Land Coalition (ILC) in May 2011 (ILC, 2011). This Declaration has been signed by 150 representatives of International Institutions (FAO, IFAD, UNEP and WB). According to this Declaration, Land Grabbing is defined as acquisition or concessions that are one or more of the following: in violations of human rights, in particular women's rights; not based on free, prior and informed consensus of affected land users, in particular the indigenous people; without considering social,

economic and environmental impacts, including the way they are gendered; not based on transparent contracts that specify clear and binding commitments about land use and benefit-sharing; not based on effective democratic participation of local communities, independent oversight and meaningful participation.

Amongst the many available information about the amount of agricultural land subject to Land Grabbing, the information collected by the Land Matrix Centre (an independent agency to monitor investments in land acquisition) seem the more consistent with the content of Tirana Declaration and the most useful for the purpose of this paper (Land Matrix, 2018).

According to Land Matrix, the operation of Land Grabbing concluded between 2000 and 2018 (update November) concerned about 49.1 million hectares, 50.9% of these are situated in Africa. Overall, Land Grabbing operations have been conducted in 88 Countries; 60.7% of these (29.8 million hectares) concentred in 10 Countries, among which 5 are in the area of SSA.

In particular, on a global level, the Democratic Republic of Congo is the Country principally concerned with Land Grabbing (10.6% of the total); in the list of the Targets Countries, the other Countries of the SSA area are, respectively, in the sixth (South Sudan, 5.5%), seventh (Mozambique, 5.1%), eight (Congo, 4.7%) and ninth place (Liberia, 3.8%). Among the five Countries above-mentioned, only Congo is a Lower- middle income Country

(GNI income per capita $996 to $3,895), the remaining four are Low-income Countries. Overall, 29.8% of Land Grabbing operations, on a global level, and 49.0% with regard to those carried out in the ten most affected Countries, have been concentrated in these five Countries of SSA. In any case, it should be pointed out that Land Grabbing operations do not concern only agriculture. It is particularly significant, in this regard, the case of the Democratic Republic of Congo, that is the most affected Country by Land Grabbing but most of it related to the forestry sector.

According to LM data, with regard to the area of 49.1 million hectares affected, on a global level, by Land Grabbing, there is available information about the intend-land use of 41 million hectares; only 8.7% of them are solely aimed at food crops.

On a global level, the most frequent intended-land use is non-food (38.5%) with the peak in Africa (57.9% of the areas affected by Land Grabbing) (Table 3).

In this regard, it should significantly point out that an analysis on 1,000 contracts between 2000 and 2016, showed that 27% of the areas affected by Land Grabbing consisted by forest (Nolte, Chamberlain and Ginger, 2016). Considering this, the need to take into consideration the environmental impact is of particular importance, also with regard to the ongoing climate change resulting from the farming of new lands, especially in cases like these, in which their main destination is not the achievement of food security.

	Area		Food Crops (%)	Non Food Crops (%)	Flex Crops (%)	Multiple Crops (%)	
	Hectares (th.)	%					
Africa	20,855	50.9	7.8	57.9	10.2	24.1	100.0
America	6,092	14.9	21.4	20.1	21.7	36.8	100.0
Asia	6,275	15.3	2.8	33.5	41.9	21.7	100.0
Europe	5,432	13.3	7.4	3.8	0.1	88.8	100.0
Oceania	2,331	5.7	2.7	7.0	05.8	84.4	100.0
World	40,985	100.0	8.7	38.5	15.2	37.6	100.0

Table 3. Land Grabbing: land extention and intended-use by geographical area
Source: Our elaboration on Land Matrix, 2018

Taking into consideration, both the diffusion of Land Grabbing operations in the SSA and the role plaid by land for the increase in agricultural productivity and, consequently, the food security in these Countries, it is interesting to try to understand to what extent the same Land Grabbing operations could have affected the recent evolutions of the agricultural systems of production of SSA Countries, in particular low-income ones where the issue of food security is much more serious. Referring to LM data bank, since 2000, 20 Low-income Countries of SSA presented Land Grabbing. If we limit our observation solely to the Land Grabbing case of investment in agriculture, 5.8 million hectares are affected by this phenomenon and 70.8% is concentrated in six Countries: Ethiopia (17.0%); South Sudan (13.8%); Liberia (10.7%); Sierra Leone (10.5%); Madagascar (9.9%); Mozambique (8.8%). To better understand how significant Land Grabbing operations could have been for the recent evolutions of agricultural systems of production of the Countries concerned, first of all, efforts were made to monitor to what extent they have influenced the variance of registered agricultural land, both in the years at which Land Grabbing operations were carried out and during the whole period considered (2000-2016) (Table 4). It is clear that, this exam can only give an indication, not an exact extent. Land Grabbing operations shall not only be read with the meaning of an increase in invested areas, because they may have concerned also lands that already had an agricultural purpose or they can be considered in the general framework of reduction of invested areas. For example, such situations can be recognized in Senegal and Central African Republic (Land Grabbing with a decline of total agricultural areas), Liberia, Sierra Leone, Madagascar, Senegal, Guinea and Rwanda where Land Grabbing has been conducted in areas exceeding the variance in Agricultural Land, in the

same period. It should be noted that we miss data on Agricultural Land variance in South Sudan, during the period considered, because of the long conflict with Sudan (1983-2005) and of its recent independence (2011).

In the considered Countries as a whole, Land Grabbing operations had an impact of 31.8% on Agricultural Land variances (FAOSTAT, 2018), in the identical years the same operations were made and of 22% for the period 2000-2016. It follows that, Land Grabbing represented an important factor in the land -use for agricultural purpose. This is so, even despite the fact that, Land Grabbing concerned cultivated land for the first time or already used farmland. In this regard, it is useful to recall the data in table 3, concerning, on one side, the high incidence of investments in no food crops (57.9%) and, on the other side, the limited presence of food crops (7.8%) of the total of land grabbed lands.

The incidence of the areas involved in Land Grabbing on the total of Agricultural Land variance registered in the Countries concerned, although important, does not seem to have produced significant results for food security. Table 5 shows the development in the number of undernourished people and the average dietary energy supply adequacy, an index used by FAO for measuring out the availability of food, that expresses the dietary energy supply as a percentage of the average dietary energy requirement (FAO, 2018b). Table 5 provides the data on the total range of the Low-income Countries of SSA and the detail, for the latter, of Countries involved in Land Grabbing, excluding South Sudan and Democratic Republic of Congo; for both of them there are no figures available both for the indicators and for the period in question.

Figures demonstrate that both for the LCD as a whole and the SSA, notwithstanding the worse position of LDC, the food

Country	A	B	C	D	B/D	B/C
Ethiopia	2000-16	996,196	5,597,000	5,597,000	17.8	17.8
South Sudan	2008-10	810,404	n.a.	n.a.	--	--
Liberia	2008-11	628,483	90,000	75,000	838.0	698.3
Sierra Leone	2003-15	613,799	1,139,000	383,000	160.3	53.9
Madagascar	2005-12	578,322	915,000	522,000	110.8	63.2
Mozambique	2004-14	517,422	1,800,000	1,100,000	47.0	28.7
Democratic Rep. Congo	2005-14	294,568	600,000	650,000	45.3	49.1
Senegal	2003-16	243,229	-159,000	236,000	103.1	-153.0
Mali	2007-16	214,574	2,601,000	604,000	35.5	8.2
Guinea	2007-2010	210,319	1,011,000	120	175.3	20.8
United Rep. Tanzania	2000-15	209,505	5,650,000	5,650,000	3.7	3.7
Burkina Faso	2007-2010	202,644	2,330,000	1,110,000	18.3	8.7
Malawi	2005-14	141,811	1,060,000	610,000	23.2	13.4
Zimbabwe	2011-14	62,677	1,140,000	-200,000	-31.3	5.5
Benin	2003-2011	43,000	555,000	63,000	68.3	7.7
Uganda	2001-14	37,950	1,903,000	1,803,000	2.1	2.0
Gambia		30,000	53,000			56.6
Rwanda	2009-14	11,130	141,000	700,000	1590.0	7.9
Central African Rep.	2003-2004	5,317	-60,000	20,000	26.6	-8.9
Guinea-Bissau	2009-10	1,214	2,000	20,000	6.1	60.7
		5,852,564	26,368,000	18,420,700	31.8	22.2

Legenda: **A** Period of Land Grabbing; **B** Areas involved in Land Grabbing for agricultural purpose; **C** Agricultural Land variance 2000-2016; **D** Agricultural Land Variance in the period shown in column A

Table 4. Agricultural Land variance and Land Grabbing
Source: Our elaboration on FAOSTAT data and Land Matrix

	Number of People Undernourished (millions)				Average Dietary Energy Supply Adequacy (percent)			
	2000-02	2005-07	2010-12	2015-17	2000-02	2005-07	2010-12	2015-17
Least Developed Countries	226.0	213.7	212.1	237.1	90	93	95	95
Sub-Saharan Africa	182.3	177.1	182.6	220.7	95	99	101	99
- Benin	1.5	1.2	1.1	1.1	108	115	119	123
- Burkina Faso	3.1	3.4	3.3	4.0	109	116	123	122
- Central African Republic	1.6	1.6	1.5	2.8	92	94	99	79
- Ethiopia	33.5	30.3	27.6	21.9	87	92	97	105
- Gambia	0.2	0.2	0.2	0.2	115	113	122	120
- Guinea	2.3	2.0	1.9	2.4	109	114	116	115
- Guinea-Bissau	0.3	0.3	0.4	0.5	105	104	106	102
- Liberia	1.2	1.3	1.5	1.8	96	99	102	101
- Madagascar	5.8	6.3	7.0	10.7	95	99	98	89
- Malawi	3.1	3.3	3.4	4.8	105	107	110	104
- Mali	1.6	1.3	1.0	1.1	119	127	136	142
- Mauritania	0.3	0.4	0.3	0.5	120	120	127	126
- Mozambique	7.5	7.7	7.2	8.8	96	99	107	106
- Rwanda	4.1	4.1	3.5	4.3	91	94	102	100
- Senegal	2.8	2.2	1.7	1.7	97	103	109	111
- Sierra Leone	1.9	2.0	1.7	1.9	94	101	108	109
- Uganda	6.8	7.6	11.1	17.2	110	108	103	95
- United Republic of Tanzania	13.0	13.6	16.0	17.8	97	103	103	106
- Zimbabwe	5.0	5.5	5.9	7.5	92	90	91	87

Table 5. Number of unnourished people and availability of calories for human consumption in LCD and SSA Countries in the period 2000-2017
Source: FAO Food Security Indicators

supply slightly improved until 2010-2012, and, then, experienced a stable (LDC) or decreasing trend (SSA). Looking more closely at the 19 Low-income Countries of SSA for which data are available, notwithstanding a general increasing trend in food supply for the period in question (14 Countries in 19), 13 Countries have been reports of worsening of the given indicator, in the period 2015-2017 than 2010-2012. In any case, 4 of 19 Countries concerned, don't reach an average availability equal to

energy requirements and 8 reaches indicator values ranging from 100 to 109. Less comforting results regard the number of unnourished people. Considering Low-income Countries as a whole, the number of unnourished people has increased from 226.0 to 237.1 million people (+4.9%) that, associated with the population growth of 43.9% (from 664.8 to 956.6 million people) translate into a reduction in the incidence rates from 34.0% to 24.8%. It follows that, the increase in the number of unnourished

people in LCD is mainly attributable to SSA Countries. This confirm the phenomenon which was previously reported.

4. Conclusions

The fight against poverty and hunger is an absolute priority of international policies and, as such, has been addressed both in the recent past and in the current framework of Agenda 2030. The achieved results could, however, not prevent the concentration of extreme poverty and hunger situations in the least developed regions where, population growth, by reducing relative weight, hides the number of poor and hungry people, in absolute terms. The issue is particularly serious in the Low-income Countries of SSA, where the current huge problem of concentration of poverty and hunger, is even expected to increase in the future. Current estimates for economic growth and agricultural productivity, together with the population growth, are not enough to meet the needs and foreshadow the failure to achieve SDG no. 1 (No poverty) and SDG no. 2 (Zero hunger) right now. To launch sustainable development processes for ensuring food security, an important role will be played by agriculture.

Economic growth needs not only the resizing of agriculture, whose impact on employment and GDP is far too high, but also the improvement of agricultural production processes, and, therefore, the increase of the current productivity levels.

This is of paramount importance for food security, given that the current productivity levels are able to satisfy only 8% of the expected increase in demand as a result of the expected population growth between 2015-2050.

In the Low-Income Countries, the main factor of the growing agricultural productivity is, at present, the land.

In the last years, partly because of the numerous financial market crisis and the guidelines of the International Organizations, the interest towards investments in agriculture has grown steadily. Some of the operations performed have had a negative impact from a political, economic, environmental and of human rights point of view.

These operations are known as Land Grabbing. They have spread in the Low-income Countries of SSA, where there were the best conditions to perform them: availability of land, poor respect for human and property rights, low costs, insufficient attention to the environmental, economic and social sustainability.

The operations carried out in the Low-income Countries of SSA encompassed 22.2% of the increase in agricultural areas registered between 2000 and 2016 in the Countries concerned.

Taking into consideration both the importance of land, for the increment of agricultural productivity and the destination use of the grabbed land, that only minimally, concerned food crops, we can say that these operations have produced a serious damage both for agricultural development and food security in the Countries concerned.

To confirm this, the growing number of people suffering hunger and the lack of substantial progress in food supply in the SSA for the period 2000-2016.

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The Attitudes of Calabrian Wine Consumers: A Preliminary Survey

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Abstract

The wines of southern Italy have experienced an unprecedented development in the last two decades, especially Calabrian wines that have entered interesting niches of the market. In Calabria, the domestic market absorbs about 70% of regional wine production while the rest is marketed on the national market. Exports of Calabrian wines to the main international markets are severely limited and there is no particular commercial performance even in emerging markets. This study is a preliminary survey about the attitudes of consumers of Calabrian wine. It is organized in 4 sections: the first one presents the main characteristics of wine consumption in Calabria (frequencies, places of purchase and methods of consumption); the second section analyses the importance that consumers give to wines certifications; the third section is about the intrinsic and extrinsic attributes that matter for consumers in the choice of a wine.

Keywords: calabrian wine; wines certifications; protected designation of origin (PDO); protected geographical indication (PGI); organic.

1. Introduction

The wines of southern Italy have experienced an unprecedented development in the last two decades, as a result of the great importance that these products have acquired on the domestic and international markets (Caracciolo et al., 2015; Di Vita et al., 2015). Alongside traditionally renowned regions, such as Sicily and Apulia, Calabrian wines have entered important market segments, especially niches. Calabria is the fifteenth Italian region in terms vine growing surfaces, with 10,300 hectares that represent about 2% of Italian vineyards. In Calabria, the domestic market absorbs about 70% of regional wine production while the rest is marketed on the national market (ISTAT, 2017).

Despite there being a consolidated phenomenon of the so-called 'regionalization of wine consumption', there are the conditions for expansion on the domestic and foreign markets. Currently, exports of Calabrian wines to the main international markets are severely limited and there is no particular commercial performance even in emerging markets (Dal Vecchio et al., 2018).

After decades of stagnation and immobility, in recent years the actions of some winemakers have gradually revitalised the sector, especially thanks to the generational change that has characterized the small and medium enterprises in the sector.

In this sense, the adoption of specific EU policies, by means of the Rural Development Programs, could certainly lead to an improvement of marketing strategies and communication, taking a chance on sustainable performances of agriculture and the presence of an importance heritage of biodiversity in terms of ancient local grape varieties (Falcone et al., 2015; 2016).

Calabrian wines have acquired a growing importance in the Italian wine scenario, with a growing importance for the territorial economy and the environmental sustainability (Strano et al., 2013; D'Amico et al., 2014; Borsellino et al., 2016; Pellicanò and De Luca, 2016). Based on this premise, this study is a preliminary survey about the attitudes of consumers of Calabrian wine.

The present study is organized in 4 sections: the first one presents the main characteristics of wine consumption in Calabria (frequencies, places of purchase and methods of consumption); the second section analyses the importance that consumers give to wines certifications (PDO, PGI, organic, etc.); the third section is about the intrinsic and extrinsic attributes that matter for consumers in the choice of a wine.

2. Data collection and methods

The survey on the consumption of Calabrian wine in Italy was conducted in the period between October and December 2016, in two different areas of northern Italy, in particular in the metropolitan areas of Milan and Turin.

The questionnaires were submitted to 327 interviewees: 160 in Milan and 167 in Turin. In both areas, the interviews were carried out with the face-to-face mode.

The questionnaire was structured with either closed and open-ended questions to gather qualitative and quantitative information on the socio-economic and cultural background of interviewees, their behaviour in the purchase phases and how it

was influenced by the characteristics of commercial distribution, on their perception of the quality and price of a product, and further opinions linked to the consumption phase. Interviewees were asked to express their preferences with a scale of intensity going from very strong interest (7) to very low interest (1). The questionnaires were submitted at those hypermarkets (mass distribution circuits), in Turin and Milan, with the greatest affluence of purchasers of agri-food produces.

Questions with multiple-choice answers were coded to help interviewees choosing quickly the answers more suitable to their opinion or behaviour. Moreover, almost all the questions were articulated through the predisposition of Likert scales.

The questionnaire was divided into six sections. The first part of the questionnaire was aimed at measuring the frequency of purchase and consumption of wine, taking into account the places of purchase and consumption methods.

The second part focused on the levels of perception, preferences and attitudes towards certified wines – such as wines with Protected Designation of Origin (PDO) or Protected Geographical Indication (PGI) labels, and wines made from grapes from organic, integrated and biodynamic agriculture.

The third section of the questionnaire was aimed at detecting the significance and the level of importance assigned to the intrinsic and extrinsic attributes of wines and at verifying the knowledge about the main Italian and Calabrian wines.

The last part of the survey aimed to identify the socio-economic characteristics of the consumers interviewed.

Data were processed through univariate statistical analyses carried out by calculating mean, medians, mode and standard deviation.

3. Results

In order to outline the characteristics and patterns of wine consumption behaviour, data were firstly processed through simple descriptive statistical analyses (mean, mode, median and standard deviation). The socio-economic characteristics of the sample examined (327 units) are reported below (tab. 1).

Category	Variable	Number	Percentage
gender	female	147	45
	male	180	55
age (classes)	18-30	74	22.6
	31-45	110	33.6
	46-60	94	28.7
	> 60	49	15.0
education	Primary-middle school	43	13.1
	High school	123	37.6
	University	134	41.0
	Post graduate	27	8.3
Average monthly income (Euro)	< 1,000	16	4.9
	1,000-2,000	109	33.3
	2,000-4,000	102	31.2
	> 4,000	30	9.2
No answer			70	21.4
Total		327	100

Table 1. Socio-economic characteristics of the sample

Wine consumption is strongly diffused in the area examined, although purchases are made with some regularity by only 67% of respondents, while for the remaining part of the sample consumption appears rather sporadic.

Concerning distribution channels (Figure 1), wine purchases

are mainly made in supermarkets and, to a slightly lesser extent, in hypermarkets, confirming the main role of the large-scale retailing. Nonetheless, the purchases made from wine shops and producers are quite significant, as they represent more than 32% of the sample. This phenomenon confirms that consumers prefer a direct contact with the retailer or with the producer himself, to get more information about the wine purchased.
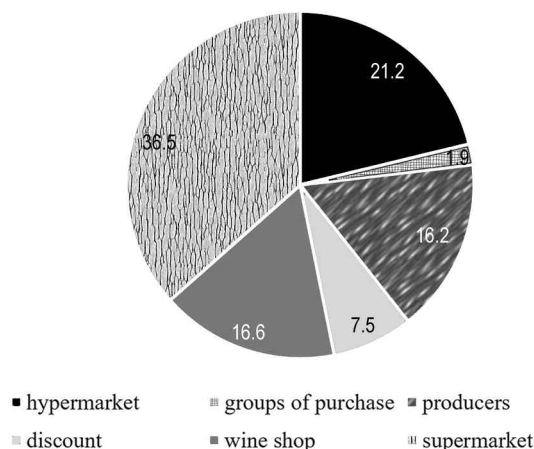

Figure 1. Places of purchase (%)

Concerning the frequency of wine purchases (Tab. 2), this has been divided according to the main categories of products on the market: certified wines (PDO, PGI, DOCG) and ordinary wines. The highest purchase frequency is for certified wines, in particular for DOCG wines and PDO wines, while ordinary wines do not seem to represent a particularly appreciated category, regardless of the type of packaging (glass, boxes or bulk).

	DOCG	DOP	IGP	ordinary boxes	ordinary glass	ordinary bulk
mean	3.9	3.8	3.5	1.8	3.0	2.5
mode	4	4	4	1	3	1
median	1	5	1	1	1	1
stand. dev.	2.11	1.98	1.98	1.42	2.00	1.90

Table 2. Consumption frequency per wine category

Among the consumers interviewed, the habit of drinking wine during main meals is very diffused, with dinner as the most suitable moment of the day for the interviewees. The moments of consumption during the morning or evening aperitif are not significant, probably because among the interviewees the number of young people is relatively low; in fact, this habit is more diffused among young people.

	Brunch	Aperitif	Pranzo	Happy hour	Dinner
mean	1.7	3.2	3.7	3.5	5.5
mode	1	3	4	3	6
median	1	1	1	1	7
stand. dev.	1.3	2.1	2.1	2.2	1.7

Table 3. Times of the day with high frequency for wine consumption (1 time – 7 times)

As expected, the most frequent places of consumption are those where the main meals are consumed, i.e. home and restaurants; in all other places the consumption of wine is not so widespread, probably because of the specific target of consumers, considering that the surveys were carried out at large organized distribution networks (Tab. 4).

