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060204 – București, România

Tel: (+40)21-312.97.82

Fax: (+40)21-312.97.83

E-mail: editura@niculescu.ro

Internet: www.niculescu.ro



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Perception and Reality

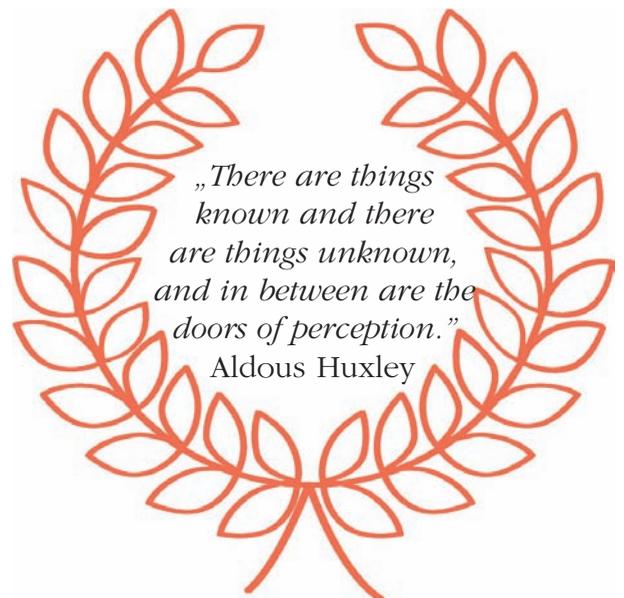
Perception is the way we all interpret our experience. It is a process of receiving, selecting, organizing, interpreting and reacting to stimuli. Having the right perception is a significant skill for any effective leadership. Perceptions of managers, leaders and employees shape the effectiveness of the working performance. The efforts of managers to protect and manage positive images, identities, or reputation of their organizations continue to be essential concerning today.

Perception has long been the object of study of psychologists, defining it as a subjective reflection in people's consciousness of objects and phenomena in reality. People interpret the information, which then influences their behavior. The same event is interpreted differently by people or different categories of people.

By perception, man creates an image of reality. Perception can be individual or collective and reflects both natural aspects (visual, auditory, tactile, time, phenomenal probability, appearance, social status), but also organizational (as seen by the organization inside or outside). Psychologists have found that perception depends on the observer (his previous experiences, his motives, the emotions he has), but also the analyzed entity (the distinction from other entities, the value of the characteristics, the context in which the analysis is made).

Several studies have shown that managers pay more attention to information linked to threats than to those linked to opportunities and linked with the previous knowledge base. The individual cognitive style can affect preferences for information processing decision-making and consequently the result of their decisions. Younger managers struggle to balance the need for results with appropriate concern for the needs of others.

Individuals with less tolerance of ambiguity perceive ambiguous situations as threats. Ambiguous situations are totally new situations, complex situations with a large number of elements. Individual perceptions shape organizational behavior and consequently individual and organizational success. Thus, the managerial perception plays a significant role in the process of organizational adaptation.





Perception is based on prior experience. Different managers will perceive the same thing in different ways. Selective attention refers to the fact that people give some messages priority and put others on hold. If a manager is pressed for time and has to immediately fill an order, then his perceptions will be influenced by these time constraints. Perceptions are influenced significantly by needs and desires managers see what they want to see. This distortion is related to needs and desires. Socially oriented individuals pay attention to interpersonal stimuli.

Managers are often faced with the task of changing their employee's attitude in order to get them to work harder and achieve higher job performance. Managers' ability to change employees' attitudes depends partly on the situation, personality and time. The ability to look far forward is strengthened by the perspective that comes from the past. And the ability to leverage these strengths presents a big opportunity for higher productivity.

The importance of managers' perception, the perception of employees and all stakeholders has led to the emergence of perception management, a process through which human perception is influenced to change behavior. Initially, the management of perception was related to the psychological warfare, then to political propaganda, after which its importance was also seen in the economic environment. Perceptual management influences how entities are reflected or convinced of their ascendant. He creates emotions in order to change behavior in a way that is convenient to his initiators. Due to its effects lately, it is getting more and more attention.

Gheorghe Militaru
Deputy Chief Editor



Dynamic Capabilities as Innovation Sources

Katia Vladova

University of Economics, Varna, Bulgaria

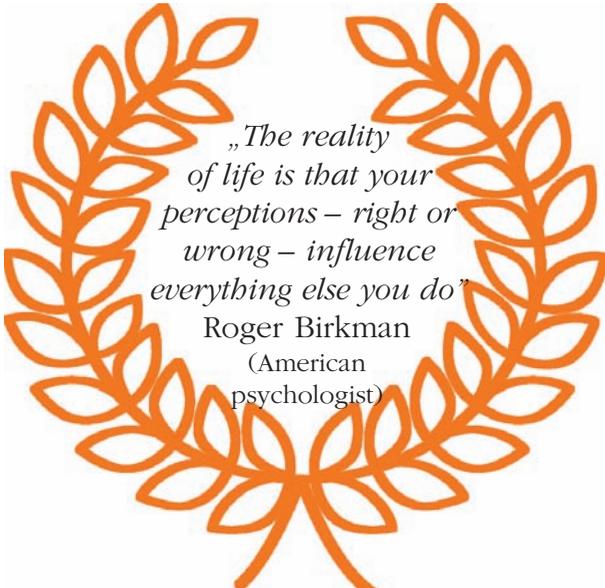
Abstract

The paper aims to examine in detail the specifics of dynamic capabilities and their implications in the tourism industry in Bulgaria. Dynamic capabilities of organizations reveal organizational skills for achieving innovative forms of competitive advantages for sustaining competitive market positions. Innovations in tourism are needed for the future successful performance of organizations as the industry is showing extremely high growth during the last years. The main focus of the paper is the linkage between dynamic capabilities and innovations in tourism organizations in Bulgaria. The paper reveals in more detail the relationship between the term dynamic capabilities and the innovations in organizations. The paper is focused entirely on the tourism industry in Bulgaria as one of the promising and fast-growing sectors.

Keywords: dynamic capabilities, innovations, organizations, tourism industry

Introduction

Innovation activities in the tourism industry are a key issue, given that no effective barriers exist to provide protection from imitation. Firms have to be more active and consistent in their innovative activities. Firms need to renew or update their resources in order to adjust them to the changing environment. Innovations are considered to be sources for competitive advantages for companies. Most academic papers are dedicated to technological innovations and the benefits they produce. This paper focuses on innovations in tourism organizations and applies the dynamic capabilities framework as a coherent framework for



*„The reality
of life is that your
perceptions – right or
wrong – influence
everything else you do”*

Roger Birkman
(American
psychologist)



the integration of existing conceptual and empirical knowledge. The main objective of the paper is to examine the link between dynamic capabilities concept and innovation necessity and apply it to organizations in the tourism industry in Bulgaria. Furthermore, the essence of dynamic capabilities and their relation to organizational competitiveness are examined in more details, and then applied to the process of creating and developing a viable and competitive organization.