Finally, concerning the origin of the wine, the quantity of bottles consumed, and the average price paid per item, results are shown in table 5 and figures 2 and 3. As reported in the table, the interviewees declared that they prefer to consume

Italian wines – instead of foreign ones, and they buy an average of one bottle per week (50% of the sample) in a price range between 4 and 8 euros (48% of interviewees).

	home	pub	disco	restaurant	pizzeria	wine shop	bar
mean	5.5	2.1	1.3	4.7	2.9	3.3	2.3
mode	6	1	1	5	3	2	1
median	7	1	1	5	1	1	1
stand. dev.	1.68	1.66	0.80	1.98	1.92	2.44	1.75

Table 4. Places of consumption

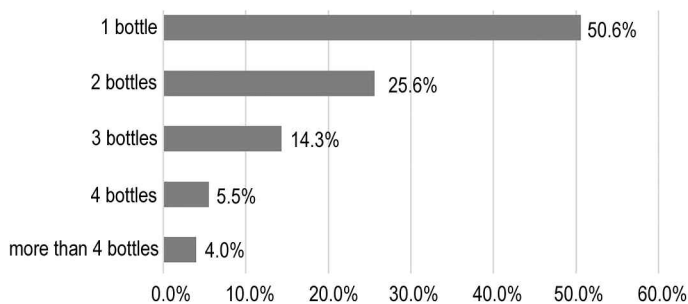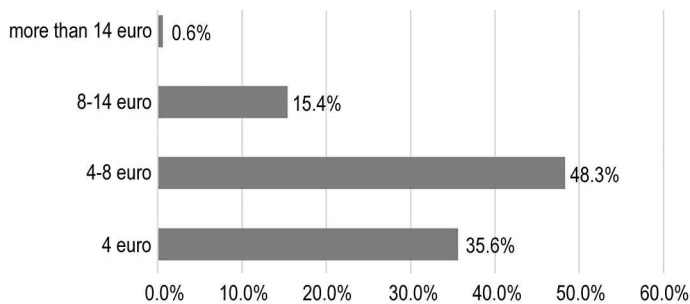|	Local	Regional	National	Foreign
mean	3.7	4.7	4.9	2.2
mode	4	5	5	1
median	1	5	7	1
stand. dev.	2.10	4.51	1.90	1.72

Table 5. Origin of wine consumed

Figure 2. Bottles of wine purchased per weak

Figure 3. Average prices paid per bottle (0.75cl)

Regarding certified wines, the interviewees showed having a

good knowledge of the main labels of certifications available on the market; a large part of the sample, i.e. 63.3%, claimed to know PDO and organic wines, while for PGI wines the level of knowledge was slightly lower (56.9%). A limited part of the sample (30%) knew some particular production methods, i.e. integrated and biodynamic farming (Figure 4).
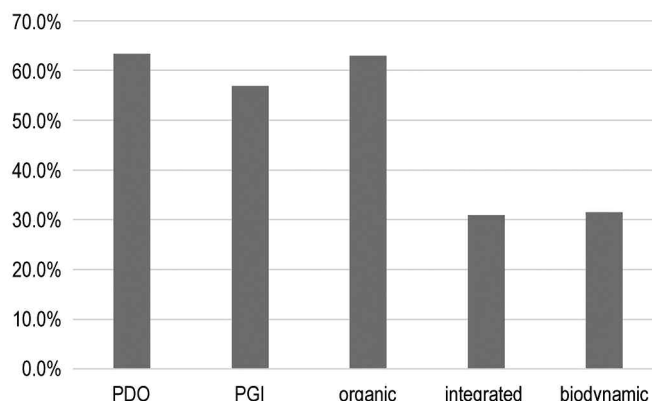

Figure 4. Level of knowledge about wine production methodologies and labels (%)

Then, interviewees were asked which process, product and environmental certifications they considered important for a wine. Also in this case, the origin of the wine was the most renowned, with DOCG, DOC and PGI certifications with the highest level of consideration (Tab. 6). Less significant but still appreciable was also the interest towards the certification of the organic production method. The other forms certifications, such as environmental sustainability of production processes, energy saving, fair trade marks, etc., obtained little or no significance for interviewees.

Finally, the questionnaire investigated those aspects related to consumers' environmental consciousness in order to identify their possible propensity to purchase products made with a limited impact on the environment (Tab.7).

In general, it emerged a fair environmental awareness of the interviewees. Personal health was perceived as a priority motivation, followed by the preservation of the environment, more at a global scale than at the local one. This result seems to confirm the emergence of a twofold, only apparently antithetical, motivational component, partly linked to the individual sphere and partly environmental conscious.

	DOC	DOCG	IGT	Organic	Integrated	Biodinamic	Environmental sustainability	Energy saving	Fair trade
mean	5.2	5.3	4.7	4.4	3.3	2.9	3.4	3.3	3.9
mode	5	6	5	5	3	3	3	3	4
median	7	7	5	7	1	1	1	1	1
stand. dev.	1.67	1.71	4.25	2.03	1.92	1.91	1.93	1.96	2.07

Table 6. Level of importance of different typologies of wine certifications

	Health	Local environment	Global environment
mean	4.7	4.2	4.4
mode	5	4	4
median	7	4	7
stand. dev.	1.90	1.98	1.98

Table 7. Motivations for purchasing low environmental impacts products

The so-called "sustainable wines" include wines produced according to the criteria of sustainable viticulture and, to a lesser extent, organic wines. Consumers were asked their preference concerning different production techniques and wine aging. Environmental friendly full-bodied red wines represented the most preferred typology, followed by white sparkling wines.

	rosé wine	red new	red sparkling	red full-bodies	white dry	white sparkling	sweet wines
mean	3.1	3.8	3.7	4.7	3.9	4.1	3.8
mode	3	4	4	5	4	4	4
median	1	4	1	6	5	5	1
stand. dev.	1.83	1.85	1.94	1.90	1.95	1.86	2.01

Table 8. Willingness to purchase environmental sustainable wines

The third section of the questionnaire explored the attitudes and beliefs that consumers manifested about the most common attributes of wine. Table 9 shows the main experience and sensory attributes, i.e. those related to taste, olfactory, and visual

perceptions.

Body, taste and flavours are the most appreciated characteristics, while regarding the colour, red wine appears on average the most appreciated.

	body	taste	acidity	flavours	white	red	rosé
mean	4.9	5.2	3.6	4.6	3.7	4.6	3.4
mode	5	5	4	5	4	5	3
median	5	5	4	5	4	6	4
stand. dev.	1.60	1.42	1.81	1.69	1.85	1.86	1.85

Table 9. Preferences about the intrinsic characteristics of wine

The general level of appreciation for extrinsic attributes appears slightly lower than for intrinsic characteristics. The price is one of the most influencing characteristics, followed by the

certification of geographical origin, the reputation of the producer and the use of local grape varieties. The other attributes, such as labelling and organic certification, play an important but secondary role (Tab. 10).

The analysis investigated the preferences of interviewees about the main varieties used for the production of red and white wines (Figure 5), using a scale going from most preferred (7) to least preferred (1). Only 52% of the sample admitted to know the name of the grape varieties used for the production of a red or white wine. These results showed that only four varieties are the best known to the interviewees, i.e. Barbera, Nebbiolo, Dolcetto and Nero d'Avola, followed by Merlot, Cabernet and some Italian varieties widely used in the central-northern regions such as Sangiovese and Montepulciano d'Abruzzo.

The Calabrian grape Gaglioppo was the less known, confirming how Calabrian wines just occupy particular niches of market.

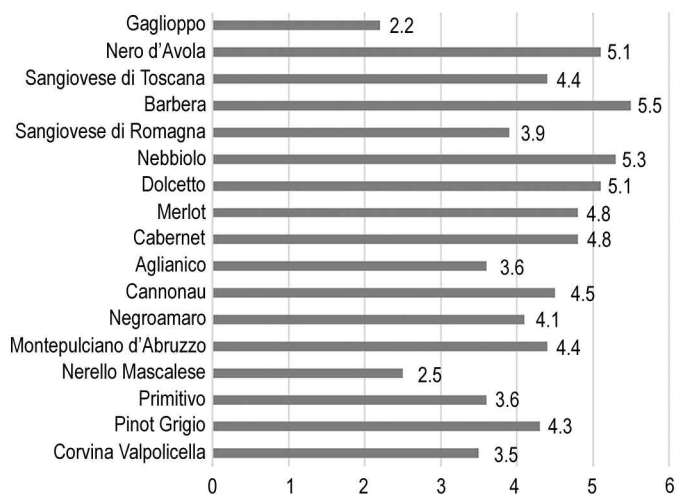|	producer	local varieties	international varieties	certification of origin	organic cetification	packaging	low impacts	price	label	prizes
mean	4.7	4.5	3.7	4.8	4.2	3.4	4.1	5.1	4.4	3.1
mode	5	5	4	5	4	4	4	5	5	3
median	5	6	4	5	5	1	4	5	5	1
stand. dev.	1.83	1.79	1.68	1.72	1.89	1.82	1.88	1.59	1.85	1.91

Table 10. Extrinsic attributes of wine

Figure 5. Average preferences about red grapes varieties

Concerning white grapes (7: most preferred, 1: least preferred), the best appreciated are the following varieties, in descending order (Fig. 6): Prosecco, Chardonnay and Muller Thurgau. Concerning the grape variety grown in Calabria, Greco, it had in a medium-low position, although it is more famous than its red counterpart (Gaglioppo).
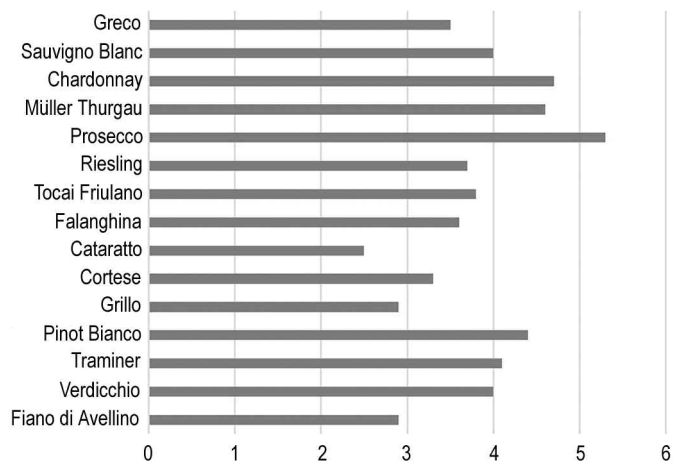

Figure 6. Average preferences of white grapes varieties

Figure 7 below shows the levels of appreciation for some of the most renowned and prestigious Italian wines (7: most appreciated, 1: least appreciated), which are higher for Barolo, Brunello di Montalcino and Chianti. Southern wines are less renowned, that is quite normal, as the interviewees are from northern Italy.
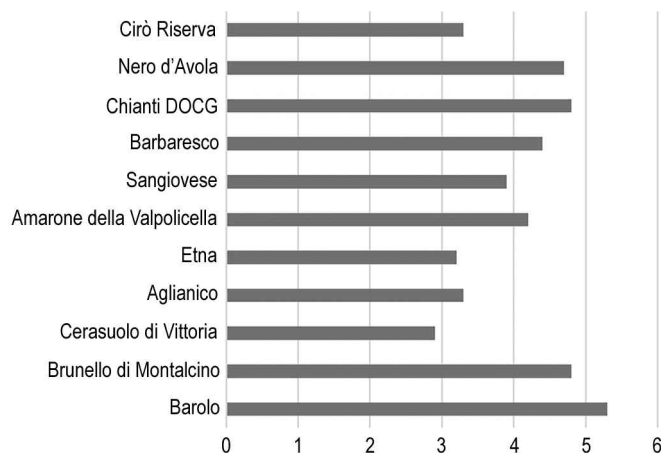
Figure 7. Levels of appreciations for the most renowned Italian wines

Finally, table 11 shows the results about the perceptions of different winemaking methods: red, white, rosé and sparkling wine.

Overall taste, fruity taste, flavour, alcohol content and aromas, and the presence of antioxidants appeared to be the predominant prerogatives of red wines and to a lesser extent of white wines, while only the attribute "acidity" had a higher relative frequency among white wines. There are no significant differences between rosé wines and sparkling wines, which represent wines with less sensory appeal. With regard to the potential effects on the health of the consumer, red wine is considered to be the richest in antioxidants, while rosé wines are perceived as the least gifted ones. Finally, concerning the perceptions about the presence of sulphites, the data obtained show almost similar results for all four categories of wine considered.

	WHITE	RED	ROSÉ	SPARKLING
Taste				
mean	3.6	4.1	3.1	3.1
median	4	4	3	3
mode	4	5	3	3
stand. dev.	1.18	1.07	1.33	1.31

	WHITE	RED	ROSÉ	SPARKLING
Acidity				
mean	2.7	2.7	2.4	2.5
median	3	3	2	2
mode	1	1	1	1
stand. dev.	1.37	1.37	1.26	1.27
Fruity				
mean	3.5	3.7	3.2	3.1
median	4	4	3	3
mode	5	5	3	3
stand. dev.	1.31	1.27	1.37	1.34
Flavorfulness				
mean	2.9	3.2	2.7	2.7
median	3	3	3	3
mode	3	4	3	2
stand. dev.	1.25	1.26	1.24	1.27
Alcoholic degree				
mean	3.2	3.6	2.9	2.9
median	3	4	3	3
mode	4	4	3	3
stand. dev.	1.21	1.24	1.27	1.27
Sweet taste				
mean	3.0	2.9	2.8	2.9
median	3	3	3	3
mode	3	3	3	3
stand. dev.	1.32	1.32	1.34	1.37
Perfumes				
mean	3.9	4.1	3.4	3.4
median	4	4	4	4
mode	5	5	5	4
stand. dev.	1.17	1.07	1.37	1.30
Antioxidants				
mean	3.3	3.5	3.2	3.1
median	3	4	3	3
mode	5	5	3	5
stand. dev.	1.40	1.36	1.42	1.43
Presence of sulphites				
mean	3.5	3.6	3.4	3.4
median	4	4	4	4
mode	5	5	5	5
stand. dev.	1.45	1.43	1.46	1.45

Table 11. Flavours taste comparison between different types of wine

4. Conclusions

The general objective of this study about the consumption of Calabrian wines was to investigate the interest of consumers in this product, and to identify any potential for development for the Calabrian wine industry in the national market.

In general, the survey highlighted the great importance attributed to the geographical origin of wine, which has a much greater impact than other variables. Factors such as certification of origin are considered a priority when choosing a wine.

Overall, there is a good environmental awareness among the interviewees. Personal health benefits are perceived as a priority motivation, although there is also a slight tendency to preserve the environment more on a global scale than in the local area alone.

Concerning Calabrian production, the local varieties Gaglioppo and Greco are less known to consumers in northern Italy, while the Cirò PDO seems to have a fair level of notoriety and reputation.

Moreover, the red wine is confirmed as the most appreciated in terms of taste, aromas, flavour, alcohol content and aromas, and is also considered the type of product with the highest antioxidant potential.

Further research and more refined analyses seem to be necessary to better define the degrees of correlation between the different variables examined.

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Innovation in the Food Distribution System

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Abstract

In a modern internationalized scenario, food consumption is characterized by the domination of large-scale distribution. The purpose of this work is to understand the type of large-scale retail trade offer, which is the first in chronological and dimensional order of the three main Italian distribution channels, and the innovations designed to meet different consumer needs. Through an important case study, the aspects that characterize this business and the hegemony of this system will be treated above all in the Italian context, even if it is trying to open up to greater social responsibility, its goal of imposing mass consumption models is still too much strong and distributed products are not in line with the premises of this system, causing promotional pressures that affect suppliers and consumers by denying the principles of sustainability.

Keywords: *behavior; company; consumer; ethic; marketing; social responsibility.*

1. Introduction*

This study stems from the deep importance to talk about an issue concerning the Italian economic situation, which in recent years has had a great growth, but not a just and deserved attention. Therefore, the central theme of the present work is the innovations that, over the years, have affected the distribution models of Italian agri-food products. A theme that, despite the crisis, thanks to the undisputed quality of its products, has become the diamond of the Italian offer in the world. Continuously certified as an excellence/model also thanks to important data and reports of information and business consulting giants such as KPMG and Deloitte, which attest to their importance and efficiency both from local and international point of view. In particular, the Deloitte Observatory for the agri-food sector foresees a potential growth in agri-food turnover of 15 billion Euros over the next 3 years for companies that will start innovation routes at a time when the agri-food sector is showing strength and vitality, (Deloitte Observatory for the agri-food sector's report, Milan 2018). Therefore, the attention paid to the study focuses essentially on the comparison between the Italian major current food distribution channels and on the innovations that consequently are gradually transforming the related commercial scenario. A comparison that then goes beyond simple economic and structural differences, especially considering the ethical and sustainable impact of the food supply chain on the environment and on the consumer.

In the present paper, we will analyze the type of large-scale retail trade's offer, which is the first in a chronological and dimensional order of the three main Italian distribution channels and, the innovations designed to meet the various needs of the consumer. The aspects that characterize this business (based essentially on an offer of medium-low industrial quality products) and the hegemony of this system on the Italian territory will be treated, even if it's trying to open up to a greater social responsibility, its objective to impose mass consumption models is still

too strong, and distributed products are not in line with the premise of this system, causing promotional pressures that affect suppliers and consumers by denying the principles of sustainability. Therefore, in an innovative way, the comparison will be carried out by introducing two new models of distribution of the agri-food sector: EPG (acronym of "Ethical Purchasing Group") and EATALY (that is the union of two terms "eat" and "Italy"). Two business models that, despite the different structural and commercial characteristics, were born from principles of "ethical consumption" with the aim of countering the problems brought by the large-scale retail trade and changing/turning a harmful system through a movement that, the experts, define it as "Revolution in consumption". Based on these premises, the aim of this paper is:

❑ Tracing the general trend of the Italian agri-food sector, focusing particularly on the aspects related to the distribution of products;
❑ Analyze in detail the large-scale retail trade's model, considering both the distinctive elements that led to success, and internal disputes that caused problems;
❑ Consider the change brought about by the introduction of EPG and EATALY and the way in which these two new business models, with their innovations, have started to change the Italian business scenario.

2. Theoretical Framework

For more than 10 years now, starting from the great 2008 sub-prime mortgage crisis, Italy is experiencing a deep crisis that has radically changed the country's economy bringing it today ranking fifth among states with public debt higher on a global scale, with a threshold of 132.6%, a number that is of great concern to the European Commission, because it is constantly increasing (World Economic Forum, June 2018).

Despite being a very graceful situation, from which unfortunately, Italy is increasingly difficult to recover, there are data that could say exactly the opposite. Our country represents, at the same time, the third European economic force and the second most indebted nation in the world after only Greece. "The great Italian paradox" was defined by the Financial Times. In fact, a very significant data that emerges from the analysis is that, differently from all the most important Made in Italy sectors, the agribusiness sector went against the trend in these years of crisis and commercial recession, recording a significant growth that, thanks to the undisputed quality of the products, it has led it to be considered the spearhead of the Italian commercial offer in the world, as well as a source for GDP. A sector that excels in terms of quality, food safety, cutting-edge technological innovation, sustainability, biological diversity and in particular the respect for a strong ideal of traditional culture. In fact, Italy is a country characterized by great territorial and climatic biodiversity that have been shaped in cultures, histories and traditions, exceptionally varied and unique, which over time have given more and more luster to the fundamental concept of "Made in Italy". Today it considered as a synonym of guarantee for the world market and represents an incentive to the development of export volumes in a global context, so it can be considered the maximum expression of Italian food quality in the world (Inea-Ismea Report, 2016). As regards the main aspects of agri-food Made in Italy, there was a continuous growth of the active balance, going from 6 billion dollars in 1996 to 16 billion in 2011, an excellent and continuous recovery therefore despite the two moments of stalemate in 1996-1997 and above all that of 2008-2010, in the era in which our country has been greatly affected by the effects of the crisis. The improvement is due to the great importance that exports have had, since 2000 always at a higher level than imports, although even these we have not achieved negative results (Confindustria, 2015). But despite these results of penetration in the most important foreign markets that are rather positive and confident for the future, Italy still remains a step backwards compared to its other most famous rival European nations, such as Germany, France and Spain, with consequences not we can be satisfied with these results, but we will have to develop new strategies and resume the already more decisively supported maneuvers. We note, in fact, that Italy is not a country specializing in exports of food products and has a negative normalized balance. It is sufficient to think that France (one of the main competitors) exports 67 billion of agri-food products against Italy's 31 billion, due to the scarce capacity of agricultural entrepreneurs to create commercial networks abroad (Observatory on business innovation agricole, 2012, Agri2000).

All this because in the purchasing behavior of consumers certification marks (PDO, PGI, GTS, BIO) are important in determining which product to buy (Accredia), but are in any case connected to other factors such as price, brand, typicality, nutritional aspect, ease of use and respect for the environment, which are aspects included within the local and international agri-food distribution sector; which is the heart of this project. In fact, as emerges from the Ismea-Qualivita survey on the Protection Consortia of 2012, the producers of PDO and PGI mainly turn to large-scale retail trade (44% of sales by volume) and wholesalers (33% of sales by volume) for distribute their products (Qualivita-Ismea). Better known as large-scale organized distribution, it is the first in a chronological and dimensional order of the three Italian distribution channels in the context of innovations, whose comparison represents the heart of this extract. Therefore, it represents the modern retail sales system that is commonly used to indicate a set of points of sale managed on a self-service basis and organized on large surfaces that belong to an organization or a group that manages a series of sales points marked by a or more common commercial signs (the so-called distribution chain). It's the final stage of the evolution around the sales concept, marking the passage from traditional shops to the more functional and multi-purpose supermarkets, radically changing all the main aspects such as distribution networks, trade, customer relations and competition (Boccia, 2015). According to the Nielsen company, operating on an international scale and specialized in market research on consumer goods and services, the sales channels of the large-scale retail trade can be classified as follows:

❑ Hypermarket: a structure with a retail area of more than 2,500 square meters. Within this size range, the segment ranging from 2,500 square meters to 4,000 square meters is called Iperstore;
❑ Supermarket: structure with a retail sales area ranging from 400 square meters to 2,500 square meters. Within this size range, the segment ranging from 1,500 square meters. to the 2,500 square meters it is called Superstore;
❑ Free service: structure with a retail area ranging from 100 to 400 square meters. Within this size range, the segment ranging from 200 square meters. to 400 square meters it is called Superette;
❑ Discount: structure in which the assortment does not generally foresee the presence of branded products;
❑ Self Service Drug specialists: exercises that sell products for home and personal care;
❑ Cash & Carry: structure reserved for wholesale sales.

Therefore, starting from its origins, this system has had an exponential growth, becoming the largest food distribution system ever existed; but his great growth was accompanied by enormous internal political contradictions that caused several commercial problems within the sector. Beacause the role of large-scale retailers has evolved over time through a multi-stage processes that has profoundly influenced the retail sector. Today's retailers are completely different from what they used to be back in the '60s. In the early '60s, the phenomenon of large-scale retailing, which had just begun in Italy, could be defined as a process consisting merely in 'handing over boxes'. That is to say that manufacturers had the final say on which products to place on store shelves, relying on the fundamental role wholesalers played back then. Basically, manufacturers built direct connections with consumers without engaging any intermediary. It was a direct-to-consumer model where the producer made also the final decision on product selling prices.

Over the years, things have changed dramatically. As the role of large-scale retailers in the global market has become increasingly important, the concepts of store loyalty (i.e. consumers' brand commitment) and enterprise autonomy (i.e. self-directed stores) have gradually gathered momentum. As a result, that straight line that used to connect manufacturers with consumers has progressively turned into a triangle where large-scale retailers represents the third 'pole', which, despite being cumbersome and unwanted by many, has gradually become crucial to creating value for consumers.

In the end, despite the innovations and ever more luminous orientations to future trends, we can well realize that the large scale retail distribution, even if it represents an excellence for the organizational-structural binomial, cannot certainly represent it for quality and sustainability. Large scale retail distribution, therefore, is not synonymous with quality, but mostly food waste, taking into account the immensity of food product flows that become waste (Boccia and Sarnacchiaro, 2018). Put simply, neither within the assortment of large-scale retail trade, nor at events of a certain size, such as Expo 2015, can be found true agri-food excellence. What can be done before all this? Obviously the individual cannot stop hunger in the world, which is directly proportional to the index of food waste, but can still decide what and above all how to buy. Participation, sharing and conviviality. The ethics of consumption starts from these three points, which are better able to interpret the question of what and how to buy. First of all, they represent the elements underlying the relationships. This is the crux of the matter. The relationships between us humans, between us and the

environment, between us and what we eat, produce, sell or buy are in this long moment of the History hostage of an unhealthy system. There is talk of a sort of "alternative and conscious consumption", through which it has been possible, since the introduction of these new consumer realities, to realize many things, first of all on the social level:

- ❑ As a more ecological and sustainable conception of the economy, in addition to the massive and lethal exploitation of resources imposed by intensive production for industry and large retailers;
- ❑ A network of real cooperation between people marked by trust and mutual availability and responsibility;
- ❑ A reversal of radical tendency, compared to our usual way of shopping and feeding, but also of being with others.

And it is precisely in this concept of inversion of radical tendency that we find a reason for this global movement; understood as a very strong response to habitual consumerism which, despite the innovations, has proved harmful. The two new consumption models that explain the features are: EPG and Eataly, although they are different in many respects, they represent the wind of change, which since the early 90s has begun to take shape, with a concrete approach to the problem and which, to date, represent real strengths in the economy of the food distribution sector, as well as a valid alternative to large-scale retail trade.

3. The Case Study

Therefore, the EPG practice introduces a new element in the debate on "alternative food webs", in the sense that they truthfully reinvent daily supply in collective and participatory ways. They are basic consumer aggregations involving producers in direct and collective transactions. The EPG mainly organizes the supply of food but, increasingly, also supplies non-food items (clothes, shoes, cleaning materials and, in some experimental cases, electricity, car insurance, dental care and telecommunications). The first group of solidarity purchases dates back to 1994. The current economic crisis has made their formula for mass collective purchases by trusted local producers quite popular, moving about 80 million euros (110 million dollars) from the big distribution (L'Eco di Bergamo 2012). The gasists - as the members of the EPG call themselves in Italy - manage the various practical aspects of direct supply on a voluntary basis. They often organize themselves into groups of neighboring families, who hold regular meetings to select their suppliers and organize logistics. By creating new direct producer/consumer circuits, they want to collaborate responsibly with farmers, allowing them to conduct an economically viable business, but also by negotiating quality criteria and encouraging "conversions" to organic farming (Boccia et al., 2018).

In their support for quality agriculture, solidarity buying groups are similar to community-supported agriculture in the United States. However, they differ in their collective modus operandi. EPG not only issues collective orders to a number of farmers, but organizes this activity through regular meetings and, above all, voluntary work. It is expected that each member of the group actively participates in the management of the EPG, usually through the rule that each gasist acts as a "product referent" for one or more elements. A "contact person" collaborates with the supplier, negotiates the price, collects the gasists' wish list, prepares a spreadsheet, pays and collects the order from the supplier (or arranges delivery if it is too far to collect the order) . It usually hosts deliveries to its home for the other gas stations that come, pay their debts and collect their share. These reciprocal visits can be hastened, with the car parked outside with flashing emergency lights, or ideally relaxed and convivial, with the offer of a cup of coffee by the guest and mutual recovering

gossip. In my experience, most of the staff members attending monthly meetings were women (with only two husbands accompanying them), but deliveries and collections were shared within families. I could send my husband to get the meat, or find the son or daughter of a gasista who oversees the deliveries of his mother's olive oil.

EPG tend to be groups of 20-40 families, but there are many ways to create a supportive buying group. There are neighborhood groups of only eight families and EPG of up to 150 families, organized in subgroups or "chains" (chains) from 13 to 21 families. Basically, EPG pays to trusted suppliers higher prices than they would receive from large distribution networks. Farmers can be "marginal" in many ways: they can practice organic farming without certification (because they can't afford the bureaucratic costs of certification), or they can grow local farmers or young neo-rural entrepreneurs. It is up to each solidarity buying group to interpret how to practice "solidarity" with producers, between them and with the environment. The documentation is abundant on the EPG website (www.retegas.org), but registration with the national network is not mandatory and no form of hierarchy is implemented.

These are issues that, as we can see, will reflect on the apparatus and the functioning of these groups. In fact, as far as the structure is concerned, the EPG can be considered as a laboratory of civic economy because it makes the market a relationship tool and a civil and civilizing meeting place, in which the social element becomes more important than the economic one (Act of purchase). This derives from a cultural change that had supported the economic system so far. A buying group essentially consists of a certain number of people who decide to collaborate to buy their daily consumer products directly from the producers, skipping the intermediation process and taking advantage of a discount rate (Colombo). The reasons that lead to aggregate in these groups are not just about saving money, because:

1. We try to promote awareness of the role and power that every consumer has in the economic process;
2. The diffusion of local, organic or fair trade products that come from companies or farms that operate legally, respecting the environment and their workers is supported;
3. The establishment of a relationship with producers based on mutual solidarity is encouraged.

Entering into a direct relationship with consumers is not easy, as in theory, for companies and occurs gradually because it involves both economic investments and non-monetary costs, such as time and effort to learn new production methods, improve logistics and capabilities communicative. The close interaction between producers and technicians in this sector (agronomists, veterinarians, micro-finance experts, etc.) would be very effective because they could spread the different forms of knowledge of each one and prepare common objectives. This is why many resort to self-certification, based on the relationships of trust established with consumers. Furthermore the producers will have to know how to develop their communication skills, often scarce, to relate with the members of EPG and other participating subjects, also opening their company to visits and cooperation with other producers to meet the demands and anticipate the needs of the Gases.

Only in this way, this lifestyle can expand and become a real culture that will be able to respect all the premises with which it started.

Eataly represents the other side of the coin, or rather the juridical personification of this revolutionary movement. We are talking about a company born from the idea of an enlightened Langhe entrepreneur, Oscar Farinetti, who wanted to create the largest food and wine center in the world:

In this extremely original market model, high quality Italian food products are not simply bought, but are consumed and studied. It is proposed as a place where sales, catering and

culture are combined. This project was born from the desire to find a new distribution model of the agri-food industry and its marketing, more suited to the needs of the sector and inspired by sustainability, responsibility and sharing. All this to offer a wider public quality food at affordable prices, knowing how to communicate production processes and giving a face to producers and the history of their products. The goal is to deny the belief that quality products can only be purchased by a small circle of people because they are too expensive or not easily available. This business idea has an international scope, wanting to create large multi-functional markets for Italian food and wine culture also, and above all, abroad. The beating heart, which gave the go-ahead to this innovation, was the constant commitment to increase the percentage of people who choose products for direct consumption with awareness; element, until then still considered too low, preferring quality products whose origin and various processes are known.

To achieve its objectives, the Farinetti team, in the design phase, has followed almost literally the principles sanctioned by Slow Food (which we will examine in more detail later), such as respect for tradition and education founded on a way to eat "healthy, clean and fair". In fact, this Slow Food to attest the quality is based on: organoleptic goodness, ecological sustainability and social justice, for a responsible food pleasure. Just Slow Food, has been the inspiration behind the way in which certain activities have been carried out, such as: constantly checking and verifying the quality of the products sold, having to live up to the promises; to evaluate that the producers involved in the project do not lower the quality of their products, in order to be able to satisfy a growing demand. This vision, while seeming so harmonious, certainly did not conceal the obstacles, which were then presented in the implementation phase, such as trying to understand the structural limits that some productions have. Eataly has tried to be aware of these restrictions and focusing on development and not on immense growth, taking the concept of quality as the basis for all its activities, from production to distribution and consumption.

The name of Eataly was born from the fusion of two words: EAT, that is 'eating' in English, and ITALY, Italy: this is what is written on the website of the chain of stores created by Oscar Farinetti and inaugurated in 2007 with the opening of the first address in Turin. That brief and very successful neologism that effectively encapsulates the mission of proposing (and selling) "Italian eating, that typically local way of being at the table". Knowledge of the agri-food tradition is the key element that is widespread not only in managerial levels, but also in the intermediate roles of Eataly, that is, category management. Figures in charge of maintaining relations with suppliers, they establish purchasing strategies, how much space to dedicate to each product and to each producer, prepare pricing, offers and other decisions that concern the supervision of the entire management cycle of their department . The success of Farinetti's idea was possible because it is the result of the union of various factors: of birth (family, teachings of the father, habit of business risk), geographical (the area of the Langhe in which he grew up, which is synonymous with eating well and refers to the agricultural world, cultivating high quality raw materials), historians (having experienced both the period of exponential growth in consumption and also that of industrial decline), character (ambition, will, risk appetite) , extreme attention to analysis and data), environmental (friendships and relationships) and the ability to learn from his life experiences.

First with Slow Food and then with Eataly, then, Italian cuisine returns triumphantly to the main countries around the world: just think, for example, at Eataly in New York that has become the third most visited place in Manhattan, after the 'Empire and the Metropolitan Museum, winning the First Prize at the World Retail Congress in Berlin in 2011 for being the most innovative sales place.

The peculiarity of Eataly is not the high quality of its products because others have already done it before, just think of the European and American department stores (Galeries Lafayette, Le Printemps, Harrods, Macy's, etc.) that have tried to cut out increasingly important spaces for the sale of excellent foods, given that they originally sell mainly other types of products (clothing, cosmetics, jewelery, etc.). Farinetti has repeatedly stated that he was inspired by these examples, but he tried to introduce innovative elements, such as the Eataly offer is limited to food products to capture the consumer's attention on food and wine excellence and to differentiate himself from the large scale retail distribution.

4. Conclusions: Future Perspectives

Nowadays, the agri-food business is called upon to review its traditional functions, linked to production and its role as an economic agent, to be more oriented towards society and act as a driving force for its well-being. To trigger a sustainable development of the agri-food sector, it is clear that innovation is the main lever. The link between innovation, agribusiness and sustainable development is becoming increasingly consolidated. Indeed, innovation has the task of emphasizing the sustainability of the agri-food sector, so that the latter contributes to maintaining the socio-economic and environmental conditions that favor human development as a whole. In the case of the agri-food system, an evolutionary process has begun which requires new production, logistics and distribution strategies, but also new forms of communication, inspired by sustainability and responsibility. The concept of quality in advanced agri-food markets is understood as a set of values that refer to a quantity of attributes, which take on a different importance depending on the type of product and the market segment. These values go back to a more critical, demanding and diversified consumer demand that represents the engine from which sustainable innovation in the agri-food sector starts. Only by focusing on this extended concept of food quality will small and medium-sized enterprises be able to face the challenges of the market and respond to new models of responsible consumption.

The road to follow should be to guide more companies towards these principles of sustainability and responsibility, spreading a new entrepreneurial culture at all company levels. Therefore, through a responsible enhancement, agri-food companies can foster a voluntary cultural change in society, combining their economic interests with an improvement in the well-being of individuals, thanks to the collaboration of the latter. It is precisely on these principles that Eataly takes shape, based on a corporate strategy that focuses on ethics, to gain a competitive advantage over other food retailers because the image of an ethical brand reinforces the company's reputation. This strategy has a profound effect on the characteristics of the products and on the related slogans, as well as on the assortment of services/ products and price policies: it consists of a set of ideas, opinions, moral values that are translated into strategic choices to create a place perfect, in which the consumer becomes part of it by buying according to an ethical model. The creation of a simple and informal environment, in which to put people at ease and give them the opportunity to buy, eat and learn about high quality foods, without turning it into a sacred place for gourmets. This choice is distinctly different from those adopted by the large-scale retail trade which focuses on: low prices, economic convenience, very wide ranges of products and choice, advertising campaigns that appeal to consumers who are not careful and are oriented towards rapid and hasty choices. In fact, Eataly's strategy is to limit the assortment to high quality products, thus excluding those who shop quickly, without paying attention to what they buy, focusing more on those who assign meaning to the products they choose. Eataly is very careful in analyzing consumers' purchasing choices, also considering their opinions on the products, in this way the choices regarding the brand are continuously redefined, reinforcing some of them and eliminating others.

The success or failure of the company will be decreed by the ability to maintain the maximum coherence between all the aspects that make up the Eataly business model because consumers will constantly interpret all the actions taken, developing positive or negative judgments to be evaluated to re-establish the strategic choices firm. So the difference with the large-scale retail trade is clear, as it is characterized by an approach that is too general and global in the agri-food distribution, which has caused problems with low product quality and food waste. As far as the EPG is concerned, on the other hand, in the course we have noticed that, although it represents a beautiful reality, which presents itself as a novelty against any food distribution scheme never seen before, their vision is still too limited to the internal organization of the group and of the orders, when to establish itself and emerge from this too closed and limited vocation, it should perhaps talk more with the local community to acquire greater importance and be able to promote educational projects and support for local companies, also collaborating with other EPG and participate so to a network of initiatives at regional and national level, imposing itself as a real distribution model, more than a beautiful and promising reality, but for now, an end in itself. It is evident that Eataly is a company that can present itself as a model for the distribution of agri-business, given that it contains elements that recall the large-scale retail trade format and that of EPG, maximizing their efficiency and effectiveness: it exploits the supply chain organization on a large scale, making use of ad hoc designed logistics, focusing on the consumer and his participation in the activities set up by the company.

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What Triggers the Purchase of Green Products in Indonesia?

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Abstract

This study aims at investigating the effect of hedonistic values, health consciousness, healthy life intention, attitude toward organic food, and social influence on organic food purchase decision, and examining attitude toward organic food and healthy life intention as the mediating variables. This study reveals that hedonistic values, healthy life intention, and attitude toward organic food have a significant positive effect on organic food purchase decision, whilst health consciousness has an insignificant effect. Moreover, it also indicates that social influence has a significant negative effect on organic food purchase decision. Healthy life intention was indicated as a mediating variable in the effect of health consciousness on organic food purchase decision.

***Keywords:** health consciousness; hedonistic values; social influence; attitude toward organic food; healthy life intention; purchase decision.*

1. Introduction

Recent studies on green product purchase behavior have been carried out not only in developed Western countries, but also in Asian developing nations (Biswas and Roy, 2015; Lee, 2008, 2009; Zhao *et al*., 2014; Zhu *et al*., 2013; Aqmala *et al*., 2018). The surge of papers discussing this behaviour is closely associated with the increase of green consumerism and the growth of generations with higher incomes, who are willing to spend more than the previous generation did (Harris, 2006; Li and Su, 2007).

One of the most prospective countries is Indonesia. It has an emerging middle class making up 56.5% of the population (World Bank, 2012) and spending more than Rp130 trillion per month (Wiraspati, 2013). This class is characterized by consumptive lifestyle, which is an attractive feature for marketers, particularly green product marketers.

Previous studies on consumer behaviour have found that the increasing number of research on organic food purchase behavior was closely related to the rise of demands for health foods (Baltas, 2001; Childs, 1997; Fotopoulos and Krystallis, 2002; Zotos *et al*., 1999). Consumers generally perceive organic food as healthier, safer, and more nutritious than its conventional counterpart. This perception encourages consumers to pay more on organic food (Krystallis and Chryssohoidis, 2005).

Earlier findings have revealed that health consciousness determined the consumers' perception and attitude toward organic food, in addition to their purchase intention and purchase decision (Akhondan *et al*., 2015; Chakrabarti, 2010; Chen, 2009; Essoussi and Zahaf, 2009; Hughner *et al*., 2007; Kesse-Guyot, *et al*., 2013; Magistris and Gracia, 2008; Magnusson *et al*., 2001, 2003; Mondelaers *et al*., 2009; Paul and Rana, 2012; Schifferstein and Ophuis, 1998; Yin *et al*., 2010). However, Michaelidou and Hassan (2008) argued that attitude and food safety were the antecedents of organic food purchase intention and purchase decision. Millock and Hansen (2004) found that the majority of consumers would only be willing to purchase organic food when they possess both use values (health, taste,

and freshness attributes) and non-use values (environmental and animal welfare attributes). Smith and Paladino (2010) also confirmed that organic food purchase behavior was affected by familiarity, and while health consciousness, food quality, and subjective norms influenced buying intentions, they did not influence organic food purchase decision.

The primary objective of this study is to explore how internal and external factors influence organic food purchase decision in Indonesia. Previous research on organic food purchase behavior in Indonesia generally deals with how internal factors influence purchase intention and purchase decision of organic food products. These internal factors include attitude toward organic food, lifestyle habits, health consciousness, environmental consciousness, food safety, perceived quality, perceived risk, individual knowledge, and trust in organic attributes (Suprapto and Wijaya, 2012; Slamet *et al*., 2016; Alamsyah and Angliawati, 2015; Moslehpour *et al*., 2014). Therefore, this study is aimed at complementing the previous research in Indonesia by observing both internal factors (hedonistic values, healthy life intention, attitude toward organic food) and external factors (social influence) of organic food purchase decision. The second objective is to examine the mediating role of attitude toward organic food and healthy life intention in bridging the gap regarding the effect of health consciousness on organic food purchase decision. Finally, this study provides a perspective from Indonesia and a reference for international marketers of organic food products that are pursuing Indonesian market (Setiadi, R. *et al*., 2017).

2. Literature reviews and Hypothesis Development
2.1. Hedonistic values and organic food purchase decision

Consumption is normally driven by utilitarian and hedonistic motives. Utilitarian values are oriented toward rational satisfaction of needs (Lumbanbatu & Aryanto, 2015). On the other hand, hedonistic consumption values are inspired by emotional

and experiential reasons (Ryu *et al*., 2010). Previous studies have indicated that hedonistic values affected organic food purchase behaviour. Aertsens *et al*. (2009), applying Schwartz' Theory of Basic Values, concluded that consumers' decision to acquire and consume organic food could be explained by linking the attributes of organic food with the more abstract personal values of consumers, such as security, hedonism, universalism, benevolence, stimulation, self-direction, and conformity. These values could positively influence consumers' attitude toward organic food consumption.

Others have also explored how consumers' personal values affected organic food purchase behavior. Zanoli and Naspetti (2002) provided a better insight into consumers' purchase motivation; they investigated the effects of consumers' perception and knowledge of organic foods toward the organic food purchase behavior in Italy. Employing Means-End chain model to link the attributes of organic food products and the consumers' needs, Zanoli and Naspetti (2002) found that the majority of consumers valued organic foods positively only if the products were perceived to be high-priced and more difficult to obtain. These consumers associated organic food with personal values such as pleasure and prosperity, which could be attained from consuming organic food. Seegebarth *et al*. (2016) also proved that the value dimensions that consumers perceived became the antecedents to organic food purchase behaviour in the USA and Germany.

Olsen *et al*. (2012) proposed a framework that integrates hedonistic values and environmental protection to explore organic food purchase behavior. The framework was employed for examining the behavior of wine consumers in the USA. Their study revealed that values reflecting the need for environmental protection and for living a hedonistic life were significant in explaining organic wine purchase behaviour. Hence, the following hypothesis is formulated:

H1: Hedonistic values have a positive effect on organic food purchase decision.

Health consciousness and organic food purchase decision
Organic foods consumers assumed that health is a personal responsibility. Those who value health would be more willing to consume health food, and they tend to engage in certain activites to maintain their well-being (Schifferstein and Ophuis, 1998). Previous studies highlighted that health consciousness of consumers can be used to predict the consumers' attitude toward organic food, along with the intention and decision to buy it (Chakrabarti, 2010; Chen, 2009; Essoussi and Zahaf, 2009; Hughner *et al*., 2007; Mondelaers *et al*., 2009; Tsakiridou *et al*., 2008, Hsu *et al*., 2016).

Hughner *et al*. (2007) produced several studies on organic food consumption from 1985 until 2005. They explored themes that expressed consumers' rationalization of organic food purchase decision. Moreover, they identified that the greatest motivations underlying purchases of organic food were health and the need for nutritious food, followed by superior taste, environmental concerns, food safety, animal welfare awareness, local economy support, experience factors, and trend-following behaviour. Essoussi and Zahaf (2009) found that health factor, environmental concerns, and support for local farmers were consumers' main motivations to purchase and consume organic foods. Similar findings were also discovered by Tsakiridou *et al*. (2008) who pointed out that health and environmental concerns were indeed the strongest factors influencing not only consumers' perception and attitude toward organic food, but also the consumption.

In Belgium, Mondelaers *et al*. (2009) explored people's preference for organic fruits. They found that consumers favoured fruits labeled with attributes related to health issues, to ones that were marked with environmental labels. Chen (2009) also suggested that health consciousness and attitude triggered organic food purchase decision in Taiwan. Moreover, Chakrabarti

(2010) examined the factors that were considered by food experts when purchasing organic food. He revealed that health motivation was the most important factor, followed by attitude, organic-food specific innovativeness, opinion leadership, and word-of-mouth marketing. Studies conducted by Paul and Rana (2012), Laheri and Arya (2015), as well as Lee and Huang (2016) also recognized that health concerns were the main determinant of organic food purchase decision. A more recent study by Hsu *et al*. (2016) confirmed that health consciousness, food safety concerns, and subjective knowledge of organic food were key variables affecting organic food purchase intention. Consistent with the aforementioned findings, this study proposes the following hypothesis:

H2: Health consciousness has a positive effect on organic food purchase decision.

2.2. Healthy life intention and organic food purchase decision

Living a healthy life means performing certain activities to maintain one's fitness, consuming natural food, and leading a balanced life (Chen, 2009). Promoting healthy lifestyle offers positive impact on organic food consumption because consumers tend to select superior quality foods, higher in nutrition, and safer to consume (Michaelidou and Hassan, 2008).