The Concept of Dynamic Capabilities

Dynamic capabilities are referred by researchers to a wide range of resources, processes, and capabilities. There are a mixed-use and interpretation of their terminology. The capability is „labelled” as *dynamic* because the firm must continually build, adapt, and reconfigure internal and external competencies to achieve congruence with the changing business environment when time-to-market and product timing are critical, the rate of technological change is rapid, and the nature of future

competition and markets are difficult to determine (Teece *et al.*, 1997). Firms are trying to constantly integrate, reconfigure, renew, and recreate its resources and capabilities, and most importantly, upgrade and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage.

The definition of dynamic capabilities (Teece, 2007) is slightly modified in comparison to the earliest definition of the concept: *„the ability to sense and then seize new opportunities, and to reconfigure and protect knowledge assets, competencies, and complementary assets with the aim of achieving a sustained competitive advantage.* This is consistent with the definition of a dynamic capability (Helfat *et al.*, 2007): *„the capacity of an organization to purposefully extend, create, or modify its resource base”,* emphasizing the intentional or purposeful element in capabilities. In this sense, the dynamic capabilities rely on highly routinized processes which address rapidly changing environments. But dynamic capabilities relate more fundamentally to the ability to sense, seize, and reconfigure (Teece, 2007). A possible effect could be firm performance changes in terms of growth, profits and competitive advantage. Subsequent to investment, dynamic capabilities for recombination and reconfiguration can alter the accumulated asset base of the organization further, leading to an additional effect on firm performance and competitive advantage, and to new positions and paths (Helfat, Peteraf, 2009).

The majority of the research papers focusing on dynamic capabilities are predominantly theoretical and there are few empirical studies that investigate these capabilities in the hospitality industry. This paper tries to elaborate the dynamic

capabilities perspective and test empirically the mediator role played by the dynamic capabilities in the relationship between organizational knowledge and process innovation in organizations in tourism. It is argued that possessions of resources and capabilities will not directly lead to innovations (Nieves *et al.*, 2016). To attain innovative performance, organizations must have an ability to align their resources and capabilities with the environmental opportunities. Dynamic capabilities can be distinguished from operational or common capabilities by their relationship with change (Ambrosini, Bowman, 2009), (Wang, Ahmed, 2007). Thus, whereas common capabilities focus on performing the necessary daily activities to render services, dynamic capabilities would focus on selecting the services to match the changing environment (Nieves *et al.*, 2016).

The Role of Dynamic Capabilities

According to Agarwal and Selen (2009), dynamic capabilities play a vital role in service firms, as they provide a systematic and proactive way to explore new opportunities and anticipate threats from competitors. Verona and Rabasi (2003) also provided evidence that, in order to maintain sustained levels of innovation, firms must develop dynamic capabilities that allow the simultaneous and continuous creation, absorption and integration of knowledge. An empirical study (Zheng *et al.*, (2011) show significant relationships between dynamic capabilities and innovation performance.

Nieves *et al.* (2016) try to advance the research in this field by linking dynamic capabilities with the introduction of innovations in the hospitality sector. As product

innovation is based on an external approach and their paper proposes that it requires both an environmental orientation and the ability to take advantage of the opportunities that this environment offers, that is sensing and learning capabilities. On the other hand, process innovation has a predominantly internal focus. Therefore, it can be enhanced by a firm's ability to combine and integrate individual internal inputs into a new collective logic of interaction through integrating and coordinating capabilities.

One mechanism through which organizations in tourism can cope with ongoing challenges is through the development of creativity and innovation within the industry. Building and managing innovative capability structures is a determinant for sustainable growth and competitiveness (Walsh *et al.*, 2011, p. 23). The authors specify that innovation is defined as an outcome-oriented measure, while innovativeness is recognized as a contextual variable representing the firm-level orientation towards innovation. Furthermore, the authors propose the following definition:



Innovativeness is an organization-wide dynamic capability indicated by absorptive capacity, cultural willingness, propensity, receptivity, market responsiveness, commitment, intention and technological capacity, which stimulates innovative activity propelling the organizations to engage in risky behavior and rapidly incorporate change in business practices through the early creation and/or adoption of new ideas, consequently enhancing innovation and business performance and ultimately delivering a competitive advantage. In this view, the innovativeness is considered as a dynamic capability that drives a firm's competitive advantages by means of converting and reconfiguring organizational strategic resources in response to changing market conditions and environmental turbulence and instability (Teece *et al.*, 1997).

Innovation in Tourism Sector

Tourism is a dynamic and highly flexible industry, therefore the ability to „orchestrate changes”, build new capabilities,

transform the asset base and reconfigure processes is crucial for competitiveness. (Teece *et al.*, 1997). An innovative firm that has the ability to be nimble, to change quickly and be alert to changes in the environment can apply its dynamic capabilities sooner and more strategically than its competitors, and will be better able to adapt more quickly and easily to changing market conditions, creating competitive advantages (Eisenhardt, Martin, 2000). This is due to the fact that a more innovative capable organization has the ability to build and deploy distinctive resources faster than others (Winter, 2003). So, the innovativeness characterized by a high degree of organizational flexibility and the active and effective implementation of new organizational strategies and practices enhances productivity and enables firms to match their resource base to the requirements of a rapidly changing business environment (Walsh *et al.*, 2011).

Tourism is a crucial factor for the Bulgarian economy and the contribution to the GDP product is significant. According to the official data published by the National Statistical Institute, the increase of the number of foreign tourists to Bulgaria around 12% yearly until 2003 has been changed by a progressive decrease of the growth trends on the incoming segment. Nevertheless, since 2016 there is a very positive trend and the industry is booming. During the analyzed period the number of visits of foreign tourists (incoming touristic segment) varies around 4 Million. Regarding the percentage increase of the visits in comparison to the previous year, it is between -20% and +20%. On the other hand, the outgoing segment of the tourism market in Bulgaria shows a sustainable positive development. The average contribution of tourism to the GDP varies about



10-12 % in the period from 1999 until 2016. The competition is quite intensive and organizations in tourism strive for excellence to attract clients and retain market positions. The tourism industry is extremely susceptible to environmental changes, with the entire industry facing currently strong competitiveness challenges.

Based on the definitions of dynamic capabilities stated above we provided an empirical study among selected hotels in Bulgaria. According to the official data (STA 2017), NSI (2017), in 2017 the total number of the accommodation establishments is over 3100; the tour-operator and agents operating legally in Bulgaria are over

2800 registered tour-operators. As the summer tourism in Bulgaria contributes currently up to 70-75% of the total revenues of tourism, our focus will be predominantly on the accommodation establishments (category 4 and 5 stars local rating) in North-East (263 hotels and others) and South-East (374 hotels and others) regions. The total number of all accommodation establishments (category 3, 4 and 5 stars local rating) in Varna, Dobrich, and Burgas is 570. We have focused on these 3 cities as there are – with a total number of 359 hotels and other accommodation establishments (Table 1).

Table 1 – *Business activity of the Bulgarian touristic resorts* (January – December 2016)

Resorts	Accommodation establishments ³ - number	Bed-places - number	Available bed-nights - number	Nights spent - number		Arrivals in accommodation establishments -		Revenues from nights spent-levs	
				Total	Of which: by foreigners	Total	Of which: foreigners	Total	Of which: by foreigners
Albena	36	16679	1903643	1340806	1085171	233730	170047	74547742	59860230
Borovets	30	4916	1534931	470153	204480	163811	49518	17643173	8462273
Dyuni	5	3450	455799	321893	293049	38769	34663	18295106	16356686
Zlatni piasatsi	112	40519	6828630	3811308	3531075	648791	575061	200399743	190678422
Pamporovo	50	5471	1349666	342053	84284	115690	20251	12298880	3860735
International Youth Centre Primorsko	3	1254	130328	81507	51895	10184	4556	2376172	1776745
Sv. Konstantin i Elena	55	9104	1850287	639185	398549	117159	61569	31203533	22563072
Slanchev briag	161	60849	8226414	5179797	4855644	789184	715686	266001450	253308125
TOTAL	452	142242	22279698	12186702	10504147	2117318	1631351	622765799	556866288

Source: NSI (2017)

Our case study is based on a longitudinal research of the most successful hotels located the majority of the summer holiday resorts in Bulgaria – Albena, Golden Sands, St. Constantine and Helena, Sunny Beach, Dyuni. Moreover, we have structured our observations on these hotels in the time period 2000-2016, highlighting the year of construction or reconstruction, privatization, total number of rooms, general facilities, advantages and disadvantages

of the hotel product, franchise contract (if any), long-/short term contracting relationships with a specific tour-operator/group, clients' approval/disapproval.

Results and Discussion

Dynamic capabilities are not in themselves a source of long-term competitive advantage. They reveal the means of achieving resource configurations that provide



an advantage. This suggests that dynamic capabilities are simply processes and therefore does not lend us further understanding of the distinction between dynamic capabilities and processes. Dynamic capabilities create resource configurations that generate value-creating strategies. Their advantage lies in applying them before their competitors and rivals. Actually, there are authors, who assert that dynamic capabilities are only identified where there is a sustained competitive advantage (Priem, Butler, 2001). Thus, to say a firm has a sustainable competitive advantage is similar to saying a firm has a dynamic capability (Arend, Bromiley, 2009). Winter (2003) proposed that clarity is served by breaking the link between dynamic capabilities and competitive advantage. Helfat (2007) also supports this idea. This post-success identification is problematic as it infers dynamic capabilities are a construct only for successful firms. It may even be proposed that dynamic capabilities do not guarantee success or survival. (Zahra *et al.*, 2006).

The current environment is changing constantly and market dynamics influence the decisions of hotel owners and man-

agers regarding overall firm strategy and dynamic capabilities. About 20 years ago with the start of the privatization processes of the state-owned hotels in Bulgaria, emerged slowly the market dynamics in the sector. Competitiveness and firm/hotel performance were determined mainly by the long-term relations with a German and/or British and/or Scandinavian tour-operator. Advanced payment agreements by the tour-operators guaranteed future accommodation of the end clients and strictly keeping the rules and requirements about hotel quality standard and services. At the same time, Bulgarian hotel owners and top management teams received valuable and up-to-date know-how and gradually changed their hotel routines.

Collaboration with Europe famous hotel chains such as Iberostar, RUI, LTI, Primasol, SOL/Melia, Hilton, etc. proved that particular capabilities can be developed based on hotel/firm-specific processes (such as integration, reconfiguration, renewal and recreation of resources) and common features among hotels (such as adaptive, absorptive and innovative capability). The year-long cooperation with these established hotel chains was a strong drive for hoteliers to create own standards and apply own hotel brands on the market. Currently one of the biggest threats for the Bulgarian summer holidays hotels is the short season and the shortage of qualified and motivated staff. The hoteliers have to adapt and optimize the performance in order to respond to the changing conditions.

Conclusions

Recent arguments in the dynamic capabilities literature suggest that firms need to develop skills in both internal development and external sourcing to be able to

renew their capabilities and thrive over time. Although we have a growing understanding of the conditions under which internal development and external sourcing are most appropriate, questions remain concerning the nature of such contingencies and firms' ability to select modes of sourcing new capabilities. It is still under-examined the extent to which firms' ability to select appropriate modes of capability sourcing, and thereby form coherent portfolios of internal and external sourcing projects, improves their ability to create new capabilities and to survive in dynamic environments. Dynamic capabilities are imitable, can be developed through multiple learning paths, and have commonalities across firms and industries. The development of dynamic capabilities reflects management's ability to demonstrate timely responsiveness and rapid innovation and to effectively coordinate and redeploy internal and external resources or competencies based on managerial and organi-

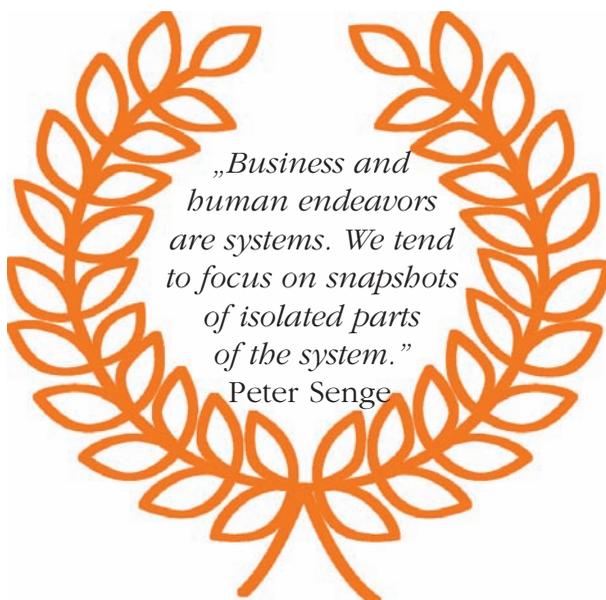


zational processes, market positions, and path dependencies. In summary, the key contributions of the paper are the empirical findings as well as the application of the selected theoretical concepts of dynamic capabilities and their link to innovations on a firm-level in the specific industry of Bulgarian tourism.

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Perception of Risk Management

Titu-Marius Băjenescu

La Conversion, Switzerland

Abstract

The management of risk is central to the livelihood and success of all organizations. The spectacular technological advance and the increasing complexity of emerging socio-technical systems seem to be taking a step ahead of the available means of assessing the operational safety and, more particularly, those relating to the evaluation of the security of systems.

Keywords: risk, hazard, risk identification, risk analysis, fuzzy logic

Introduction

All activities of an organization involve risk; organizations manage risk by anticipating, understanding and deciding whether to modify it. Throughout this process, they communicate and consult with stakeholders, and monitor and review the risk and the controls that are modifying the risk.

We all face all kinds of risks in our everyday life; if you went to work, if you used public transportation or drove a car if you decided to publish a book, you took a risk. All societies worldwide face choices and decisions about how to adequately confront risks – central question for policymakers, academics, industrialists and for everyone. This because the future cannot be predicted. Some of you might argue that safety – in other words, the strive for a decrease of uncertainty about negative risks – is expensive, but an accident is even much more expensive, very likely to be huge in comparison with what should have been invested as prevention.