Schifferstein and Ophuis (1998) suggested that behaviour related to efforts to stay healthy was positively related to organic food purchase. This finding is then supported by other studies. In Western, Gil, Gracia, and Sanchez (2000) showed that consumers engaging in healthy diet as part of a healthy lifestyle were more willing to spend more money for organic food. Chryssohoidis and Krystallis (2005) also found that most organic food buyers adopted healthy diet to prevent them from diseases caused by chemicals present in conventional food. Moreover, Magistris and Gracia (2008) discovered that consumers who possessed healthy life intention by dieting and life-balancing would be more likely to purchase organic food due to their positive attitude toward the food. Chen (2009) also revealed that consumers running healthy lifestlye had more positive attitudes toward organic food and were more willing to purchase it. Based on the justification above, the following hypothesis is formulated:

H3: Healthy life intention has a positive effect on organic food purchase decision.

2.3. Social influence and organic food purchase decision

Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) state that subjective or social norm could influence behavioral intention that ultimately leads to actual behavior. Subjective or social norm refers to how social influence determines the behavior of individuals.

Reference groups are considered to be a social influence in consumer behaviour. The influences can be grouped into informational, utilitarian, and value-expressive (Park and Lessig, 1977; Setiyaningrum, A., & Aryanto, V. D. W, 2018). A person who has strong identification with his or her group tends to make decisions based on group-interest rather than self-interest (Gupta and Ogden, 2009).

Furthermore, Gupta and Ogden (2009) indicated that reference group could influence green purchase behavior. A person who belongs to a group that demonstrates pro-environment sentiments in line with his or her behavior is more encouraged to transform pro-environment behavior into real actions. They also integrated social dilemma theory and reference group theory to explain the research gap between individual's attitude and behavior toward environmental issues. They found that green purchase groups could be distinguished from non-green ones based on the following values: trust, group identity,

perceived effectiveness, and expectation of collaboration with other group members.

Lee (2008) identified a number of factors influencing green purchase behavior among adolescent consumers in Hong Kong. Social influence was the most important determinant, followed by environmental concerns, green self-identity and perceived environmental responsibility. Lee (2009) further claimed in his subsequent study that gender differences exist in green purchase behaviour. He indicated that female group was positively higher in environmental attitude, environmental concerns, social influence, perceived environmental responsibility, and perceived seriousness in solving environmental problems. Meanwhile, the male group was higher in self-identity in environmental protection, compared to the female group.

Chakrabarti (2010) confirmed that word-of-mouth marketing among friends, family, acquaintances, and co-workers was the main factor influencing organic food purchase decision process. Further, Tarkiainen and Sundqvist (2005) claimed that consumers' attitude and subjective norms were powerful in affecting consumers' intention to purchase organic food. Consequently, this study proposes the following hypothesis:

H4: Social influence has a positive effect on organic food purchase decision.

2.4. Attitude toward organic food and organic food purchase decision

TRA and TPB highlight that consumers' attitude toward a product has a significant role in predicting purchase behaviour and purchase intent. Another popular theory is Integrated Behavior Model (IBM) proposed by Montano and Kasprzyk. IBM can be used to explore how attitude toward organic food influences purchase decision (Rahman and Noor, 2016).

Studies conducted by Rimal *et al*. (2005) and Tarkiainen and Sundqvist (2005) confirmed that attitude toward organic food had a positive effect on organic food purchase decision in UK and Finland. Magistris and Gracia (2008) also revealed a similar finding in Italy. However, the causal relationship between attitude and behavior is often uncertain when it comes to external factors (Mulatsih *et al*., 2017; Isnarno *et al*., 2018)

Grunert and Juhl (1995) and Tsakiridou *et al*. (2008) argued that even though consumers showed a positive attitude toward organic food, they inclined to be passive in actual purchase due to external factors, such as price and demographic factors. Tsakiridou *et al*. (2008) indicated that higher level of education and income encouraged consumers to buy organic food. In Taiwan, Tung *et al*. (2012) found that gender, occupation, educational level, and age were leading factors that caused inconsistency in the relationship between attitude toward organic food and actual purchase behavior. Furthermore, they found that women in the age of forties with higher job prestige and level of education were more likely to buy organic food and even pay more.

Padel and Foster (2005) expressed that consumers' attitude toward organic food could be an important factor influencing the actual purchase behavior. Consumers would be willing to buy the high-priced organic food when they carry a positive attitude toward it. Based on the given review, the following hypothesis is proposed:

H5: Attitude toward organic food has a positive effect on organic food purchase decision.

2.5. The mediating roles of attitude toward organic food and healthy life intention

Several studies have indicated that healthy life intention is indeed one of the main factors that triggers the purchase of organic food. However, there have been investigations with conflicting conclusions. Michaelidou and Hassan (2008) found

that attitude and interest toward organic food were more influenced by food safety, while Smith and Paladino (2010) argued that organic food purchase behavior was more influenced by familiarity.

The attitude toward organic food can be considered as a variable that mediates the effect of health consciousness on organic food purchase decision. The underlying logic was, even the consumers are aware of the importance of healthy life, they would not actually execute a purchase unless they have a positive attitude toward it. This attitude could not be established if consumers still perceived the organic food to be expensive, the green label to be untrustworthy, or the products to be unavailable in the market. In conclusion, the influence of health consciousness could be stronger if consumers possess a positive attitude toward organic food, therefore culminating in purchase decision. The following hypothesis is then formulated:

H6: Attitude toward organic food mediates the effect of health consciousness on organic food purchase decision.

Logically, the person has been aware of would be conscious of the importance of living healthily. They could be informed that achieving healthy lifestyle can be done by consuming organic food and avoiding junk food. However, if people do not have time to find information about organic food, or the desire to spend more money for it, then the purchase decision would not occur.

Health consciousness and healthy life intention are linked together, but in reality, there are still many people that do not have the intention to implement a healthy lifestyle despite the knowledge they have. Based on the reasoning above, it can be presumed that the influence of health consciousness could be stronger if consumers possess the intention to carry out a healthy lifestyle. Therefore, this study proposes the following hypothesis:

H7: Healthy life intention mediates the effect of health consciousness on organic food purchase decision.

Based on the extensive and robust previous literature review, this study proposes the research model presented in Figure 1.
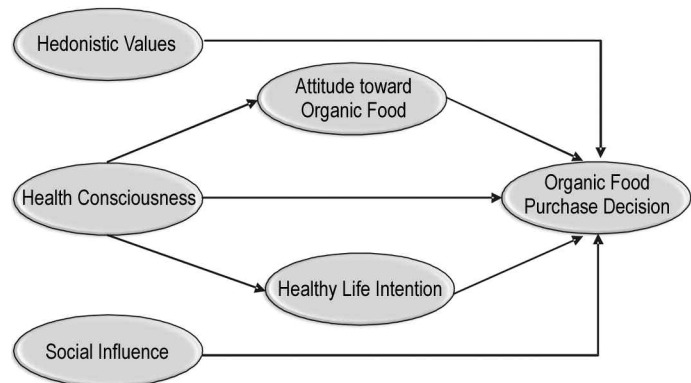
Figure 1. Research Model

3. Research Method
3.1. Population and Sample

Population of this study consists of all the organic food consumers in Indonesia. Meanwhile, the observed sample includes organic food consumers in Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jakarta Metropolitan Area). These areas are selected due to the arising existence of communities of organic food enthusiasts and the well-spread outlets of or-ganic food market. The research employed purposive sampling, which is a non-probability sampling technique. The participants would have to purchase and consume organic food at least once prior to the survey in order to be qualified as a respondent.

3.2. Data Collection

The data were obtained using a questionnaire in organic food outlets throughout the Jakarta Metropolitan Area.

3.3. Profile of Respondents

A total of 408 respondents were involved in the survey; 46.1% of them were male and 53.9% were female; 3.9% were under the age of 20; 12.7% were between the ages of 21-30; 20.3% were between the ages of 31-40; 12.7% were between the ages of 41-50; and 9.6% were above the age of 51. Based on educational level, 35.5% had completed high school; 15% possessed college diplomas; 47.5% held bachelor's degree; and 2% possessed master's degree. Lastly, according to occupation, 44.1% were working full-time as private sector employees; 4.2% were civil servants; and 18.1% were entrepreneurs;

25.7% were university students and the rest worked in other fields.

3.4. Research Instruments and Measurement

The instruments of this investigation were adopted from earlier studies and developed by the researchers. A 10-point interval scale was used with "1" indicating "strongly disagree" to "10" indicating "strongly agree". Face validity and construct validity were used to test the validity of the research model, while Construct Reliability (CR) was employed for testing reliability. Instruments are considered valid if they possess a factor loading value greater than 0.4, and considered reliable if the CR value is greater than 0.7 and the Variance Extract is greater than 0.5 (Hair et al., 2010). Validity and reliability testing were conducted and it has been found that all instruments in this research are valid and reliable. Refer to Table 1 for further clarification of these results.

Variable	Indicators	Factor Loading	Construct Reliability (CR)&Variance Extract (VE)
Hedonistic Values	- Proud to buy organic food - Proud to consume organic food - Consume organic food is a prestige thing - Consume organic food is a luxury	0.89 0.90 0.91 0.87	CR: 0.94 VE: 0.80
Health Consciousness	- Knowledge on health issues - Understanding the importance of maintaining healthcare - Knowledge on healthy lifestyle	0.90 0.93 0.66	CR: 0.87 VE: 0.70
Social Influence	- Obtain knowledge from friends - Often share experience with friends - Organic food often recommended to be consumed by friends	0.97 0.92 0.92	CR: 0.96 VE: 0.88
Healthy Life Intention	- Frequently seeking information about health issues - Willing to do healthy diet - Willing to do physical exercise regularly	0.88 0.83 0.90	CR: 0.90 VE: 0.76
Attitude toward Organic Food	- Fond of organic food - Have a good impression on organic food - Organic food is favorable	0.94 0.97 0.72	CR: 0.91 VE: 0.78
Organic Food Purchase Decision	- Purchase decision without doubt - Purchase decision confidently - Purchase decision with careful consideration - Purchase decision straightaway	0.92 0.91 0.96 0.93	CR: 0.96 VE: 0.87

Table 1. Instrument Validity and Reliability
Source: primary data analyzed

3.5. Findings

Goodness-of-Fit Evaluation
The collected data were analyzed using SEM with AMOS statistical software. GFI, AGFI, CFI, TLI, and RMSEA value were used to evaluate the goodness-of-fit for the research model. It is

shown that the computed fit indices were: GFI= 0.885; AGFI= 0.849; CFI= 0.955; TLI= 0.946; and RMSEA= 0.074. Based on these indices, it can be concluded that the research model is fit.

The results of hypothesis testing
The results of hypothesis testing in this study are presented in Table 2.

Hypothesis	Estimate	S.E.	Critical Ratio	P value (≤ 0.05)	Explanation
H1: Hedonistic values have a positive effect on organic food purchase decision.	.379	.083	4.540	***	Accepted
H2: Health consciousness has a positive effect on organic food purchase decision.	-.027	.098	-.279	.780	Rejected
H3: Healthy life intention has a positive effect on organic food purchase decision.	.670	.077	8.677	***	Accepted
H4: Social influence has a positive effect on organic food purchase decision.	-.211	.050	-4.211	***	Rejected
H5: Attitude toward organic food has a positive effect on organic food purchase decision.	.339	.061	5.516	***	Accepted

Table 2. Results of Hypothesis Testing
Source: primary data analyzed

Mediating effects of attitude toward organic food and healthy life intention
Sobel test was employed to detect the mediating role of attitude toward organic food and healthy life intention in the effect of health consciousness on organic food purchase decision. The computation for the statistical significance of the mediator was done with an online statistical calculator, which can be accessed on http://www.danielsoper.com (Soper, 2015).
Testing for mediating effect of attitude toward organic food generated a test statistic value of 1.245 and a probability value of 0.106, therefore rejecting hypothesis 6. Whereas, the testing for mediating effect of healthy life intention resulted in a test statistic value of 2.262 and a probability value of 0.012, therefore

accepting hypothesis 7. It can be concluded that healthy life intention has a mediating role in the effect of health consciousness on organic food purchase decision.

4. Discussion and Conclusions

Hypothesis 1 is accepted; hedonistic values positively influence organic food purchase decision. This is consistent with previous findings, which state that consumers' decision to purchase and consume organic food can be explained by linking the attributes of organic food with the more abstract values such as security, hedonism, universalism, benevolence, stimulation,

self-direction, and conformity (Aertsens *et al*., 2009; Olsen *et al*., 2012; Zanoli and Naspetti, 2002; Damarwulan, Farida, & Andriyansah, 2018).

Hypothesis 2 is rejected. It can be established that health consciousness does not possess a significant effect on organic food purchase decision. This finding contradicts preceding studies by Chakrabarti, (2010), Chen (2009), Essoussi and Zahaf (2009), Hughner *et al*. (2007), Mondelaers *et al*. (2009), and Tsakiridou *et al*. (2008). However, the inexistence of health consciousness's effect supports other researchers. Smith and Paladino (2010) found that organic food purchase behaviour is not a consequence of health consciousness, but it is affected by familiarity and customers' consumption experience. Meanwhile, Chen (2009) argued that consumers that are health conscious would not actually purchase organic food because they would have to spend more on it compared to conventional food.

Hypothesis 3 is accepted. It can be determined that healthy life intention positively affects organic food purchase decision. Consumers with the intention to live healthy are more likely to buy organic food as a way of maintaining well-being and preventing illnesses. This study supports previous investigations that highlight the positive influence of health-related behavior on consumers' decision to purchase and consume organic food. These consumers, who have adopted healthy lifestyle tend to carry a more positive attitude toward organic food (Chen, 2009; Chryssohoidis and Krystallis, 2005; Gil *et al*., 2000; Magistris and Gracia, 2008; Schifferstein and Ophuis, 1998).

Meanwhile, social influence is found to have a negative influence on organic food purchase decision. Hypothesis 4 is rejected because it proposed a positive effect. This finding does not substantiate previous studies which claim that the social influences of reference group and close relatives positively affect organic food purchase decision (Chakrabarti, 2010; Gupta and Ogden, 2009; Lee, 2008, 2009; Tarkiainen and Sundqvist, 2005). The majority of Indonesian organic food consumers seem to be ones that hold prestige in a high regard. Prestige-seeking characters are compelled to consume conspicuously and be valued as responsible and progressive customers (Seegebarth *et al*., 2016; Yoestini *et al*., 2018). Despite the steep price of these foods, they would still purchase them for the sake of fashion and lifestyle in order to create an impression of luxury on others.

Moreover, hypothesis 5 is also accepted. Attitude toward organic food is found to have a positive influence on consumers' organic food purchase decision. This is line with the findings of Magistris and Gracia (2008), Rimal *et al*. (2005), and Tarkiainen and Sundqvist (2005). Meanwhile, Tsakiridou *et al*. (2008), Grunert and Juhl (1995), and Padel and Foster (2005) had different results. They all found that despite the positive attitude of consumers, only a small number of customers would actually procure organic food. Others deem this type of food as unaffordable.

Finally, as mentioned in the previous section, hypothesis 7 is accepted, whereas hypothesis 6 is not. Healthy life intention has a significant mediating effect, while attitude does not. This finding suggests that the effect of health consciousness on organic food purchase decision will be more powerful if the consumers aspire to live healthy. Altogether, health consciousness has a considerable role in improving healthy life intention, which would then result in organic food purchase decision.

4.1. Conclusions

This study reveals that hedonistic values, healthy life intention, and attitude toward organic food influence organic food purchase decision. Meanwhile, health consciousness is found to be non-existent. For external factor, social influence is found to negatively affect organic food purchase decision.

Furthermore, healthy life intention is revealed to be the mediating variable. It could be claimed that health consciousness plays an important role in improving consumers' healthy life intention, encouraging them to purchase organic food. Not only do these findings provide empirical evidence concerning the key factors that affect organic food purchase decision, they also complement previous studies on organic food purchasing behaviour in Indonesia, a potential target for international marketers.

4.2. Managerial implications

This study provides empirical evidence for international marketers of organic products to develop and implement proper marketing strategies in Indonesia. It shows that the majority of Indonesian consumers are hedonistic and prestige-seeking. Marketers should capitalize on this by promoting organic food consumption as a fashionable lifestyle that projects social exclusivity. Special packaging can be designed to display an impression of distinctive luxury.

Regarding healthy life intention, marketers can offer complimentary magazine, free of charge, for consumers to learn more about achieving fitness and health. Testimonies should also be exhibited to further improve consumers' attitude toward organic food. These customer statements can focus on the health benefits and overall superiority of organic food, compared to its conventional counterpart.

A traceability system should be established, which can aid food producers to comply with food safety regulations set by the government, and to adapt to customer needs and wants. This system can become part of an effective strategy for creating customers' perception of organic food safety and quality, therefore, decreasing consumers' doubts, stimulating positive attitude, and encouraging organic food purchase decision.

4.3. Limitations and suggestions for future studies

This study has some limitations. First, the data were obtained from organic food consumers without distinguishing regular and non-regular organic food consumers. Second, the observed products include all types of organic food, which were not categorised into vegetable, fruit, rice, meat, etc. Third, the survey was only conducted within Jakarta Metropolitan Area. Consequently, it is relatively difficult to generalize the results due to the locational constraint.

For future studies, it is suggested to consider separating regular consumers from the non-regular ones, grouping organic food categories, and obtaining larger samples so that the results could be expanded. It would also be interesting to investigate other factors such as green labeling, product availability, and pricing as well as to examine the demographic characteristics like gender, age, and education level as moderator variables on the relationship between health consciousness and organic food purchase decision.

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The Influence of Market Orientation on Marketing Performances in Micro Small and Medium-Sized (MSMEs) Coconut Sugar Enterprises: The Role of Innovation

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Abstract

Coconut sugar have a huge potential to be developed in Indonesia, unfortunately the welfare of the producers is still lack due to the inability of the products to be marketized on modern and international markets. The products could not meet the needs and wants of those markets. This study aims to investigate the influence of market orientation on marketing performances in MSMEs. The samples are 100 coconut sugar producers, in Banyumas, Central Java, Indonesia. The tool used to analyze this study is structural equation modelling by AMOS program. The study result shows that customer orientation have a positive influence on product and process innovations, competitor orientation have a positive influence on product innovation but have no influence on process innovation, and product and process innovations have positive influences on marketing performances.

Keywords: *market orientation; marketing performance; micro, small and medium-sized coconut sugar enterprises; innovation.*

1. Introduction

Some previous researches have already investigated the reltionship between market orientation and marketing performances (Al-Ansari, 2013; Raju, 2011; Tutar, 2015; Sok, 2013). MSMEs play an important role in Indonesian economy for several reasons; they could survive through the monetary crisis during 1998, the huge amounts compared to big companies, and the amount of labors hired. Small-scale industries in Indonesia provide more than 65% of total manufacturing employment (Burger *et al*., 2011). One of important MSMEs for Indonesian economy is micro, small and medium-sized coconut sugar enterprises regarding their annual production amount bringing Indonesia as the largest coconut producer in the world, which is up to 120,000 tons (Mustaufik, 2010). Micro, small and medium-sized coconut sugar enterprises are very potential to be developed in Indonesia; because a) they have a big market potential, b) Indonesia has the largest coconut plantation in the world, and c) coconut sugar industry is an industry which does not need a sophisticated technology and advanced skills, so it can hire huge amount of labours (Suliyanto, 2013).

Even though Indonesia is the largest coconut sugar producer in the world, the welfare of the producers is still lack. Kameo (1999) state that characteristic of of coconut sugar in Indonesia is marginal activity that is carried out by poor households that lack access to better opportunities and the profit is indeed low. The poor welfare of Indonesian coconut sugar producers is caused by several problems which they have. One of the problems in coconut sugar industry in Indonesia is marketing problem (Suliyanto *et al*., 2012). They are unable to market their products to the modern market and international markets (Suliyanto, 2013). This inability may be caused by the lack market orientation of coconut sugar producers in Indonesia, then the generated products do not meet the needs and wants of those markets.

To make them be able to meet those needs and wants, the coconut sugar producers need to know the needs and wants in market to the market orientation. According to Narver and Slater (1990), market orientation is an organizational culture focusing on consumers and competitors. Through the application of market orientation, a company is expected to understand the condition, characteristic, and desire of the market completely both from the perspectives of consumer and competitor (Tushman and Anderson, 1986). Based on the information gathered, a company can provide solutions adjusting the needs and wants of in the market, by higher valued- product. Furthermore, a company may formulate the right strategy in form of an innovation. Through an application of innovation, a company may increase its profits (Tutar, 2015).

This article explains the influence of market orientation on innovation, and the influence of innovation on marketing performances in micro, small and medium-sized coconut sugar enterprises. In which the market orientation is classified to customer orientation and competitor orientation (Naver and Slater, 1990), and Innovation is classified to product innovation and process innovation (Cooper, 1998).

2. Literature Review and Hypothesis Development

2.1. Market Orientation

Narver and Slater (1990) define the market orientation as an organizational culture with a wide focus, which does not only focus on consumers but also focus on competitors. Tutar *et al*., (2015) state that market orientation is a culture stimulating the finding of value inside the market aimed to get the competitive advantages. Additionally, Narver and Slater (1990) underline the importance of coordination among the functions inside the organization in order to satisfy the customers. In line with the perspective of Narver and Slater (1990), Sorensen and Slater (2008) state that market orientation consists of customer orientation and competitor orientation constructs. Lengler *et al*., (2013) argue that consumer and competitor orientation functions inside the organization will create the higher value of product toward the consumers. Zhou and Li (2007) state that competitor orientation can improve the capability of company in analysing and responding the competitor strategy, in which it will impact the different product innovation offered, compared to the competitors. Conversely, Desphande and Farley (1998) argue that customer orientation is process and cross-functional activity which is directly aimed to satisfy the consumers through the sustainable measurement of consumer needs; they do not consider the importance of competitor orientation existence.

According to Kotler (2000), if a company wants to apply the customer orientation, they need to: (1) determine the primary need of buyers who will be met and served; (2) select a certain group of buyer as the targeted market; (3) determine the product and the marketing program; (4) conduct a market research on consumers, to measure, assess and define their desires, attitudes and behaviours; (5) determine and execute the best strategy among the options, whether prioritize the high quality, low price, or interesting design.

Narver and Slater (1990) state that competitor orientation might be applied by: (1) observing the strategy executed by the competitors, (2) observing the production process established by the competitor, and (3) comparing the strength and weakness of company products to the ones of competitor. When a company can develop the result of competitor orientation, then they can collect the more intact information from the market and provide a better solution to consumers (Lengler *et al*., 2013). Putting an attention on the market orientation will make the company understand the industry game rules and it will improve the company performance in the end (Lengler *et al*., 2013).