Nowadays, the management of risk is a decision-making process aimed at achieving predetermined goals; it is a proactive and reactive approach to accident and loss reduction. Risk has a positive and a negative side, and – in general – we try to

manage risks with possibly negative consequences. Human needs and wants for certainty; Maslow (figure 1) discerned five classes of human needs according to their importance (Maslow, 1943).

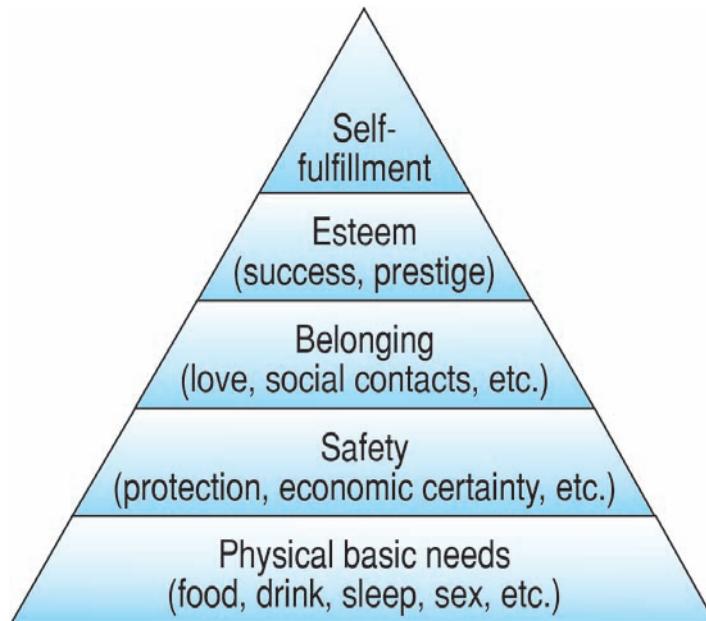


Figure 1 – Maslow's hierarchy of human needs
(Source: Maslow, 1943)

Many different schemas have been developed to depict the structure and process of risk management. We prefer to adopt a cyclical view (figure 2); here the cycle emphasizes the importance of feedback to the extent that the starting and finishing points for risk management merge.

Theoretical Aspects of Risk

Many organizations with traditional risk management programs included hazard identification, safety and loss control, workers' compensation, insurance procurement, self-insurance administration, claims oversight and contractual risk transfer as key functions.

- (A) Risk: an uncertain event or condition that, if it occurs, has a positive or negative effect on a project objective (PMI, 2000, p. 127).
- (B) Risk: an uncertain event or set of circumstances that, should it occur, will have an effect on the achievement of the project's objectives (Simon *et al.*, 1997, p. 16).
- (C) Risk = Consequences + uncertainties (Terje, 2012).

We note that some Academics distinguish between risk and uncertainty as first defined by Knight (1921), as randomness with known probabilities (e.g. probability of throwing a six on a die) whereas

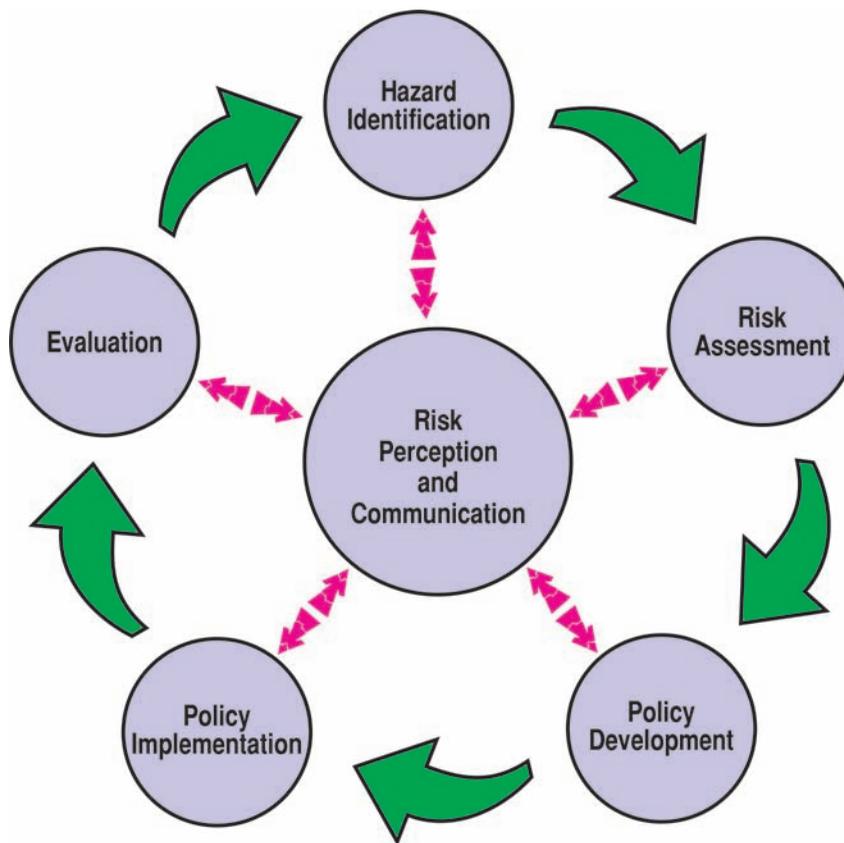


Figure 2 – Risk management cycle

(Source: Gerrard, Petts, 1998)

uncertainty is randomness with unknown probabilities (e.g. probability of rainy weather).

The notion of risk is defined in different ways, not only from one field of study to another but also within the same field.

Simplistic definitions, such as „risk is the probability of a downside risk event multiplied by its impact”, may have their value in special circumstances; but it is important to face the complexity of what project risk management is really about if real achievement is to be attained when attempting to manage that risk (Chapman, Ward, 1997).

A risk factor is defined as a condition in the project’s internal or external environment that influences the likelihood of an

adverse outcome occurring. It can, therefore, be interpreted as something that „is”, whereas a management mode is an activity, a process and therefore can be interpreted as something that „is done”.

A change in perspective in the production of risk information is also required: from measuring risk as an objective externality that can be reduced towards understanding risk as both an opportunity and a threat, and towards improved identification and estimation of the causes and consequences of risk generation and accumulation.

The risk is made up of two parts: the probability of something going wrong, and the negative consequences if it does. Risk can be hard to spot, however, let

alone prepare for and manage; and – if you are hit by a consequence that you

hadn't planned for – costs, time, and reputation could be on the line.