2.2. Innovation

The narrowest definition of innovation is similar to invention, thus in this context, innovation is defines as creative process involving the ideas implementation to create the best solution (Nasution, 2005). According to Drucker (2003) innovation means the understanding of the company in adapting the tool, policy, program, process, product, or service which is perceived as something new in the company. Innovation strategy is when a company can turn the innovation idea into a product served to the market then it can create the new market and has competitive advantages (Tutar, 2015). Sok *et al*., (2013) define the innovation as a process inside the company to facilitate and implement the development, evolution, and execution of a successful product innovation. Sok *et al*., (2013) also state that the innovation role is one of ways which the company uses to improve the marketing performance. Innovation is different with creativity; creativity is new ideas, while innovation is executing those new ideas or alters the new ideas into a business success. According to Huang *et al*., (2012), to attain the competitive advantages, a company needs to adapt the innovation in their business. Innovation, according to Thomspson in Hurley and Hult (1998), is defined as the implementation of new ideas, product and process. Meanwhile Hurley and Hult (1998) define

the innovation as a company mechanism to adapt in dynamic environment. Therefore, a company is required to create new ideas, process, and products to meet the consumer needs. In finding an innovation, a company may explore it internally and externally (Huang *et al*., 2012).

The explanations related to product and process innovations referring to some experts (Cooper, 1998; Cumming, 1998; Knox, 2002) in marketing are as follow:

a. Product Innovation

According to Cooper (1998), product innovation reflects the product and service transformations offered to the market. While Knox (2002) classifies product innovation into two dimensions: new product to company and new product to customers. These two dimensions are classified into six categories: new-to word invention, new-to product line, product improvement, product line expansion, cost reduction and product repositioning in the market. The new-to word invention and new-to product line are high risk innovations, product improvement and product line expansion are relatively low cost innovations; while cost reduction and repositioning are low risk product development (Nasution, 2005).

b. Process Innovation

Cooper (1998) defines the process innovation as the transformation inside the organization regarding the way how to produce products and final service of company. It is in line wither the notion by Cumming (1998), it states that there are three factors in implementing the process innovation: quality, cost, and time. The quality means, by the existence of innovation, company will improve the production quality so it adjusts to customer expectation; the cost means, by the existence of innovation, company will be more efficient so it can generate the products faster.

2.3. Market Orientation and Innovation

Narver and Slater (1990) postulate that market orientation does not only focus on customer orientation; the competitor orientation is involved too. Based on the research by Han *et al*., (1998), the activity level of market orientation inside the company has a correlation with the innovation level of company. In line with Han *et al*., (1998), Low *et al*., (2007) state that innovation of a company is positively correlated to market orientation consisting of customer orientation and competitor orientation. Raju *et al*., (2011) state that market orientation has a positive influence company capability in innovating, and Wang (2015) state that market orientation has positive effect on innovation performance. Based on the prior literature reviews, the hypothesis formulated as follow:

H1: The Customer Orientation influences the Product Innovation
H2: The Customer Orientation influences the Process Innovation
H3: The Competitor Orientation influences the Product Innovation
H4: The Competitor Orientation influences the Process Innovation

2.4. Innovation and Marketing Performances

Marketing performance is a measurement indicator of organization performance based on the performance in marketing function. According to Voss and Voss (2000), marketing performance is measured by using the indicators such as sales, market growth, sales growth, and profit level. Innovation of a company is expected to increase the profit and competitive advantages which will give an impact on the company performances. Hine and Ryan (1999) state that innovation can increase value on small service firms, and (Talke *et al*., 2011).referring to the research by Al-Ansari *et al*., (2013), innovation has a positive influence on business performance of MSMEs in Dubai. In line with the arguments by Talke *et al*., (2011) and Al-Ansari (2013), Raju *et al*., (2011) postulate that a

company innovation will improve the company performance. Based on the review of prior literatures, then the hypothesis formulated as follow:

H5: The Product Innovation influences the Marketing Performance

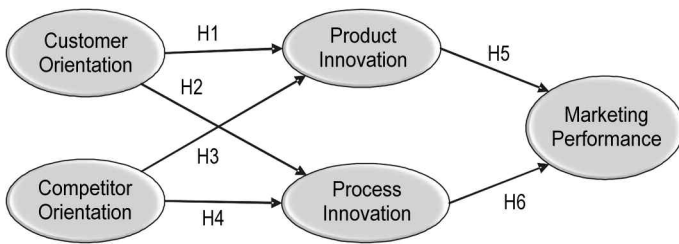*H6: The Process Innovation influences the Marketing Performances*

Figure 1. Research Model

3. Research Method and Data Collection

The respondents of this research are 100 coconut sugar producers in Banyumas, Central Java, Indonesia. Banyumas is a region with the largest coconut sugar production in Indonesia. Sampling technique used in the study is simple random sampling.

To measure the market orientation consisting customer and competitor orientations, this study adapts the questionnaire by Narver and Slater (1990) and Kotler (2000). To measure the innovation consisting of product and process innovations, this study creates a set of questionnaire adapting Cooper (1998). Marketing performance is measured by using questionnaire adapting Voss and Voss (2000) with the indicators of gross profit, net profit, sales growth, and marketing scope. All those variables are measured by using the Likert scale (1-10). The value of 1 shows the strongly disagree respond and the value of 10 shows the strongly agree respond.

The data analysis of this study will be conducted by structural equation modeling (SEM) analysis by AMOS program. The measurement of research variables is based on the perception or respond of the respondents on the all indicator variables constructed in research model. The answer of respondents will be valued by Likert scale, 1 for the lowest score and 10 for the highest score.

4. Results
4.1. Characteristics of Respondents

The respondents of this study are 100 producers. To those 100 samples, there are some characteristics used; gender, age, production experience, education level, and amount of employees. Based on the characteristic of respondent age, it shows the respondents are on the age of 24 to 77 years old, with most of them are aged 41 to 50 years old who represent the 42 percent of respondents. Based on the characteristic of gender, the respondents are dominated by males who represent 94 percent of respondents. The average of production experience of respondents is 14 years. For the level of education, most of the respondents are elementary school graduates who represent 78 percent of respondents, while junior high school graduates are 13 percent of respondents, and senior high school and university graduates are up to 9 percent of respondents. The amount of employees hired is mostly less than 5 persons which represents up to 81 percent of respondents, 14 percent of respondents hire 6 to 11 employees, and 5 percent of respondents hire 12 to more than 24 employees.

4.2. Validity and Reliability Tests

The validity on SEM is tested by looking at the value of factor loading resulted from the standardized loading for each indicator

(Ferdinand, 2005). An indicator is valid and appropriate as a composing construct if it has the factor loading of > 0.40 (Hair, 1998).

The reliability of constructs framing the model is analyzed by using construct reliability and variance extract. The requirement of minimum value for construct reliability is at least 0.70, and for variance extract is at least 0.50 (Ghozali, 2008).

Variable	Indicator	Factor Loading	Validity
Customer Orientation	X1	0.94	Valid
	X2	0.97	Valid
	X3	0.93	Valid
	X4	0.62	Valid
	X5	0.83	Valid
Competitor Orientation	X6	0.83	Valid
	X7	0.88	Valid
	X8	0.72	Valid
	X9	0.75	Valid
Product Innovation	X10	0.86	Valid
	X11	0.68	Valid
	X12	0.74	Valid
Process Innovation	X13	0.79	Valid
	X14	0.90	Valid
	X15	0.71	Valid
Marketing Performances	X16	0.73	Valid
	X17	0.47	Valid
	X18	0.90	Valid
	X19	0.66	Valid

Table 1. Validity Test

Variable	Construct Reliability	Variance Extract	Conclusion
Customer Orientation	0.99017	0.9872	Reliable
Competitor Orientation	0.98166	0.9714	Reliable
Product Innovation	0.96481	0.9416	Reliable
Process Innovation	0.97656	0.9645	Reliable
Marketing Performances	0.94079	0.8929	Reliable

Table 2. Reliability Test

4.3. Goodness of Fit Test

Goodness of Fit Index	Analysis Result	Cut-off Value	Model Evaluation
X^2 Chi-Square	274.2672	<187.53	Marginal
Probability	0.000	>0.05	Marginal
CMIN/DF	1.8915	<2.00	Good
GFI	0.7869	>0.90	Marginal
AGFI	0.7207	>0.90	Marginal
TLI	0.8818	>0.95	Marginal
CFI	0.8998	>0.95	Marginal
RMSEA	0.0944	<0.08	Marginal

Table 3. Goodness of Fit Test

The tested research model may be categorized as a good model, if the Chi-square value is low. The lower value of Chi-Square reflects the greater research model (Ferdinand, 2005). The value of Chi-Square of this research model is 274.2672, which is greater than the value of table Chi-Square of 187.53, with the margin of error is 1% and degree of freedom of 145. The value shows that the tested model is accepted at the category of marginal. The resulted probability value is 0.000 which is lower than its cut-off value of 0.05, so the model is accepted at the category of marginal. The value of CMIN/DF of this research model is 1.8915 which is lower than its cut-off value of 2.00, thus

it indicates that the model is accepted at the good category. The resulted value of GFI in this research model is 0.7869 which is lower than 0.90. The value indicates that the degree of the weighted proportion-fit from the variance of sample covariance matrix which is explained by estimated population matrix; is accepted at the category of marginal. The value of AGFI of this research model is 0.7207 which is lower than the cut-off value of 0.90. Thus, the model can be accepted at the category of marginal. The goodness of fit test result shows that the value of TLI is 0.8998 which is lower than the cut-off value of 0.95 so the model

is accepted at the category of marginal. The value of CFI in this research model is 0.8998 which is lower than the cut-off value of 0.95 so the model can be accepted at the category of marginal.

4.4. Hypothesis Testing

P-value is used to consider the hypothesis. A requirement in accepting the hypothesis is the p-value of < 0.05. The below table is the summary of the causal relationship result between variables in this study.

Causal Relationship	C.R.	P	Conclusion
Customer Orientation → Product Innovation	4.314	>0.001	Supported
Customer Orientation → Process Innovation	3.589	>0.001	Supported
Competitor Orientation → Product Innovation	2.316	0.0205	Supported
Competitor Orientation → Process Innovation	1.185	0.2360	Not Supported
Product Innovation → Marketing Performance	2.890	0.0038	Supported
Process Innovation → Marketing Performance	3.205	0.0013	Supported

Table 4. Regression Weight for Hypothesis Testing

Based on the table above, it can be seen that the p-value of the first, second, third, fifth, and sixth hypothesis is lower than the statistic value of alpha of 0.05 in which it indicates that the hypothesis are accepted. For the fourth hypothesis, it can be seen that the p-value of 0.236 is greater than 0.05, then the fourth hypothesis is rejected.

5. Conclusion and Discussion

This research is conducted through the sampling of 100 micro, small and medium-sized coconut sugar enterprises from Banyumas, Central-Java, Indonesia. The result of the study shows that the customer orientation has an influence on product innovation. To be accepted by the modern and export markets, firstly, a company has to investigate the product specifications needed by the markets. A company which has a depiction of the product adjusting to the market needs and wants, will create an innovation in form of products meeting the needs of targeted market. The second hypothesis of this study states that the customer orientation influences the process innovation. A company which realizes to the potential of a product will find a way to produce the similar product. The thing they can do is transforming the production process they used to have.

The next result of this study shows that the competitor orientation influences the product innovation. It can be an indicator that the MSMEs have a willingness to compete among the others. When a MSME produces a new product or a different product than they used to produce, it will stimulate the other MSMEs to produce the similar product. The fourth hypothesis on this study tells that the competitor orientation does not influence the process innovation. Considering the competitor with a new product, possibly that competitor will not leak and spread their production process. The results of this study support the previous researches by Han *et al*., (1998), Low *et al*., (2007), and Raju *et al*., (2011) finding that market orientation has a

positive influence on the product innovation of company, but it does not has on innovation process.

Lastly, the study result shows that the product and process innovation can improve the marketing performances. On this context, the MSMEs believe that when they can produce the product with the quality expected by the market; it will increase their profit, sales, and market share. The innovation of company can improve the marketing performances as the result of previous researches by Talke *et al*., (2011), Al-Ansari (2013) and Raju *et al*., (2011).

6. Implication

To enter the modern and export markets, the MSMEs are expected to implement the cultures of market orientation and innovation. The culture of market orientation may be applied in order to know the product standard needed by the market; e.g. in terms of taste, quality, durability, model, and colour. Competitor orientation may be applied by benchmarking the successful enterprises which already entered the modern and export markets. The next step is by implementing the results of market observation either in form of product or process reforms. A company which successfully applies the market orientation and innovation will be able to increase their sales and expand their market including to the modern and export markets.

This research is conducted on micro, small and medium-sized coconut sugar enterprises which are sole proprietorship-company which does not have inter-distribution so that the coordination dimension among the departments in term of market orientation could not be tested. Therefore, the further study needs to do the research on micro, small and medium-sized coconut sugar enterprises which already have departments with the division based on function. Additionally, the further study needs to add the variable of competition intensity as the moderating variable.

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Factors influencing Children Consumers to buy Traditional Snacks

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Abstract

Traditional snacks have cultural values of a society that must be preserved. Today, it has been displaced by modern snacks because of changes in lifestyle in society. This research aims to understand the factors that affecting children consumers in buying and consuming traditional snacks. The location of this research is in the large cities of Java Island which is determined using purposive sampling, namely: (1) Surabaya; (2) Yogyakarta; and (3) Bandung, Indonesia. The consideration is that in the three cities there are many variants of traditional snacks and modern snacks that are available in the market with a large number of teenagers. The method that is used in this research is Structural Equation Model (SEM) using AMOS software. The research result explains that the individual factor and psychological factor of consumer have positive influence on children's attitude in buying traditional snacks. While social environmental, cultural, and marketing strategy factors has a positive influence but not significant toward the children's attitude in buting traditional snacks.

Keywords: consumer's attitude; children; traditional snack; culture.

1. Introduction

Traditional snack is a local identity, history, and lifestyle of a community as a cultural heritage for future generations around the world (Albayrak & Gunes, 2010; He et al., 2012; Nitiworakarn, 2015). Traditional snack has an important function and positive effect on the local development and rural economy, since it encourages producers to grow, especially in small and medium enterprises and also prevents unfair business competition (Arndt et al., 2009; Brown & Chikagbum, 2017; Cavaye, 2001). In some countries, traditional snack demand tends to increase, and this benefits SMEs (Kees & Alberto, 2002; Volpentesta & Ammirato, 2008; Zhang, 2015). Traditional snack needs to be protected and preserved through a special policy because it contains the cultural value of a society (Shen & Tan, 2012). Having cultural values make traditional snacks considered to be an important tool in marketing because cultural values can affect consumer's behavior (Luna & Gupta, 2001; Nayeem, 2012). Each region has a traditional snack that has a high-cultural taste product (Daniele, Elizabeth, & Richard, 2010) for example in Java Island is famous with traditional snacks in the form of arem-arem, wajik, lumpia, gethuk, tiwul, klepon, jenang, serabi and others (Munawaroh, 2014).

To be able to continue the cultural value in a nation, traditional snack must be preserved and protected, one way to do it is to continue to consume and make it the main food in the daily life (Nor et al., 2012). In addition to the sustainability of traditional food, the young generation must also be introduced and accustomed to consume it (Zahari, Mohd Salleh, Sharif, Noor, & Ishak, 2013). Cultural development, along with modernity and social media (Hajli, 2013) provides various influence toward the development and acceptance of traditional snack by the community. Young generation is also consists of children, and they must be accustomed to consume traditional food by teaching them to buy and consume traditional snack. Besides maintaining culture, traditional snack is also healthier to be consumed (Asogwa, Okoye, & Oni, 2017; Tregear, Arfini, Belletti, & Marescotti, 2007) compared to children's modern snack that contain lots of Monosodium Glutamate (MSG) (Ardiarini & Gunanti, 2004; Kristianto, Riyadi, & Mustafa, 2013) or dangerous additives (formalin and borax) (Pratmanitya & Aprilia, 2016). Modern snacks for children which is made by the modern food industry factory in Indonesia have been widely circulated in the community and dominate children's snacks in the market (Tambunan, 2016). Indonesia is considered as potential market of modern snacks since it has a very large population of 262 million people (Statistics, 2017) so that it become a target market for food companies from around the world (Hidayati, 2014).

2. Literature Review

The number of children consumers is continue to grow and experience behavioral change along with social, economic, and cultural developments (Sudiyarto, 2009). Fast changing times are forcing children consumers to adjust themselves to environmental and cultural conditions. One of the factors that affect the attitude of children's attitude in choosing snacks is the influence of television advertising (Kent, Dubois, & Wanless, 2011) and social media (Ioanăs & Stoica, 2014). This confirms

that the market segment of children is a potential consumers (Harris & Graff, 2011).

It is undeniable that currently children prefer to buy snacks for consumption compared to traditional snacks (Lasmini, Febry, & Destriatania, 2013). Thus, in order to keep traditional snacks to not extinct, it is necessary to examine the factors that influence children consumers in buying and consuming traditional food (Pufall et al., 2011). By knowing these factors, it can be used as a force for the preparation of marketing strategy of traditional snacks, so that traditional snacks can be remained and the cultural values contained in traditional snacks remain sustainable. This research aims to analyze children's consumer behavior in buying and consuming traditional snacks and factors that influence it.

Consumer behavior is a concrete action of consumers who are influenced by psychological factors and other external factors that lead them to choose/buy and use the goods/services they want (Stavkova, Stejskal, & Toufarova, 2008; Wijaya, 2005). There are many factors and characteristics that influence decisions in purchasing a product. These factors include cultural factors (cultural trend and social class), social factor (reference group and group membership, family, role, and social status), individual factor (age, education, life cycle, job, lifestyle, economic situation/income), psychological factor (motivation, perception, learning, trust, and attitude), and marketing mix (Al-Gahaifi & Světlík, 2011; Furaiji, Łatuszyńska, & Wawrzyniak, 2012; Rani, 2014; Vainikka, 2015).

Linarda & Sindy (2013; Giantara & Santoso, 2014; Linarda & Sindy, 2013) review the influence of community behavior on traditional food purchase decision from external and internal factors. The external factors is in the form of family, social class, culture, reference group, while internal factors are motivation of perception, attitude lifestyle, personality, and learning.

The research from Yuliati (2011) shows that the personality/individual factor, price factor, promotion factor, cultural factor, motivational factor, distribution factor, and psychological factor affect consumers in purchasing traditional snacks. The most dominant factor is personality in the form of age, education, job, gender, lifestyle, and family. The second factor that is considered in the decision to purchase traditional snacks is the price factor. Prices are a factor that is considered because the price of traditional snack is very suitable with the taste, shape, and size of the product. Traditional snacks are very affordable to be bought. The third factor considered in the decision to purchase traditional food is the promotion factor. The promotion factor consists of advertisements through leaflets, radio, other people, and places of purchase. The fourth factor considered in the decision to purchase traditional snacks is the cultural factor. The cultural factor is consists of Javanese cultural values, a symbol of simplicity, conformity with income and self-confidence, and also self-identity and influence of norms (Kacen & Lee, 2008). The fifth factor that is considered in the decision to purchase traditional snacks is the motivational factor. This motivational

factor consists of variables of knowledge, health, parents' habits, and cleanliness. This means that motivational factors are considered as factors that determine purchasing decisions because of the encouragement of knowledge, health reasons, appropriate or sufficient income, and reasons for hygiene and health (not many chemicals contained in traditional snacks means that it is healthier). The sixth factor considered in the decision to purchase traditional snacks is the distribution factor. The distributionfactor consists of the place of purchase in traditional markets and places that are affordable for the buyer. Distribution is a way to distribute goods to arrive for consumers, and it is still using traditional market and places that are accessible for the buyers. The seventh factor considered in the decision to purchase traditional snacks is psychological factors. Psychological factors consist of the variable of past experience, attitude, and behavior.

H1: Culture has positive and significant effect toward Attitude.

H2: Social environment has positive and significant toward Attitude.

H3: Consumer's individual has positive and significant toward Attitude.

H4: Consumer's psychology has positive and significant toward Attitude.

H5: Marketing strategy has positive and significant toward Attitude.

3. Research Method

This research is located in the big cities in Java Island that is determined using purposive sampling, which is in: (1) Surabaya; (2) Yogyakarta; and (3) Bandung. These cities are chosen to be the research location since they have many variants of traditional and modern snacks in the market. The data that is used in this research are primary data (observation and interview) and secondary data with a sample size of 110 children of primary school age. The analysis method that is used is the analysis of Structural Equation Model (SEM) using the AMOS software (Ferdinand, 2002). The test of validity and reliability shows that all items and variables is reliable and have fulfilled the convergent validity.

4. Result
4.1. Structural Model Test

The test toward structural model is conducted by looking at the R^2 value on the equation between latent variables which is a goodness fit model test. The R^2 value = 0.2697, this means that the model can explain the phenomenon/problem of consumer attitudes by 26.97% while the rest (73.03 %) is explained by other variables outside the model.

Variable/Indicator	Path Coefficient	Sample Mean	Standard Deviation	T- Statistics	Conclusion
Culture (X1) -> Attitude (Y)	0.113	0.135	0.096	1.178	Non-significant (H1 rejected)
Social Environment (X2) -> Attitude(Y)	0.071	0.064	0.086	0.833	Non-significant (H2 rejected)
Consumer's Individual (X3) -> Attitude (Y)	-0.447	-0.464	0.085	5.213	Significant (H3 accepted)
Consumer's Psychology (X4) -> Attitude (Y)	-0.277	-0.277	0.087	3.186	Significant (H4 accepted)
Marketing Strategy (X5) -> Attitude(Y)	0.083	0.085	0.093	0.894	Non-significant (H5 rejected)

Table1. Analysis of Influences between Latent Variables

The result of the hypothesis test as in Table 1 can be explained as follows:

a. Culture (X1) does not have a significant influence toward Attitude (Y), the value of *t-statistic* = 1.178 < the value of $t_{(\alpha =10\%)}$ = 1.65 with the path coefficient of 0.113 (positive). It explains that children in buying traditional snacks are not influenced by the cultural factor.

b. Social Environment (X2) does not have a significant influence toward Attitude (Y), the value of *t-statistic* = 0.833 < the value of $t_{(\alpha =10\%)}$ = 1.65, with the path coefficient of 0.071. It explains that children in buying traditional snacks are not influenced by the social environment in the community.

c. Consumer's Individual (X3) have a significant influence toward Attitude (Y), the value of *t-statistic* = 5.213 > the value

of $t_{(\alpha\,=10\%)}$ = 1.65, with the path coefficient of -0.447 (negative). It explains that the characteristic of children consumer has an influence on their attitude in buying traditional snacks.

d. Consumer's Psychology (X4) have a significant influence toward Attitude (Y), with the value of *t-statistic* = 3.186 > the value of $t_{(\alpha\,=10\%)}$ = 1.65, with the path coefficient of -0.277 (negative). It explains that the psychological factor from children consumer has an influence on their attitude in buying traditional snacks.

e. Marketing Strategy (X5) does not have a significant influence toward Attitude (Y), with the value of *t-statistic* = 0.894 < the value of $t_{(\alpha\,=10\%)}$ = 1.65, with the path coefficient of 0.083 (positive). It explains that the marketing strategy that is chosen by marketer does not influence children to buy traditional snacks.