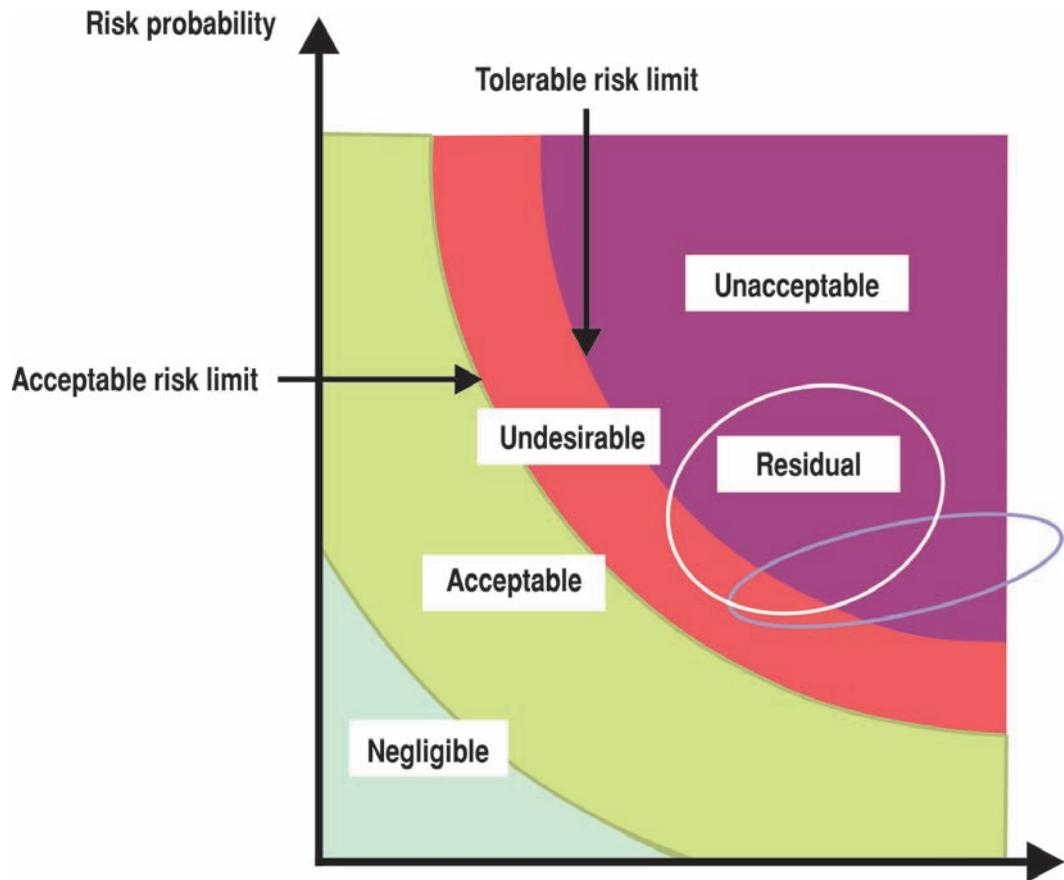


Figure 3 – Risk classification
(Source: Mohamed-Habib, 2008)

This makes risk analysis (figure 3) an essential tool when your work involves risk. It can help you identify and understand the risks that you could face in your role (figure 4); in turn, this helps you manage these risks, and minimize their impact on your plans.

Figure 5 illustrates the increasing rigor of risk analyses possible as the scope of the study becomes more focused on specific accident scenarios. Note that as risk studies become more focused and detailed, the cost per scenario analyzed increases; but the overall cost may decrease if only a

few representatives or bounding scenarios are analyzed.

A *residual risk* is a risk that remains after the various possible measures have been taken. An *unacceptable risk* is an unacceptable residual risk.

The five main risks encountered are:

- pure risk (insurable or not, and not necessarily exogenous in the presence of moral hazard);
- market risk (changes in commodity prices, exchange rates, yields);
- credit risk (probability of default, recovery rate);

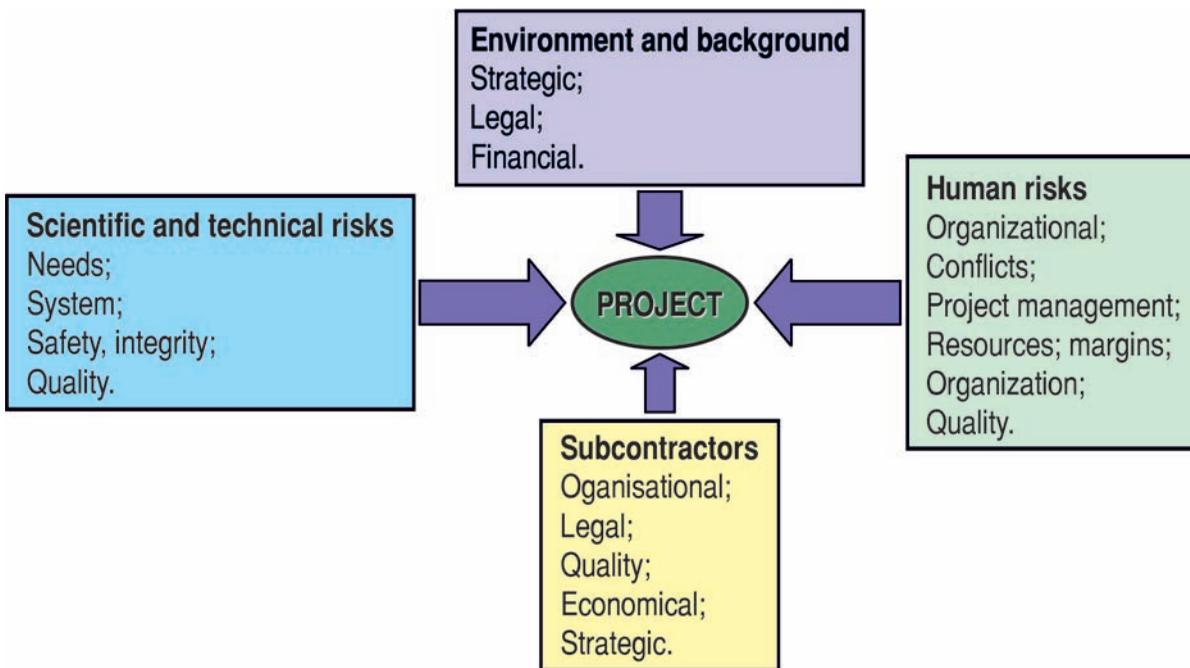


Figure 4 – Identifying risks

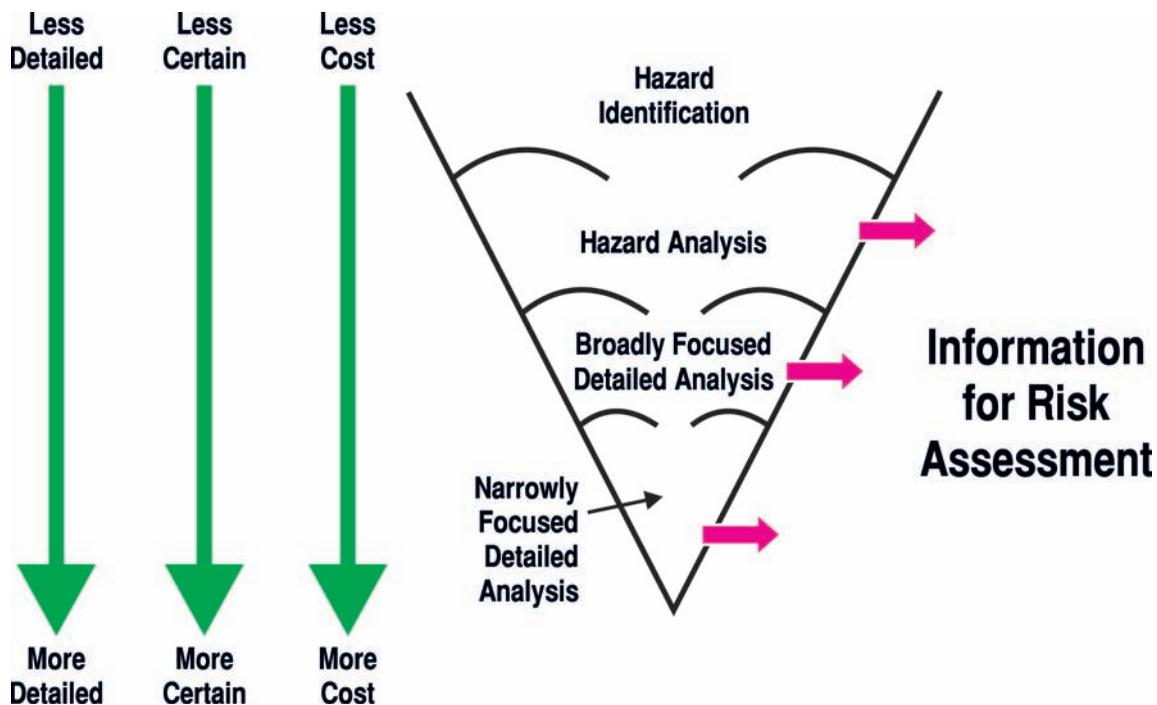


Figure 5 – Levels of hazard evaluation and risk assessment

(Source: AIChE 2006)

- operational risk (personnel errors, fraud, computer system failures);
- liquidity risk: the risk of not having enough funds to meet short-term financial obligations without affecting prices. Often, assets must be liquidated at a discount to obtain liquidity. May degenerate into a risk of default.

Risk Identification is the first step in risk management for construction projects. Considering that for a typical industrial facility 10% to 15% of the total cost is for

engineering design and 50% to 60% is for equipment and materials, it is obvious that obtaining the equipment and so it can be concluded that – if the procurement process is successfully managed – a great deal of the success of the project can be achieved and successful management of the process include the development of a clear policy to materials at the lowest possible cost will provide the greatest savings manage it (Simon *et al.*, 1997), including management of potential risks through it (Figure 6).

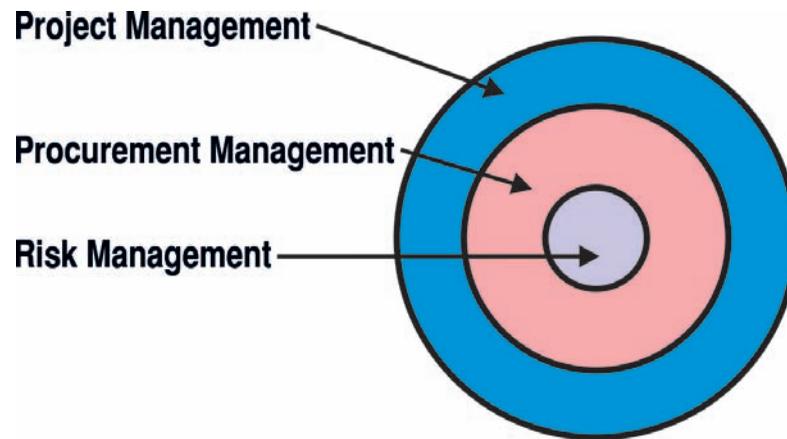


Figure 6 – Relation between project, procurement and risk management

Risk Measurement is a thriving area of research. A current area of interest is to find satisfactory methods of modeling dependencies between stocks other than by copulas and correlations. Alternatively, there is much interest in finding copulas that can meaningfully capture dependency behaviors. Another area of risk measurement research is dynamic risk measurement. This involves measuring risk in continuous time, rather than applied to a static distribution.

Probabilistic Risk Assessment PRA or probabilistic safety assessment (PSA) and deterministic approach along with comprehensive considerations of uncertainty

and human factor provide the basic framework for a holistic risk-based approach. Other methods – such as hazard and operability analysis (HAZOP) and failure mode and effect analysis (FMEA) are also used to derive risk insights in support of design and operation evaluation in industry.

Risk Analysis. It was only in the 1950s and 1960s that researchers (Markowitz, 1959), (Treyner, 1962), (Sharpe, 1964), (Lintner, 1965), (Mossin, 1966) began fundamental work on risk. Risk management became a corporate business in the late 1990s. In 1990, Sharpe, Markowitz and Miller were jointly awarded the Nobel

Prize in Economics for their contribution to financial science.

Risk analysis is a process that helps you identify and manage potential problems that could undermine key business initiatives or projects. To carry out a risk analysis, you must first identify the possible threats that you face, and then estimate the likelihood that these threats will materialize.

Risk analysis can be complex, as you will need to draw on detailed information such as project plans, financial data, security protocols, marketing forecasts, and other relevant information. However, it's an essential planning tool and one that could save time, money, and reputations.

Risk analysis (figure 7) is useful in many situations:

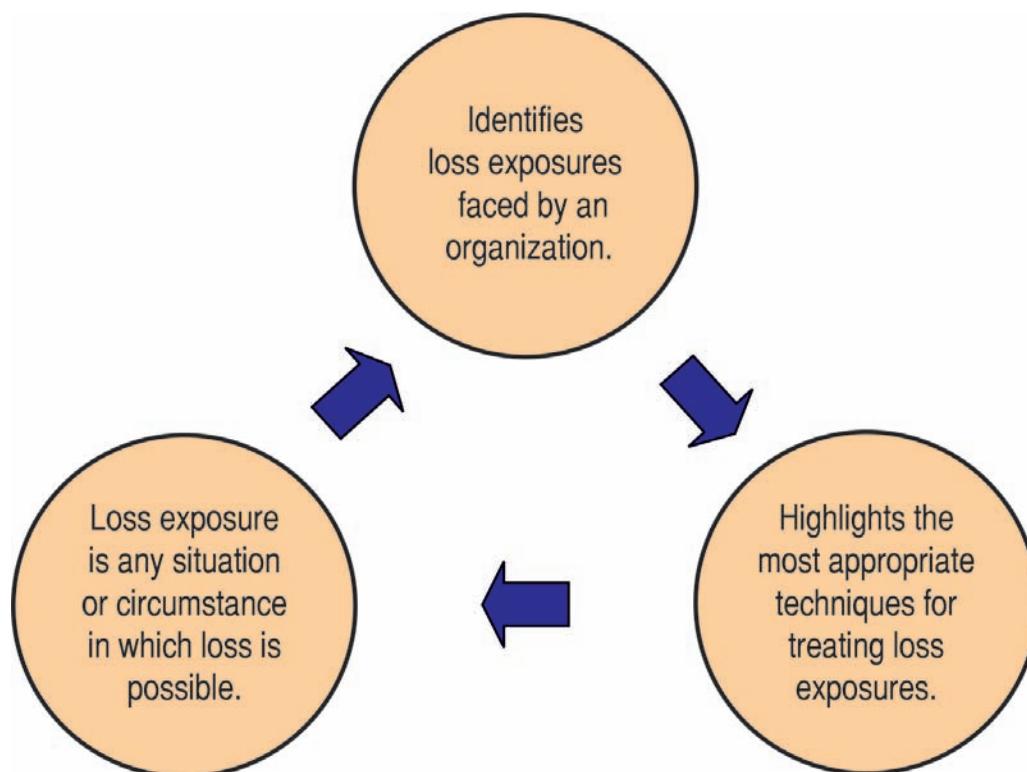


Figure 7 – *Risk analysis*

- When you are planning projects, to help you anticipate and neutralize possible problems.
- When you are deciding whether or not to move forward with a project.
- When you are improving safety and managing potential risks in the workplace.
- When you are preparing for events such as equipment or technology failure, theft, staff sickness, or natural disasters.
- When you are planning for changes in your environment, such as new competitors coming into the market, or changes to government policy.