5. Discussion

From conducted research, it can be known about what factors that can influence children consumersattitude in buying and consuming traditional snacks. The analysis result shows that there are five factors tested, which are cultural, social environment, consumer's individual, consumer's psychology, and marketing strategy.From the factors that is tested, there are two factors that significantly influence the attitude of children consumers in buying traditional snacks, which is consumer's individual and consumer's psychology factors (Table 1).

Children consumers in this research are measured using the indicator of age, education, pocket money, and the frequency of buying modern snacks. Consumer's individual factors has a negative influence on consumer attitudes in buying traditional snacks, so that it can be concluded with increasing age, education, pocket money, and increasing frequency of buying modern snacks, children consumers will have a tendency to reduce the purchase of traditional snacks. In this case, the economic condition has a negative influence on purchasing attitude (Muniady, Mamun, Permarupan, Raihani, & Zainol, 2014).This is because the increase of economic condition, which can be seen by the increase of the pocket money, can prompt consumers to want to get products that are considered more premiums. Modern snacks with packaging are considered to be more premiums than traditional snacks, so that the consumption will be increase.

Other factors that also influence the children consumers' psychology in this research is measured using the indicator of motivation, perception, and knowledge. Motivation is in the form of motivation needs, fulfillment of goals, and the pleasure of buying and consuming modern snacks. Psychological factors has a negative influence toward children consumers attitude in buying traditional snacks, so it can be concluded that the increasing motivation in the form of needs, fulfillment of goals, pleasure, and perception and knowledge of modern snacks will reduce children consumers attitude in buying traditional snacks.

Motivation, perceptions, and knowledge of children consumers in buying traditional snacks are weak because they assume that traditional snacks are classified as old products, besides of the emergence of new modern snacks. The children's knowledge about the types of new snacks of global product is obtained from TV and internet advertisements, so it reduces their interest in buying traditional snacks. Today, children are faced with a modern era where ready-to-eat food (fast food) and modern packaging snacks attract their attention (Gunawan, 2015). This explains that when it is viewed from psychology, children love to buy new types of modern snacks, so their attitudes are negative in choosing traditional snacks, although various types of snacks has a strong appeal to children's psychology to buy and consume them.

Cultural, social environment and marketing strategy factors do not have a significant influence toward children consumers'

attitude in consuming and buying traditional snacks. Even though these three factors do not have a significant influence, each variable has a positive relationship with children consumers' attitude in buying traditional snacks. It can be seen from the result of the path coefficient of cultural factor (0.113260), social environment (0.071754), and marketing strategy (0.083792) that has positive value. Traditional snack is a product from traditions and cultures that have been formed for generations, so that people become accustomed to consume them. Children, as a part of the community, naturally follow the habit of eating traditional snacks or foods that are familiarized by their families. Therefore, children are still influenced by cultural factor in buying traditional food, because they know traditional snacks from their family traditions or the community environment in which they are located (Hatane Semuel, Annette Veronica Kosasih, & Hellen Novia, 2007), despite this cultural influences is not significant because children also know a new culture that is more global and modern. People like traditional food because it suits their taste(Decarlo, Franck, & Pirog, 2006).

Social environment factor has a positive influence toward children's attitude in buying traditional snacks. However, children live in a family and community environment that will influence them in making purchase decisions. Thus, the social environment of families and communities contributes strongly to the choices of children in buying traditional snacks, which they know has the habit of choosing traditional snacks because they are influenced by the habit of consuming traditional snacks by their family or community. Traditional snacks are more preferred by parents because it have become the flavor they have tasted since their childhood (Fonseca, 2008)

From the marketing strategy factor, it is known that it has a positive influence toward children's attitude in buying traditional snacks. The marketing mix strategy that is done by producers or marketers includes: product, price, promotion, and place (distribution) strategy. The marketing strategy of traditional snacks that have done by traditional snack producers is still weak, so that the influence is not significant toward children's attitude in buying and consuming traditional snacks. It shows that the marketing strategy efforts through product mix strategies, prices (Al-Salamin & AL-Hassan, 2016; Rahman, 2014), promotion through advertisement (Abideen & Saleem, 2012), and distribution will influence children's attitude and interest in buying and consuming traditional snacks even though it is not significant because there are other factors that are more influential.

6. Conclusion

Factors that influence the attitude of children consumers in buying and consuming traditional snacks are consumer's individual and consumer's psychology factors with negative influence. As for cultural, social environment, and marketing strategy factors do not have an influence toward the attitude of children consumers in buying and consuming traditional snacks. The findings of this research shows that the internal factor from consumers have a significant influence on attitudes in buying traditiona snacks. Since the influence has a negative impact, automatically when children consumers grow up, the attitudes in buying traditional snacks will be decreased because consumer's individual and consumer's psychology factors experience an increase.

7. Research Limitation and Future Research Agenda

This research is still revealing about the factors that influence the attitude of children consumers trust in buying traditional snacks. While each of these factors is still a major factor that is not deep enough and the dependent factor which

is the attitude of children consumers trust is also a major factor, so it is less detailed for each attribute if the snack product. Therefore, the future research agenda that needs to be done is:
1. Examine the variables that form or support cultural factors, social environment, and marketing strategy that influence the attitude of children consumers trust in buying traditional snacks.
2. Research more about why children's psychology and individual factor have a negative influence toward the attitude of children consumers trust in buying traditional snacks.

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Violence in Healthcare: Management of an Emerging Issue in a Sector with Several Occupational Risks

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Abstract

Violence in the workplace has serious consequences on the health and psychosocial well-being of the worker involved. The risk of suffering violence is one of the many professional risks in the health sector (for example, biological, chemical, physical, biomechanical, ergonomic and organizational). Several studies report that a high percentage of health workers will suffer workplace violence at least once during their professional career. Critical working conditions – such as excessive displacement, poor management and lack of balance between work and private life – can encourage violent and harassing behavior in the workplace. The European Community must guarantee prevention policies and implement measures to protect workers against violence. High levels of stress in the workplace can develop risky behavior; prevention programs must therefore be aimed at making the work environment more convivial. Furthermore, in case of violence, adequate assistance programs must be guaranteed to the victim to manage the consequences of the trauma. The promotion of safer conditions and the prevention of risk factors in the health sector play a key role in improving the quality of work and the health conditions of individual workers.

Keywords: workplace violence; healthcare; prevention; management; organizational psychology.

1. Introduction

Violence in the workplace has become a problem of increasing global interest. The European Community have introduced the term "work-related violence" to define the physical and/or psychological violence related to any accident in which the personnel is the victim of abuse, threats or aggression in circumstances related to their work, including the journey to and from work, implying an explicit or implicit challenge to their safety, well-being and health (Wynne et al., 1997). The health system is particularly affected by the problem of workplace violence. From 2002 to 2013, the rate of serious violence incidents (those requiring days off for an injured worker to recuperate) was more than four times greater in healthcare than in private industry on average. In 2002, the World Health Organization (WHO) provided specific guidelines for managing workplace violence in the health sector (ILO, 2002). After the WHO intervention, the other countries improved their legislation on violence.The National Institute for Safety and Health at Work (OSHA) published in 2015 the "Guidelines for Preventing Workplace Violence for Healthcare and Social Service Workers" to give workers effective tools for prevention and defense against violence in the work environment. OSHA in its document considers both physical assaults and verbal threats of violence (verbal abuse, hostility, harassment and the like) that can cause significant psychological trauma and stress, even if there is no

physical injury. In hospitals, nursing homes and other health facilities, possible sources of violence include patients, visitors and even colleagues (The National Institute for Safety and Health at Work, 2015). On the basis of the relationship between the aggressor and the work environment, violence at work has been classified into three types. In the first, there is no working relationship between the victim and the violent person, who comes from a foreign context with the aim of committing a criminal act (for example, robbery) (Belleville et al., 2012). In the second type, the aggressor is a regular visitor to the victim's place of work even if he is not employed (e.g. health care providers). In the last category the perpetrator is an employee or former employee of the workplace (LeBlanc and Kelloway, 2002). The environment and the nature of work greatly influence the health status of the employee. A review conducted by Van Den Bossche suggests that jobs characterized by frequent computer use, close contact with customers and high time pressure have cases of increasing violence (Van Den Bossche et al., 2012). The literature shows that critical working conditions such as lack of work organization, poor management and poor balance between work and private life can play a fundamental role in promoting violent and harassing behaviors in the workplace. Andersen et al recently showed that a work environment at risk for violence favors the development of burnout syndrome in workers (Andersen et al., 2019). Careful risk assessment and efficient work organization can be protective factors (Di Marco et

al., 2018). Recent changes in the management of the labor market have led to emerging risks in the field of health and safety at work (Arcangeli et al., 2018). Psychosocial workplace risks have been identified as significant emerging risks at European level (EU-OSHA, 2007). The document "Violence and harassment in European workplaces: Extents, impacts and policies" published by Eurofound in 2015 showed that women are more exposed to sexual harassment in the workplace (Giaccone et al., 2015). In 2017 the sixth European Working Conditions Survey (EWCS) highlighted the problem of gender differences and their possible influence on relationships and work dynamics. In the workplace, the phenomenon of gender segregation – for which women are less employed than men – creates inequalities favoring the development of harassment and bullying. The proportion of women victims of workplace violence is slightly higher than men. According to the EWCS the proportion of women subjected to adverse social behavior is slightly higher than the proportion of men (European Working Condition Survey, 2017). Violence makes society more vulnerable to the phenomena of discrimination (Di Marco et al., 2016). Therefore, the European Commission must guarantee adequate policies of prevention and management of violence.

2. The impact of the economic crisis on workplace violence in Europe

Violence and harassment at work are increasingly considered psychosocial risk factors with important effects on individual health and well-being. They are the cause of mental health problems, the fourth most frequent cause of incapacity (COM, 2007). The European Commission presented "A new strategic framework on health and safety at work 2014-2020" for the protection of the over 217 million European workers. This plan identified the main challenges for health and safety at work, proposing the tools and key actions necessary to promote well-being and prevent mental health problems for workers. Epidemiological data show that verbal and psychological aggression (threats, harassment, verbal abuse, bullying, intimidation) are the most reported forms of violence in the EU (Eurofound, 2013). In 2008 the economy suffered the most important crisis since the Great Depression of 1929. This crisis was triggered by a series of changes in the management policies of banks with negative effects on investors. The crisis spread rapidly in Europe and, despite government rescue efforts, the consequences were serious. This scenario negatively affects the individual's perception of their workplace (Giorgi et al., 2015; Mucci et al., 2016). For example, a nurse working in a large hospital can count on the best health and safety protection measures but can be stressed due to the precariousness of her employment contract (Giorgi et al., 2016a). The countries most affected by the economic crisis have experienced higher rates of violence and harassment (Taneja, 2014).

In recent years, also caused by the economic crisis, transfers of healthcare professionals abroad have increased considerably. Therefore, it is necessary to carefully evaluate the aspects related to the presence in the workplace of workers from foreign countries (Giorgi et al., 2016c).

3. Peculiarities of the healthcare sector

Healthcare companies have many occupational risks with potential effects on both health and well-being of workers (Arcangeli et al., 2019). In the health sector, violence against workers is frequent. Statistics show that health professionals will suffer workplace violence at least once during their career. Although risk factors for violent episodes have been deepened and awareness campaigns have been promoted, the rates of violence and aggression have not decreased (Hoyle et al, 2018). Healthcare workers as they work directly with the user are more at risk than other categories. Patients and their families or colleagues become often aggressors with physical and verbal attacks. Aggression has a personal and professional impact with negative economic and social effects. Episodes of workplace violence occur more frequently in emergency departments, nursing homes and psychiatric facilities (Martinez, 2016). In addition to the characteristics of the work it is necessary to consider the characteristics of the healthcare environment. Hospitals are characterized by environmental elements that can favor situations of violence for operators. Examples of possible risk factors are: isolated or poorly lit locations, lack of physical barriers between employees and potential aggressors, especially in highly volatile areas such as the emergency department, lack of effective escape routes and procedures and the availability of devices that can be used as weapons (Workplace Violence Prevention Plans: Hospitals, 2017). The role played by the various health professionals and how they are in contact with the user plays the greatest role. Several studies have reported that nurses are victims of higher rates than other health care providers because they spend more time in contact with the patient (Edward et al, 2014; Spector et al., 2014). Nurses are often the first contact for people's hospital services and routine care. Recently an Italian research group, in the context of the Italian national survey on violence against nurses and emergency nurses, confirmed the previous results and showed that perceptions of physical and verbal aggression by staff in Italy are the same as nurses in the rest of the world (Ramacciatia et al., 2018). Furthermore, a study recently conducted by Garcia and Martial at the University of São Paulo suggests the relationship between health professionals and burnout. As reported, inadequate working conditions and stressful shifts make primary health workers exhausted, causing workplace violence and teamwork difficulties, despite being satisfied with the work environment (Garcia et al., 2018).

Shift- and night-work, both inevitable in the healthcare sector, has emerged as a risk factor for many chronic diseases, including obesity, diabetes, cardiovascular disease, and even cancer (Mucci et al., 2012; Mucci et al., 2016a; Ritonja et al., 2019).

Bullying is increasing in the health sector. In Portugal a large study on bullying among health professionals has recently been produced. The Negative Acts Questionnaire was adapted to the Spanish context and was used to assess the level of bullying. The questionnaire was administered to more than 5.000 healthcare workers through a hospital program and the results were sent anonymously. More of 700 questionnaires were included in the study reporting a prevalence of bullying of 8%. The incidence of bullying was more frequent among nurses and health care assistants. The risk factors for bullying episodes were female sex, shift work, and temporary contracts. Bullying is an aspect of workplace violence to be investigated and evaluated in company policies (Arcangeli et al., 2014; Arenas et al., 2015; Giorgi et al., 2016b; Norton et al., 2017).

The presence of mental health problems among healthcare students may favor the onset of work-related stress. Therefore, preventive and intervention measures should be taken in order to prevent work-related stress in healthcare students during their university career (Jacob et al., 2013; Mennini et al., 2018; Mucci et al., 2014; Mucci et al., 2016b).

Healthcare managers should consider gender and age differences in healthcare settings, with attention to older workers since the working environment can become a platform for implementing active aging strategies (Arcangeli and Mucci, 2009; Mucci et al., 2019)

The health setting is therefore characterized by intrinsic characteristics linked to the type of work and environment that can favor the continuation of episodes of violence with physical and psychological repercussions on the worker. Therefore, it is necessary to implement adequate risk assessments and propose prevention strategies.

4. Risk management and reduction

According to the sixth European survey on working conditions, 16% of workers report having been subjected to acts of violence or sexual harassment with consequences on their state of health and presence at work (Eurofound, 2016). Globalization, demographic changes and technical innovations lead to the emergence of new occupational risks in the field of safety at work (European Parliament, 2008). Workers subjected to high levels of stress and close contact with the user are more likely to be involved in cases of workplace violence than others, regardless of the type of sector. Therefore, preventive measures must be targeted at these vulnerable groups. Workplace violence prevention policies must give precise roles and tasks both to the employer and to those who take care of the personnel and organization of the company. According to Hemaiti-Esmaeili et al. (2018) an effective strategy to reduce workplace violence among nurses is the promotion of educational courses that provide the tools to manage the violent event, the relationship with patients and their families. To protect themselves, workers must be aware of national prevention programs, collective agreements and new legislative measures. Several countries (e.g. Sweden, France, Belgium, Netherlands, Finland, European Agency, 2010) have already promoted these policies. However, in the European Union only a low percentage of companies have instituted procedures or measures to combat violence and harassment. The most up-to-date countries on workplace violence management have preventive policies included in collective agreements or company labor legislation. National laws often give general recommendations without suggesting detailed interventions in the workplace to prevent violence and harassment. The socio-cultural context affects the incidence rates of violence and harassment and may result in omission of case reports (Eurofound, 2013). It is important to implement prevention programs to reduce the incidence and prevalence of violence in healthcare environments. Key strategies for the occupational health include the following: collaborate on policies with the interdisciplinary team that focus on the prevention and response to violence incidents, participate in worksite analyses to identify risks and coordinate with safety leaders to provide the required education for all staff members. It is essential that staff be given release time from patient care activities to attend meetings and conduct another committee work. Interdisciplinary teams with safety leaders that provide education courses for all staff must be offered by the employer and easy to access on the basis of shifts and assistance. An environmental risk assessment must be carefully carried out and the necessary structural and organizational changes must be made. Examples of interventions to reduce the risk of violence in the workplace can be: modification of plans to make exits more accessible, increase lighting in remote areas or outdoor spaces, install mirrors and safety technologies (metal detectors, surveillance cameras or panic buttons), to control access to certain areas (e.g. emergency care, pediatric unit) with locked doors. In case of violence, assistance tools for post-traumatic stress management must be promptly provided to the victim (Mucci et al., 2015). The healthcare company must also provide the victim of violence with a rapid and accessible system to adequately report the event. The events must all be recorded and cataloged to improve prevention and assistance plans for workplace violence (Arbury et al., 2017).

The promotion of health in the workplace is a complementary measure to the more traditional health protection (Pristerà et al., 2012). Its specific objective is to prevent or to modify harmful behaviors at risk for the most frequent chronic diseases (cardiovascular diseases, tumors, respiratory diseases, diabetes, etc.). It assumes a strategic value in the workplace, especially if it is linked to the reduction of additive or synergistic effects on the health of both occupational and lifestyle risks. The main targets of occupational health promotion initiatives in Europe mainly concern actions aimed at current issues for healthcare workplaces, such as tobacco smoking, alcohol consumption, drugs consumption, physical inactivity and vaccinations (Arcangeli et al., 2010; Bini et al., 2018; Flahr et al., 2018).

5. Conclusions

Violence in healthcare has become an important issue due to the high number of cases reported and the negative consequences on the health and quality of life of the worker. More studies are needed to investigate risk factors, the consequences of violence on the well-being of health professionals and to identify forms of prevention and early intervention for victims. Healthcare workers who experienced frequent violence indicated lack of support from hospital administration. Violence in the workplace negatively affects the quality of life of the worker and must therefore be included in the assessment of risks for work-related stress.

Today, there is a strong need that European institutions and companies work together to identify advanced strategies for both prevention and management of violence in the workplace with the following objectives: monitoring and implementing the reporting system, creating and sharing best practices on aggression management and defining training and updating guidelines for employees. Adequate management of the phenomena of violence against healthcare workers requires that the stakeholders implement risk prevention and protection measures according to the following steps: monitor the episodes of violence committed against the health professions, promote studies and analyzes for the formulation of proposals and measures suitable for reducing risk factors in the most exposed environments and monitoring the implementation of prevention and protection measures to guarantee safety levels in the workplace.

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Occupational Noise Exposure and Hearing Impairment among Employees' in Car Service Operations

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Abstract

The starting material for processing of the group was toxicology at the University of L. Pasteur in Košice. The Clinic deals with the diagnostics, therapy and dispensary (follow-up) care of patients with occupational diseases, serious occupational intoxications and other kinds of health damage at work including assessment medicine evaluation. The Department of Process and Environmental Engineering at the Mechanical Engineering Faculty of Technical University in Košice is a workplace, which is well aware of the need of observation, measurement, monitoring objectification and evaluation as well as improvement of the quality of environment. The chair is the place for accredited workplace for the measurement, objectification and evaluation of noise in working and life environment.
The analyzed sample included 51 employees, men of different age and various work qualification (mechanic, auto body repair technician, auto electrician, car painter, vehicle body builder, tire vulcanizer, assistant service driver, warehouseman and locksmith workers) participating in preventive medical follow-up examinations with common aspects of the risk at the workplace which include physical factors such as noise and vibrations. The entry criterion for placement into the group of data was the work at risk and the time period of work at the opera¬tion for at least 5 years. In these persons, we observed age, time period at risk, body mass index BMI and clinical signs associated with the work performed. In analyzing the influence of noise, we based our study on data obtained in audiometric examinations, which the employees underwent within the framework of preventive medical examinations.

Keywords: environmental quality; risk factors; noise; human health; retrospective case study.

1. Introduction

An integral part of the philosophy of sustainable development is the focus on improving the quality of life, especially work life. Work and the workplace are important determinants of the health of an individual and society as a whole. In addition to the positive impact, one's workplace may also have a negative impact, ranging from insignificant changes (professional stigmas) through more severe changes (occupational diseases) to fatal cases.

Despite the fact that scientific and technological developments have in many cases brought about a substantial improvement in working conditions, however, employees are exposed to noise, a variety of pollutants, vibrations, electromagnetic radiation, and the like even today. All of these workplace parameters have a significant impact on people and are therefore regulated by legislation that lists limit values and above limit values regarding individual components of the workplace. In order to ensure optimal conditions, quality measurement technology and sophisticated methods of quality assessment of the workplace are used.

The problems associated with hearing loss caused by noise are among the 10 most frequent occupational diseases that we encounter in the European Union. Decreased hearing sensitivity or deafness caused by harmful effects of noise are among the diseases listed in the European List of Occupational Diseases. Worldwide studies point to the fact that the increase in hearing loss (McReynolds, 2005; Seidman & Standring, 2010; Šolc, 2011; Zhu, Kim, Song, Murphy, & Song, 2009) from noise is alarming, especially among young people.

For a more thorough understanding of this topic, we outline some basic data:

- Noise-induced hearing loss, along with dermatitis and musculoskeletal disorders, is one of the most widespread occupational diseases in Europe (Suchomel, Belanová, & Vlčková, 2007).
- Noise hearing loss has been listed as the third epidemic disease worldwide; it can cause physiological and psychological dysfunction (Buksh, Nargis, Yun, He, & Ghufran, 2018).
- Noise is known to have auditory and non-auditory health impacts (Marquis-Favre, Premat, & Aubrédue, 2005).
- Estimates of the incidence and prevalence of noise-induced hearing loss (NIHL) in different countries vary considerably. It is estimated that one sixth (16%) of the population with hearing loss worldwide is attributable to occupational noise exposure, ranging from about 7% in developed nations to 21% in developing regions (Nelson, Nelson, Concha-Barrientos, & Fingerhut, 2005).
- Hearing loss can severely compromise the efficiency of

workers and their abilities, due to loud noise it is in non-reversible and may lead to lifetime clinical care or permanent dysfunction (Gordon et al., 2017).