Modern risk analysis has its twin roots in mathematical theories of probability, and in scientific methods for identifying causal links between adverse health effects and different types of hazardous activities (figure 8).

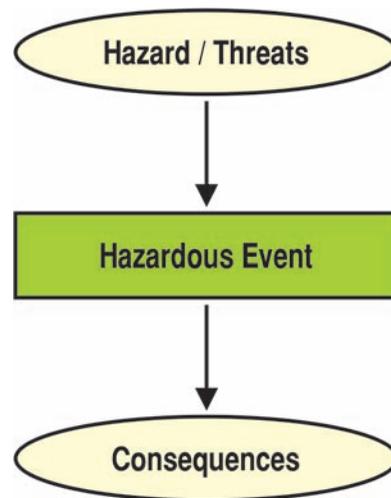


Figure 8 – *Hazardous event*

Researchers throughout history have relied principally on methods of observation to unravel these links. The most basic form of such methods and the most universally practised is experience based on trial and error. Since primitive times, human beings have upon occasion simply undertaken a new activity of interest (e.g., tasted a strange plant or launched a new boat) and have observed the adverse effects, if any. A slight variant of this method has been to distance oneself and conduct the experiment on a surrogate (e.g. feed new foods to animals). On a more complex level, researchers have used both indirect observational methods (i.e., methods that seek to establish associations or cause-effect relationships through the observation of adverse health effects in clusters of cases). Although the early researchers in this tradition did not adhere to the rigorous scientific and statistical standards of modern epidemiological studies, the historical record is replete with examples.

Risk Management

The purpose of risk management is to create a reference framework for compa-

nies in order to deal effectively with risk and uncertainty. Risks are present in almost all economic and financial activities of companies. The process of risk identification, assessment and management is part of the strategic development of the company; it must be designed and planned at the highest level – the board of directors. An integrated approach to risk management must assess, control and monitor all risks to which the company is exposed (figure 9).

Generally, a pure risk is a combination of the probability or frequency of an event and its consequence that can be positive or negative. It can be measured by deviation (or volatility) from mathematical expectation or expected outcomes. Uncertainty is less precise because the probability of an uncertain event is often unknown, as is its consequence. In this case, we will speak more of *precautionary* activities than of *preventive* activities to protect ourselves from uncertainty. Finally, there are speculative risks, which consist of undertaking opportunistic activities in relation to future risks.

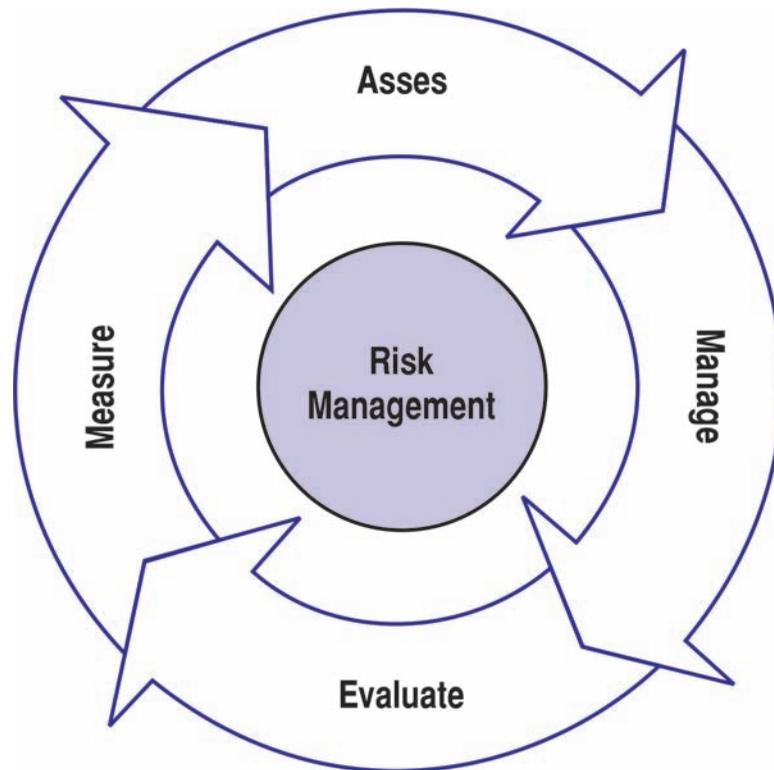


Figure 9 – *Risk management*

Many different schemas have been developed to depict the structure and process of risk management. We prefer to adopt a cyclical view; here the cycle emphasizes the importance of feedback to the extent that the starting and finishing points for risk management merge.

There is also a growing recognition that risk is more complex and systemic than it has ever been; the complex nature of risk is making it much harder to identify, manage and control. There are continued threats of terrorist attacks, which themselves tend to heighten everyone's awareness of the larger, but perhaps more remote, risks we have to deal with and often feel that we can't.

„Risk management is the process for identifying, analyzing, and communicating risk and accepting, avoiding, transferring, or controlling it to an acceptable

level considering associated costs and benefits of any actions taken” (H.S., 2010).

Risk management has become elevated because society is more worried about the downside of risk, and managers are worried about appearing to be reckless and irresponsible in running in operation. Managers feel that, if a mistake were to happen, they would be unable to put their side of the story. Better to be safe than sorry. Senior managers, therefore, have new demands today – demands for information and assurances about risk. As a result, corporations have overseen an unprecedented number of initiatives under the risk management umbrella (Holms, 2002).

Risk management will not preclude adverse events from occurring; however, it enables to focus on those things that are likely to bring the greatest harm, and



employ approaches that are likely to mitigate or prevent those incidents.

The major goal is to realistically understand the available engineering margins and associated uncertainties to meet safety and availability goals and make these systems more sustainable. Even though the deterministic approach is time-tested and worked well for all these years, it has some limitations. It is conservative and prescriptive in nature and does not provide a measurable parameter for safety and reliability of engineering systems. Experience and research have shown that the deterministic approach where defence in depth is integral to this approach, while reasonably assures safety, often leads to expensive systems and technologies that the society and market would not be able to afford (Varde, Pecht, 2018).