❑ 28% of employees in Europe must increase their voice at least half of their working hours above the usual speaking level in order to be heard (corresponds to approximately 85–90 dB). It is estimated that some 39.5 million employees in 25 EU Member States are exposed to such loud work noise that they have to speak with other people in a louder voice at least half of their working time (Nelson et al., 2005).

❑ Men suffer from hearing loss three times more than women. This is a consequence of the historical integration of men into more loud spheres of heavy industry.

❑ Noise exposure is one of the most common health risk factors. Millions of labourer workers worldwide are exposed to sound pressure levels capable of producing hearing loss. This occupational exposure to loud noise can damage the hair cells of the organ of Corti, causing progressive and irreversible hearing loss, a condition known as NIHL. NIHL is a permanent change in the hearing threshold caused by acoustic trauma; it is chronic and characterized as sensorineural, usually bilateral and symmetrical, mild at low frequencies and severe at high frequencies, with typical audiometric configuration (slot-shaped V) in the 6000, 4000, and/or 3000-Hz frequency range, which progresses slowly at other frequencies and reaches its maximum level at higher frequencies within the first 10-15 years of stable exposure to high sound pressure levels. The progression of hearing loss ceases when the exposure to the noise stops, but the damage caused is irreversible. Tinnitus has also been recognized as a high-pitched auditory effect of NIHL (Meneses-Barriviera, Melo, & Marchiori, 2013).

❑ Approximately 7% of European employees believe that their work affects their hearing – that is, more than 13.5 million employees (Lumnitzer, Piňosová, Andrejiová, & Hricová, 2013).

Assessing working conditions is a process that results in an expert statement on the level of health risks posed by factors in relation to the work activities being carried out. The basis of the assessment of working conditions with a possible relation to diseases and health damage is the assessment of potential risk factors, i.e. assessing their level of action via observation, analysis of job contents and procedures, discussing the circumstances and way of carrying out job activities, measuring the harmfulness of factors, load and response of the organism to such factors, as well as aligning findings with regulations, limits and recommended values. It is also necessary to take into account the level of tolerance and the dynamics of the health of employees (Buchancová, 2003; Provazník, 1997, 1998).

1.1. Illnesses and other Occupational Harm to Health in Slovakia 1987-2017

Even now, there are cases of neglect in the area of protecting health against occupational diseases. On the one hand, this is happening with employers who do not comply with legislation and ignore the topic, thus underestimating the risk of illness among their employees. On the other hand, this is due to the employees themselves, gambling with their health in order to keep their jobs, regardless of the consequences.

The method of reporting and recording occupational disease and the threat of occupational disease is defined in the Slovak Republic by Act no. 355/2007 §31b) par. 1 and 2.

Research published by the authors of this publication, based on statistics published on the website of the National Health Information Centre, shows that the number of reported occupational diseases in Slovakia has had a predominantly declining trend since 1987. The most frequent explanation for this decline presented in various publications is increased prevention and increased levels of health and safety at work. However, we would like to argue that there are many other reasons that affect

these statistics. This includes objective reasons (development of employment levels in individual sectors, higher share of sole traders, etc.), but also subjective ones such as people's ignorance, fear of loss of employment, legal awareness or bureaucratic obstacles to claiming compensation. Claiming compensation in respect of an occupational disease is not easy at all in Slovakia. An employee often encounters so many complications in the process of obtaining compensation that he would rather withdraw their claim, if they even know they have a claim at all.
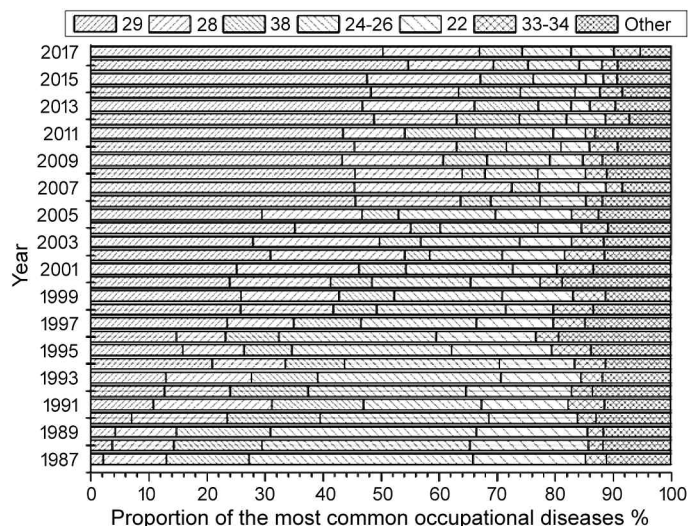

Figure 1. Proportion of the most common occupational diseases in years 2001-2017 in the Slovak Republic

Explanatory note: [29)] Diseases of bones, joints, tendons and nerves of limbs from long-term, inordinate, one-sided workload; [28)] Diseases of bones, joints, muscles, vessels and nerves limbs caused at work with vibrating tools and devices; [38)] Hearing defect from noise by which is reached loss hearing according to Fowler with harm younger as 30 years at least 40 %. Harm older as 30 years then presented level is increased by 1 % each two years until 50 years age of harm person and since that time loss hearing must exceeded 50 %; the other ones are Annex no. 1 to Act no. 461/2003 Coll., on social insurance.
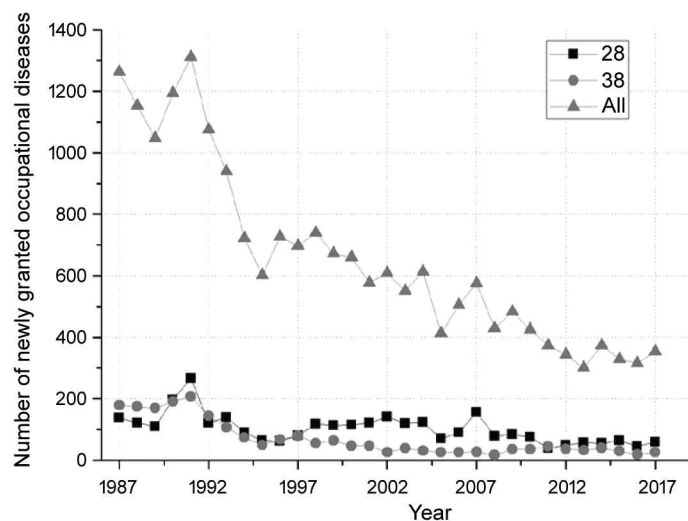

Figure 2. Trends in occupational diseases caused by physical agents in years 2001-2017 in the Slovak Republic

In 2017, 354 cases of occupational disease and workplace poisoning were reported in the Slovak Republic. When prorated to 100 000 workers, 14.0% of occupational diseases were newly acquired and reported. Compared to the situation as of 31.12.2016, the number of reported occupational diseases had increased by 38 cases (12.7%). In this year, occupational disease was most common among workers between the ages of 50 and 59, representing 48.9% of all reported occupational diseases.

Since 1997, upper limb disease from long-term excessive and one-sided loading (item 29) has comprised the highest share of occupational diseases. Upper limb diseases due to vibrations (item 28) have been in second place since 1999. Disorders with hearing impairment (item 38) have been between 3rd and 5th place since 1990.

In 2017, the diseases of the upper limbs due to vibrations were reported in 59 employees, i.e. 16.7% (2nd place) of all reported occupational diseases in Slovakia, while in 2001 this disease had been reported in 122 employees, i.e. 21.1%. Hearing problems due to noise were reported in 26 employees, i.e. 6.0% (4th place) of all reported occupational diseases in the Slovak Republic, in 2001 this had been reported in 47 employees, i.e. 8.1% (Legáth, 2018).

The analysis of occupational diseases and the system of categorization of work in relation to health protection at work in the Slovak Republic and in the Czech Republic has been addressed by the authors in other publications (Băbuţ & Moraru, 2018; Bubeníčková, 2008; Buchancová, Švihrová, Hudečková, Zelník, & Záborský, 2016; Dura, Păun, & Moraru, 2018; Legáth, 2010; Piňosová, Andrejiová, & Lumnitzer, 2018; Šplíchalová & Hrnčíř, 2011).

2. Materials and Methods

Noise is a physical factor that is one of the most frequently occurring negative factors at the workplace and its presence is obvious without complicated proofing. For this reason, we decided to map and assess the negative effects noise have on people at the workplace (Car Service Operations), as well as to determine the influence of the chosen factors on the total hearing loss.

This article presents important elements of the analysis, provides information on its nature, on the sample of employees who are the subject of the analysis, the method of obtaining the data analyzed and the way in which the data were processed. For a better understanding of the context, we also provide information about the environment in which the exposed persons work. From the patient group that underwent the analysis, none of them had symptoms that would show the signs of an occupational disease.

Based on the categorization of the research goals, we conducted a survey sampling. The selected group of persons were employees of the company the scope of business of which is the sale of trucks, commercial vehicles and buses, provision of warranty and post-warranty service, common and general repairs, superstructure installations and mass-rebuilding of vehicles, as well as sales and distribution of spare parts. The main criterion for inclusion in the sample was the time spent at the risky environment – at least 5 years. We studied the following factors: age, time spent working in the risky environment, body mass index, clinical symptoms related to the work performed and hearing loss as determined by audiometric examinations. When analyzing the impact of noise, we used data and information obtained from medical records. When determining the influence of selected parameters on the overall loss of employees' hearing we used basic statistical methods – regression and correlation analysis.

The basis for performing the research was also the results from the measurements and records from the health records of the employees, for whom these measurements were taken. During the taking of measurements, a personal interview was conducted with each employee on the basis of which information was gained about the subjective perception of their state of health, the basic characteristics of their working activity (timeline of employment), the overview of machinery and equipment used, etc.

2.1. Data Collection and Data Processing

The source material for the retrospective case study was medical records of the persons exposed with all the examinations carried out as a part of pre-recruitment, preventive, extraordinary or post-leave medical examinations. The medical examinations were carried out in connection with the performance of their job in the risky environment. When analyzing the impact of noise, we relied on data obtained from audiometric examinations employees underwent as a part of medical examinations. From the obtained data, we created a database that served as a basis for the proposed evaluation methodology. All data is to be found in the table that contains: <u>basic personal information</u> (year of birth, sex, age, height, weight), <u>job information</u> (position, category of work, factors present at the workplace), <u>information on exposure</u> (length of the exposure at the workplace, equipment and tools used by employees), <u>medical history</u> (medical history, personal history, social history), <u>examination results</u> (audiometry), <u>clinical symptoms</u> (health problems such as headaches, tinnitus, irritability, stress and the like).

As was already mentioned, the analysis of the obtained data relied on the data from the audiometric examinations. A Fowler test was used to determine hearing loss (Møller, 1997). We thought that this information would help us create a mathematical equation or a model that we could then apply onto different situations in practice.

2.2. Description of Employees' Activities

The sample was made up of male employees of different ages and different job positions (mechanic, auto body repair technician, auto electrician, car painter, vehicle body builder, tire vulcanizer, assistant service driver, warehouseman and locksmith) who underwent preventive medical examinations due to noise at the workplace. After a thorough analysis and evaluation of the measurement results, the health of employees was in compliance with the Decree of the Ministry of Health of the SR No. 448/2007 Coll. placed into the third category of hazardous work.

The vehicle body builder workshop and mechanical workshop runs on one shift lasting 8.5 hours of which 30 minutes are for a break (during the break employees are not present at the workplace). The work cycle at individual workplaces depends on the kind of repairs performed and the complexity of the faults. Workers in the <u>vehicle body builder workshops</u> perform routine works (workshop K). They work with environment-friendly colours that are made by the state-of-the-art technology directly in the workshop. The works in the <u>mechanical workshop</u> (car repair workshop C and car maintenance workshop D) include repairs of wheels, drive units, gearboxes and other car parts. In the back of the hall, there are warehouses, the head office and the spray box. The workshops are an open space workplace with the free spread of noise. Employees are often affected by noise produced in the adjacent workplaces.

2.3. Results of Measuring Noise in the Workplace

The indirect measurement method was chosen to measure noise. A Norsonic sound analyser was used to measure noise exposure. Evaluation of the noise measurement results consisted of comparison of the measured values with the required values, which are specified, in the relevant legislative regulation (Government Regulation No. 115/2006 Coll., technical standard (STN EN ISO 9612:2010) and Directive (Council Directive 2003/10/EC). Due to the measurement method used, the measuring instrument, the measuring conditions and the experience of the measurers, the measurement was subject to a measurement error of $U = \pm 2.1$ dB. The measurement site, duration of measurement and sample selection were chosen so that the result represented and characterized the exposure of an employee. The location of the microphone was at least 100 cm away from the employee's ear. The sounder was placed on a tripod at a height of 150 cm above the floor level. The measurement was performed during the normal work activity of employees. The durations of exposures are calculated in

accordance with STN ISO 9612:2010.

The main sources of noise in the studied workplace are the equipment of body workshop K (pneumatic pistol, grinder, and glasscutter), forklifts, the employees themselves and handling repaired vehicles. In the mechanical workshop C and D, the main sources of noise are the pneumatic pistol, hydraulic bus jack and running bus engines during repairs.

Control measurements of noise exposure were also perfor-

med in the boiler room and the compressor room. The results of these measurements were not included in the calculation of the workers' exposure, as the boiler is fully automatic and only needs occasional control and the compressor is located in an isolated room where the employees are found only exceptionally.

The accompanying parameters of the microclimatic conditions during the noise measurement are shown in the following table.

Table 1. Thermal-hygric microclimate conditions at the workplace (K-C-D) during the noise measurement

Workplace	Relative humidity rh [%]	Air temperature t_a [°C]	Speed of air flow v_a [m/s]	Atmospheric pressure p_n [hPa]
K-workplace	49.90	25.25	0.11	999
D-workplace	46.70	26.06	0.24	999
C-workplace	43.80	25.80	0.17	999

Sound source	$L_{Aeq,T}$ [dB]	T_e [min.]	$L_{Cpk,T}$ [dB]
forklifts / (**K**-workplace)	84.5-88.8 ±2.1dB	20-60	117.4-120.6
air impact wrench 2440 Nm / (**K-C-D**-workplaces)	98.8-104.7 ±2.1dB	20-120	114.9-127.7
air impact wrench 930 Nm / (**D**-workplace)	95.1 ±2.1dB	20	110.7
air impact wrench 360 Nm / (**C-D**-workplaces)	87.9-98.1 ±2.1dB	20	114.7-118.2
belt sander / (**K**-workplace)	79.1 ±2.1dB	240	97.5
bus lifting when repairing / (**D**-workplace)	79.5 ±2.1dB	20	94.6
starting the bus when repairing / (**C**-workplace)	71.6-72.3 ±2.1dB	300	103.9-98.1
air powered auto glass removal / (**K**-workplace)	96.5 ±2.1dB	20-30	118.1
in-house transport and handling / (**C-D**-workplaces)	69.5-72.3 ±2.1dB	300	90.7-96.1

Table 2. Sources of noise at the workplace (K-C-D)

Explanatory note: $L_{Aeq,T}$ is the notional A-weighted, equivalent continuous sound level which, if it occurred over the same time period, would give the same noise level as the actual varying sound level. The T denotes the time period over which the average is taken, for example $L_{Aeq,8h}$ is the equivalent continuous noise level over an 8 hour period. Exposure Limit Values ($L_{EX,8h}$) = 87 dB(A), Upper Exposure Action Values ($L_{EX,8h}$) = 85 dB(A). T_e is the time a person is exposed to noise during a working day. $L_{EX,8}$ is the sound exposure averaged over 8 hours. $L_{Cpk,T}$ is the maximum instantaneous sound pressure during a measurement. Provides essential information in the assessment of noise induced hearing loss, but should not be confused with the L_{max}.

2.4. Monitoring the dependence of the influence of selected parameters on the overall loss of hearing

In order to determine the interdependence between the selected variables, we used the correlation coefficients (Tab. 3).

When creating a regression model, we focused on a relationship between the variables **"Total Hearing Loss"** and **"Length of Exposure to Noise"**. When determining the impact of the chosen variables on the total hearing loss of employees, basic statistical methods (linear, quadratic, exponential and power regression model) and multiple regression analysis were used.

Table 3. Correlation matrix of the monitored variables

	Age of employee	BMI	Clinical symptoms	Exposure to noise	Total hearing loss
Age of employee	1	-0.094	0.428	0.797	0.611
BMI	-0.094	1	-0.086	0.018	0.042
Clinical symptoms	**0.428**	-0.086	1	0.491	0.647
Exposure to noise	**0.797**	0.018	**0.491**	1	0.734
Total hearing loss	**0.611**	0.042	**0.647**	**0.734**	1

Positive correlation coefficient values indicate positive (direct) linear dependence between the values of selected variables and negative values indicate negative (indirect) dependencies. The analysis shows that there is a significant positive dependence between the variables "Age of Employee" and "Length of Exposure to Noise" (r = 0.779), and between "Length of Exposure to Noise" and "Total Hearing Loss" (r = 0.734). Significant positive dependence is also between the variables "Total Hearing Loss" and "Age of Employee" (r = 0.611). Moderate dependence of variables was found out between the variables "Age of Employee" – "Number of Clinical Symptoms"

(r = 0.428) and "Length of Exposure to Noise" – "Number of Clinical Symptoms" (r = 0.491).

1.) Descriptive Statistics

The sample was made up of employees who meet all the set conditions. The sample included 51 employees aged 23 to 61. The average age of employees who participated in the research was approximately 45 years. The rest of variables (height and weight, length of exposure to noise, number of diagnosed symptoms, total hearing loss) are outlined in Table 4. A graphical representation of data using boxplots is shown in Figure 3.

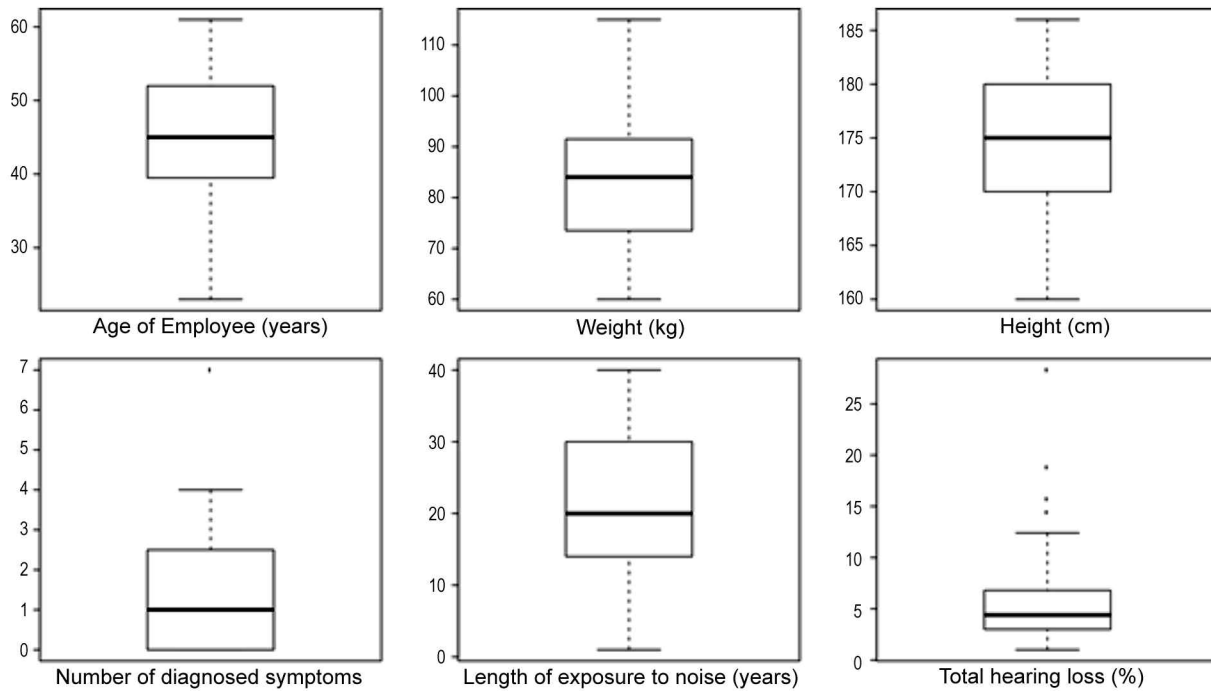|	Age of employee (years)	Height (cm)	Weight (kg)	BMI	Length of exposure to noise (years)	Number of diagnosed symptoms	Total hearing loss (%)
Average	45.04	174.80	83.47	27.30	20.37	1.61	7.710
±SD	±10.05	±6.12	±10.95	±3.66	±11.04	±1.86	±5.081
Max.	61.00	186.00	115.00	38.87	40.00	7.00	29.300
Min.	23.00	160.00	60.00	20.15	1.00	0.00	1.000

Table 4. Values of variables (n=51)

Figure 3. Graphical representation – Boxplots

2.) Linear regression model

Since we wanted to focus on the overall loss of hearing, we examined its dependence on the variable "Length of Exposure to Noise". Both variables are quantitative and interconnected. To estimate the coefficients of the selected regression model, we used the least squares method. The least squares method as a parameter estimation method used in the regression model is very sensitive to the presence of remote values in the sample file. Therefore, we verified the quality of the data in terms of remote and extreme values at the beginning of the regression analysis and well before selecting the regression model. Values that appeared to be remote were removed from the file. Based on the above reasons, the next step of the research only included 39 employees.

In the case of the point estimate linear regression model, the regression function is determined by the equation **H = 0.181 + 0.245·E**, where H stands for "Total Hearing Loss" and E "Length of Exposure to Noise".
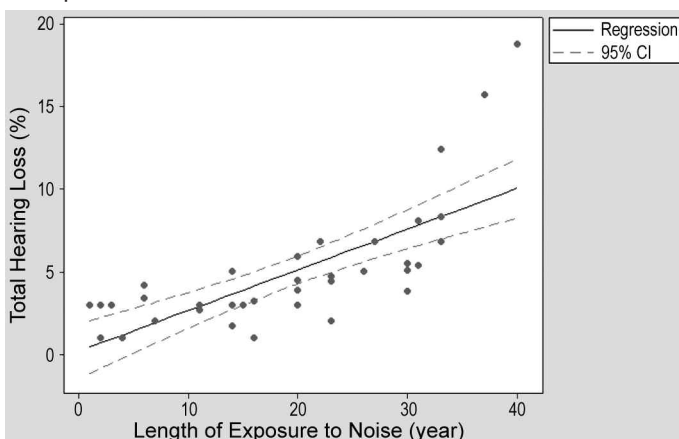

Figure 4. Linear dependence between the Total Hearing Loss and Length of Exposure to Noise

To verify the significance of the linear model, we used the F-test of overall significance of the model. The test results show that the proposed regression model is statistically significant (p-value = $1.08 \cdot 10^{-7} < \alpha$).

The resulting coefficient is 0.54, which means that the model explains only 54% of the total variability of the dependent variable "Total Hearing Loss". Since the remaining 46% variability of the observed variable "Length of Exposure to Noise" is left unexplained by the linear model, it is apparent that there has to be a more appropriate model.

3.) Nonlinear regression model

In the next section of this research, we focused on finding a suitable nonlinear regression model. Based on the graphical depiction of the data flow we can propose three suitable regression models: quadratic, exponential and power. Parameters of all models are estimated using the smallest squares method. Table 5 shows the point estimates of the considered regression models together with the determination index.

Model	Model equation	Determination index
Quadratic	H = 0.014·E² – 0.303·E + 3.557	0.75
Exponential	H = 1.540·e^{0.048·E}	0.60
Power	H = 1.095·E^{0.476}	0.43

Table 5. Nonlinear regression model of the dependence of Total Hearing Loss on Length of Exposure to Noise

The model relevance testing shows that all models are statistically significant. On the other hand, if we compare determination indices, we can conclude that the dependence of the variable "Total Hearing Loss" on the variable "Length of
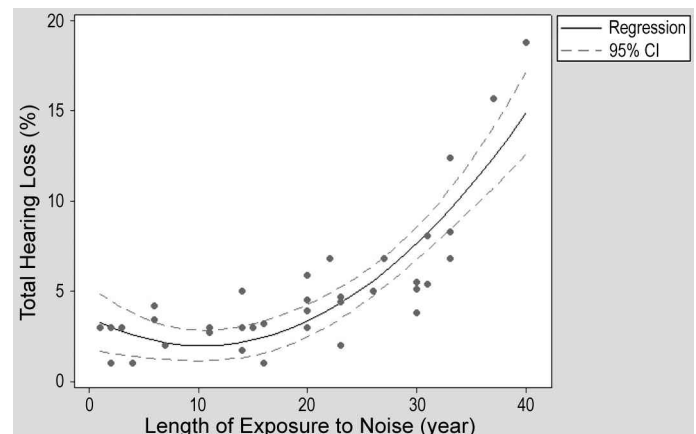

Figure 5. Quadratic dependence between the Total Hearing Loss and Length of Exposure to Noise

Exposure to Noise" is best captured by the quadratic regression model, which explains up to 75% of the variability of the observed total hearing loss (Fig. 5).

We have to point out that a simple regression cannot determine the dependence of the variable "Total Hearing Loss" at the known values of the variable "Length of Exposure to Noise" in a simplified way, because in reality the monitored variable depends also on other variables, like age, job position, overall health, etc.

4.) Multi regression analysis

In the next step of the evaluation, we can express ourselves a relationship between the explicated (dependent) variable "Total Hearing Loss" (H) and the explanatory (independent)

variables "Age of Employee" (A) "Number of Clinical Symptoms" (S) and "Length of Exposure to Noise" (E) a classical linear regression model in the following form. Then the regression model equation is as follows $H = 6.197 - 0.448 \cdot E - 0.135 \cdot A + 0.550 \cdot S + 0.013 \cdot E \cdot A$, where, apart from the explanatory variables themselves, we also take into account the interaction of the variables "Length of Exposure to Noise" and "Age of Employee" (E·A). According to the F-test of the statistical significance of the model, we can assume that the proposed regression model is statistically significant (the value of the test variable is 32.78, the p-value is less than the considered significance level 0.05, p-value = $3.1 \cdot 10^{-11} < α$).

The results (Tab. 6) show that all variables are statistically significant (p-value < α=0.05).

Table 6.
Point estimation
of model parameters

Parameter	Point estimate	Std. error	t-stat	p-value	95% Confidence interval	
					Lower	Upper
Intercept	6.197	2.0412	3.0359	0.0046	2.0486	10.3448
Age of employee (A)	-0.135	0.0566	-2.3794	0.0231	-0.2497	-0.0196
Clinical symptoms (S)	0.550	0.2395	2.2946	0.0281	0.0628	1.0364
Exposure to noise (E)	-0.448	0.1344	-3.3355	0.0021	-0.7213	-0.1751
Interaction (E·A)	0.013	0.0027	4.9190	0.0000	0.0079	0.0189

From the multiple determination coefficient the value of which is 0.794, 79.4% of the variability of the variable "Total Hearing Loss" can be explained by the common influence of all the variables considered. We still have 20.6% variability due to factors not included in the model or other explanatory variables and random effects. Consequently, we need to focus on finding additional independent variables.

The spatial representation of empirical (real) values and theoretical (model) values of total hearing loss depending on the first two variables is shown in Figure 6. Grey marks represent empirical values (values obtained by observing, measuring, and studying the documentation). The black marks represent the theoretical (calculated) values we got from the created model.

Figure 6. Graphic representation of empirical and theoretical values of total hearing loss

3. Conclusion

A health-friendly workplace enables a person to be a full-fledged member of the employment system. Any excessive burden affects his or her physical and psychological state extremely adversely. A comprehensive approach to prevention and health support, including the assessment of occupational risks, is therefore essential. The aim of this study was to analyze the clinical symptoms of employees working at a noise-hazardous

workplace and to examine the dependencies between the variables that, according to our assumption, may affect the overall hearing loss. From the results of the laboratory, examinations and the subsequent experimental assessment it can be stated that the proposed variable "Total Hearing Loss" we have observed can be well explained by the impact of variables "Length of Exposure to Noise", "Age of Employee" and "Number of Clinical Symptoms". On the other hand, it should be emphasized that other variables (e.g. mental status, health, social, work and personal history, job position and the like) may influence the outcome as well.

We acknowledge that in this initial research we worked with an insufficient sample, and that any conclusions are premature. In order to achieve more accurate results, it is necessary to expand the sample. We consider the methodology used in practice to be a pilot project which should serve as a guide for any follow-up projects of the same kind.

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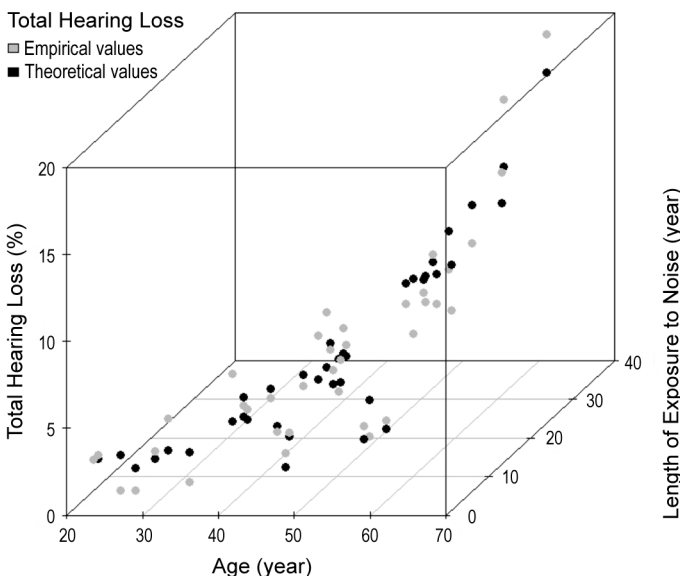
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Effects of Work Environment and Self-Efficacy toward Motivation of Workers in Creative Sector in Province of Jakarta, Indonesia

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Abstract

This research is aimed to examine and analyze the influence of work environment and self-efficacy variables towards work motivation of professionals who work in the creative sector in DKI Jakarta, Indonesia. Based on the initial survey conducted to 30 workers using the 7 items of questions to measure the level of motivation of workers, it resulted that 53.33% of respondents showed a low level of motivation and needed to be improved. This research used structural equation modeling analysis to determine the influences of each exogenous variable on endogen variable for either partially or simultaneously. As an exogenous variable, work environment variables used 3 dimensions which covered 6 indicator questions and for the self-efficacy variables, it used 3 dimension which covered 6 indicator questions. Furthermore, as an endogenous variables, the motivation variable used 2 dimensions with 4 indicators. Results taken based on the structural model analysis that was measuring the influence of work environment against the t value. It is shown that the value motivation is 4.82 and coefficient of 0.32 influences. On the other hand, the analysis results based on the influence of self-efficacy against t value, shown that value motivation 5.14 and coefficient of 0.48 influences. The value of R2 0688 indicates that the work environment and self-efficacy has a positive and significant role that simultaneously affects motivation from workers of the creative sector in the province of DKI Jakarta.

Keywords: work environment; self-efficacy; motivation; creative sector; structural equation modeling.

1. Introduction

Human resources are one of important factors for the organization (Aslam et al., 2015; Tannady, et. al, 2017). If the performance of human resources is getting higher, it will increase efficiency, effectiveness or high quality work in completing each task is charged to the organizational work (Rizal et al., 2014).

Many variables which related psychology of industry is proven capable of affecting the performance of one's organization or business growth and productivity, one of is the motivation of working (Ghaffari et al., 2017; Qatmeemalmarhoon et al., 2017; Robescu & Iancu, 2016; Mensah & Tawiah, 2016; Carraher, Gibbson & Buckley, 2006). Furthermore, motivation has two important insights that are psychological and managerial. The definition of psychological refers to internal mental state of individuals associated with initiation, direction, intensity, persistence and termination of behavior, while managerial definition related with how a manager or leader capable to make conditions of productive organization (Tosi, Mero & Rizzo, 2000).

A number of research studies have proven that there is a positive influence or impact from work environment to motivation and job performance (Andrews, 2009; Vischer, 2007; Vischer, 2008; Vimalanathan, 2013; Samson & Waiganjo, 2015). The first step in improving work productivity of human resources is to create a good work environment (Chavez et. al., 2015). Various research studies have discussed about the impact of the work environment to motivation and job performance on a variety of industry sectors, such as tourism and hospitality (Pawirosumarto, et. al, 2017; Jayaweera, 2015), creative industries sector

(Chavez et. al., 2015), mining industry (Mensah & Tawiah, 2015), education sector (Khan, et. al, 2011; Ali & Bahron, 2013) and financial industry sectors (Samson & Waiganjo, 2015).

Another important variable that can affect the motivation and job performance is self-efficacy (Day & Allen, 2004). According to Singh, et al. (2009) self-efficacy relates to a person's confidence over the ability he has in resolving various problems that in the middle or will face. A number of research studies have been discussed and proved that self-efficacy is an important factor that can affect the job performance of employees in a variety of industries. A study conducted by Mojavezi &Tamiz (2012) examines the influence of self-efficacy towards 80 teachers' performance in 4 different cities in Iran, the research concluded that self-efficacy is proven to affect the performance of the work of teachers. Other study done by Tannady, et al. (2017) examined the influence of self-efficacy towards Transjakartas' driver performance and has the same conclusion with Mojavezi & Tamiz (2012) that there is a positive influence between self-efficacy against the performance of the driver. In addition, there are more studies shown positive results to the influence of self-efficacy against motivation and job performance in the different areas of work and sectors as in the performance of athletes (Schunk, 1995), academic sector (Bandura, 1992 & Zimmerman; Lane, J. & Lane, A. M., 2001; Ahmad & Safaria, 2013), manufacturing industry (Olusola, 2011; Pan, et al, 2011), aviation sector (Setyawaty et al, 2017), and information technology industry sector (Judeh, 2012).

Nowadays, creative industries are facing intense competition and big expectations of the market (Ozimek, 2017). According to

Ricky J. Pesik (Deputy Head of the Agency's Creative Economy) in Indonesia, creative industries is one of the most among many industry which prioritized to create national economic growth. As a developing country (Tannady & Maimury, 2018), Indonesia has gained a good national income contribution from the creative industries. Based on the report of the Agency's Creative Economy (BEKRAF) that released in 2016 shows in the year 2015, creative industries in Indonesia donated the gross domestic income (GDP) amounted to 852.24 trillion rupiah (4.38% compared with last year) or 7.38% of national economy. While the value of creative economy Indonesia export reached $19.4 Billion US. Creative industries are also able to absorb labor in massive quantities. In Indonesia, there are about 16 million people have been working in the creative industry sectors. With such rapid growth of the creative industries in Indonesia, this will demand the higher working performance and motivation in human resource in order to sustain performance and the quality among these industries.

Based on initial survey, which were delivered to 30 creative industry workers obtained the conclusion that 53.33% of workers have low motivation and need to be improved. This survey used a questionnaire asking seven questions to measure the level of motivation of workers in creative fields. The purpose of this research was to examine the factors that affect the work motivation of workers in creative field based several theories and descriptions discussing

On a series of theories and descriptions that have been expressed about the factors that can affect the motivation, work environment and self-efficacy was chosen as variables that can affect the motivation (exogenous variables). These research test and analyze the influence of both endogenous variables against exogenous variables (motivation) both partial and simultaneous.

2. Research Model

The following is the designed research model based on the research paradigm mentioned earlier about how relationships between variables are examined, Figure 1 shows a model of research.

Figure 1. Research Model
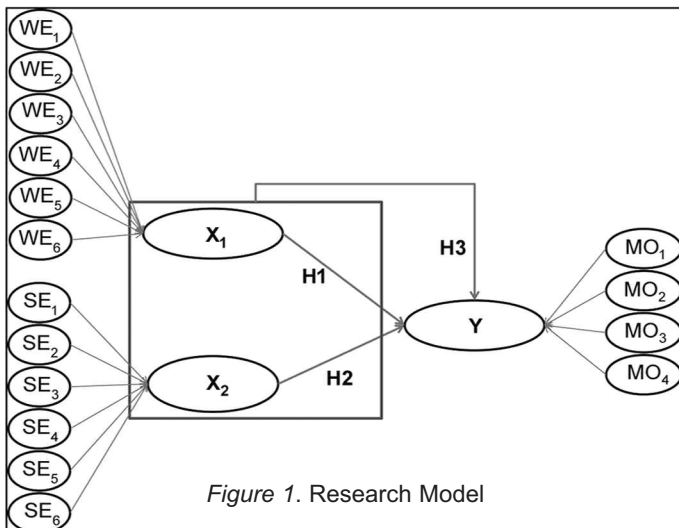
Based on paradigms model that shown on figure 1, then retrieved structure equations as the following $Y = PYX_1 + PYX_2 + e$, where X_1 is work environment, X_2 is self-efficacy and Y is motivation, "p" is line coefficient value and "e" is indicator error value (Hair, et.al., 2010). Referring to the phenomena, theories and concepts that have been discussed as well as the analysis of the model line, then it can be formulated the hypothesis of the research are as follows:

H_1: Work environment influenced motivation partially
H_2: Self-efficacy influenced motivation partially
H_3: Work environment and self-efficacy influenced motivation simultaneous

3. Research Methodology

This research used Structural Equation Modeling (SEM) as a tool of analysis; Sewall Wright (Wright, 1921) first introduced SEM. The SEM has the functions to test and analyze the effect of exogenous variables against endogenous variables by using confirmatory factor analysis (Hox & Bechger, 1999). Endogenous and exogenous variables are examined as the work environment (X_1), also self-efficacy (X_2) and motivation (Y). The variable X_1 uses three dimensions (work facilities management, relationship with colleagues and work atmosphere) and six indicators, i.e. satisfactory working atmosphere, supportive working atmosphere, harmonious relationship, no mutual intrigue, full equipment modern equipment (WE1 – WE6) (Pawirosumarto, et. al., 2017). The variable X_2 uses three dimensions (magnitude, strength, and generality) and six indicators, i.e. the belief in the ability, confidence in the ability to increase the self competence, confidence to follow the development of information and technology, confidence in improving the quality of the work, confidence to solve the difficulties of works, confidence to solve the difficulties of self development (SE1 – SE6) (Bandura, 1977; Bijl & Baggett, 2001). The variable Y uses two dimensions (the motivators and hygiene) and four indicators, i.e. the satisfaction in completing a difficult work, the recognition of the performance results, the pride of the work's status, work certainty factor (MO1 – MO4) (Herzberg, 1959; Omollo & Oloko, 2015). The populations are from the professionals as the main instrument (the owner of creative ideas) and who work in the creative sector (advertising, design, fashion, film, music, and software) (Howkins, 2013) at a company that focuses on creative industries. The sampling technique used was purposive sampling. The determination of the amount of the sample using the method of Hair (Hair, et Al., 2010), which is applied the minimum amount of 160 respondents (10 multiplications 16). The questionnaire was designed by using an intervals measurement scale. For the data quality test, it used the validity test and reliability test and tested to 30 respondents, then were analyzed by using SEM (confirmatory factor analysis, structural model testing and path diagram model of analysis) (Tannady, et. al., 2017).

For the data quality test, the validity test carried out using pearson corelation, where when r count greater than r table, then it can be inferred as a valid indicator, a constructs (variables) are said to be reliable when the value of Cronbach Alpha > 0.6 and constructs multivariate normality assumption can meet when the value of the standard error does not exceed 2.58 (CR < 2.58) (Tannady & Sitorus, 2017).

4. Findings

This section discusses the results of a series of tests that started from the test of the quality of data (validity test and reliability test) and the results of the SEM analysis. By using degree of freedom (df) = n – 2, it is found the value r table is 0361. Parameter of validity test using r count ≥ r table (two tail test with α = 0.05), indicating that the indicators or variables used are correlated significantly with total value of variable. Table 1 shows the results of validity test and reliability test of the entire indicator.

Work Environment (Reliability: 0.884)		Self-Efficacy (Reliability: 0.921)		Motivation (Reliability: 0.873)	
Indicator	Validity Score	Indicator	Validity Score	Indicator	Validity Score
WE1	0.712	SE1	0.724	MO1	0.801
WE2	0.726	SE2	0.643	MO2	0.781
WE3	0.789	SE3	0.785	MO3	0.782
WE4	0.756	SE4	0.644	MO4	0.803
WE5	0.648	SE5	0.791		
WE6	0.674	SE6	0.696		

Table 1. Validity and Reliablity Test Results

All indicators used in the research have passed in validity and reliability criteria. Next phase of data processing is conducting a normality test to determine whether the data has been distributed normally. According to Hair, et al. (2010) a data can be qualified as normality when it has relative multivariate curtosis value that is less than 2.58. Table 2 shows the results of normality test.

Work Environment		Self-Efficacy		Motivation	
Indicator	Normality Score	Indicator	Normality Score	Indicator	Normality Score
WE1	1.96	SE1	1.65	MO1	2.55
WE2	1.74	SE2	-1.63	MO2	1.96
WE3	1.91	SE3	1.71	MO3	-1.95
WE4	2.34	SE4	-1.69	MO4	-1.43
WE5	2.15	SE5	1.82		
WE6	1.74	SE6	2.11		

Table 2. Normality Test Results
Relative Multivariate Kurtosis = 1.574

Based on the information from table 2, it is noted that the relative multivariate kurtosis value is 1.574 (under 2.58), therefore it can be assumed that the variables used in the research have passed within normality. The six indicators of the work environment variable consisted of (WE1 – WE6), six indicators of the self-efficacy variable (SE1-SE6) and 4 indicator from motivational variable has the skewness value lower than 2.58. It can be inferred that the 14 indicators, which are used as the instrument has passed the normality, test. After the normality test, based on the SEM analysis, the next stage is carried out that is CFA (Confirmatory Factor Analysis) analysis. The following table 3 shows the results of the coefficient estimation analysis and t-value of the 2 endogenous variables against exogenous variables.

No.	Indicator	Estimation Coefficient (Standardized)	T-Value	Significance
1	Work Environment	0.32	4.82	Valid[1], Significant[2]
2	Self-Efficacy	0.48	5.14	Valid[1], Significant[2]

Table 3. CFA Measurement Results

Furthermore, the feasibility test models and hypotheses test or line coefficient significance was conducted in order to test whether the research model is adequate by using a sample of data collected. An expectation of the experiments on this test is the decision to accept H_0. Table 4 shows the information about the end result of the goodness of fit test. On research model constructed, there are some criteria used in determining the fit or not on the variables, i.e. absolute fit and incremental fit measurement. Absolute measurement is used to assess the overall suitability of the model, in this study used Chi Square Probability, GFI and RMSEA statistics. While the incremental fit measurement is the measurement used to compare the model produced with another model or base line model. The incremental fit measurement used AGFI, NFI, IFI, CFI, NNFI and RFI.

Parameters	Result	Criteria
X^2 (P)	251.28 (0.0000)	Good fit
GFI; RFI; NFI; AGFI	0.850; 0.819; 0.815; 0.77	Marginal fit
IFI; CFI; NNFI	0.906; 0.928; 0.93	Good fit
RMSEA	0.0768	Good fit

Table 4. Goodness of fit Index of Modified Structural Model

Referring to the analysis of structural model that examined whether there is influence from the work environment towards work motivation, obtained t value 4.82 and coefficients of influence value 0.32. Based on the first hypotheses which has been mentioned earlier, the result shows the hypotheses 1 is accepted. Furthermore. The results of the analysis of the self-efficacy influence towards motivation, obtained t value 5.14 and coefficients of influence value 0.48, thus result indicates acceptances of hypothesis 2. The value of R^2 is 0.688 shows that simultaneously work environment and self-efficacy has a positive and significance effect to increase the work motivation of employees who work in the creative sector in Jakarta, Indonesia.

5. Conclusion & Recommendation

Partially and simultaneously, all independent variables or exogenous discussed in the research have significant influence towards the dependent variable or endogenous, therefore it is advised to the management of the company that owns creative division in Jakarta to contribute further in making a number of policies or rules that related to the attributes of the work environment or the factors that may affect the work environment, such as satisfactory working atmosphere, supportive working atmosphere, harmonious relationship, no mutual intrigue, full equipment, and modern equipment. The company's management also needs to revisit some of the activities or policies of the company in order to improve the factors or the indicators that can affect the creation of self-efficacy on employees, especially those working in the creative sector, such as the belief in the ability, the confidence in the ability to increase the self-competence, to follow the development of information and technology, in improving the quality of the work, to solve the difficulties of work, and to solve the difficulties of self-development. It is suggested for the next research either to use other variables or by using the same variables but with development on the indicators examined. Further research may also use the same variables but by using different object, therefore it can be found a new concept or theory that associated with increased work motivation efforts.

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