Further studies have shown that while some designs and regulations based on conservative approaches appear to reduce the risk of complex engineering systems;

this may come at an exorbitant cost and still may not guaranty safety (Modares, 2006). With advances in technology (i.e. in computational techniques, improved understanding of materials, simulation methods availability of data and information) there is increasing interest in applications of the best estimate and further risk-informed approach. In spite of these developments, the approach to address uncertainty, by and large, remains conservative. The considerations of safety factors provided a way to compensate for a lack of knowledge and data, however often make the systems more complex, costly, and unsustainable (Varde, Pecht, 2018).

Risk management techniques, when correctly applied, can help ensure the successful outcome of software projects. Risks are potential issues that, if not identified and managed, could unexpectedly surface and cause substantial trouble when least expected. There are many philosophies and approaches for managing risks, including those discussed by Boehm (1989), and Charette (1989). The first step in risk management is to identify and prioritize the risk areas relevant to a project. Each project has different risks due to the unique characteristics that differ from project to project (Toth, 1985). There are several Risk Management models and the most used one is SEI (Software Engineering Institute) Risk Management paradigm that consists of five sequential and iterative steps: Identification, Analysis, Planning, Tracking and Control. In parallel, two common activities are performed: Documentation and Communication. The SEI Risk Management paradigm (Maniasi *et al.*, 2005), is depicted in Figure 10. The paradigm illustrates a set of functions that are identified as continuous activities through the life cycle of a project.

Function	Description
Identification	Search for and locate risks before they become problems.
Analysis	Transform risk data into decision-making information. Evaluate impact, probability, and time frame; classify risks, and priorities risks.
Planning	Translate risk information into decisions and mitigating actions (both present and future) and implement those actions.
Tracking	Monitor risk indicators and mitigation actions.
Control	Correct for deviations from the risk mitigation plans.
Documentation & communication	Provide information and feedback internal and external to the project on the risk activities, current risks, and emerging risks.

Figure 10 – Risk management model process

The real question for all of us is „Where do we start? How do we go about measuring the effectiveness and return?“ The only way to begin to answer is through quantitative metrics while it is impossible to measure something you cannot quantify.

Establishing the capability and capacity to identify, understand, and address such complex challenges and opportunities is the crux of risk management (figure 11). Risk management is an approach to making and implementing improved security decisions.

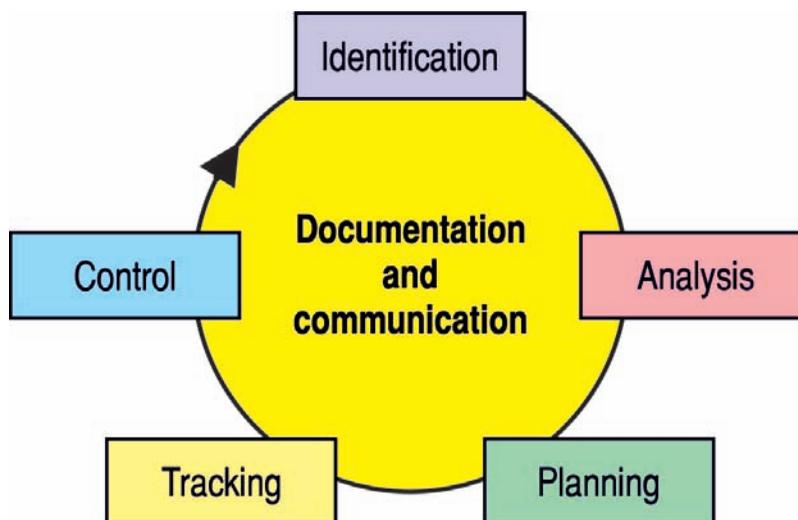


Figure 11 – Risk management model

Risk management options. The manager evaluating the possible option for dealing a defined risk issue needs to consider many things: (i) Is the risk assessment of sufficient quality to be applied upon? (ii) How sensitive is the ranking of each option to model uncertainties? (iii) What are the benefits relative to each risk management option? (iv) How practical will it be to execute the risk management options? (v) Is the risk assessment of sufficient quality to be relied upon? (vi) How sensitive is the ranking of each option to model uncertainties? To conduct a project is, therefore, necessary:

a) identify project risks;

b) evaluate project risk management;
c) evaluate and prioritize project risks;
d) project risk management (connected with the notion of duration).

Risk management can also help better manage the firm's capital structure and suggests that financially healthy companies should use their information advantage to establish future price hedging strategies.

The ISO 31000 standard provides a vehicle to make risk management central to the success of an organization, and an intimate part of key processes such as planning, management, and governance (figure 12).

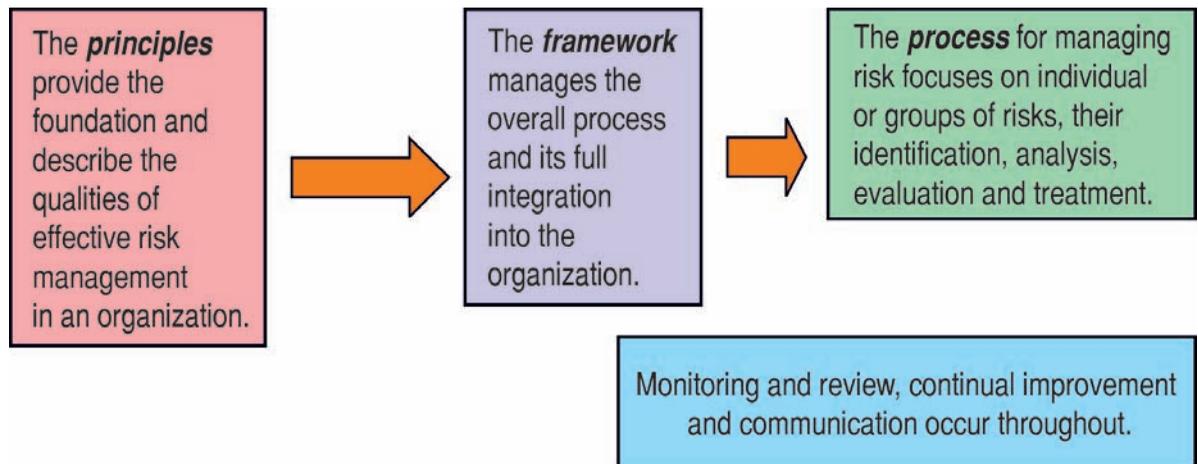


Figure 12 – *The flow of risk management*

(Source: ISO 31000:2009)

Fuzzy Logic

For more than a century, researchers have been grappling with applying innovative computer modeling techniques to assist decision makers in finding better solutions regarding the criteria of cost, time, performance, quality and safety. Fuzzy logic (FL) – which was formulated by Zadeh (1965) – provides a framework for approximate reasoning and allows qualitative knowledge about a problem

to be translated into an executable rule set. Thus, fuzzy set theory and fuzzy logic are applied in this area while the data represented are in subjective verbal forms or the scarcity of the information. The ability of a fuzzy system illustrate its reasoning process is presented to have a definite result within the field of risk analysis. The fuzzy set theory is highly subjective and related to uncertainty and vague information about human perception or subjective

likelihood judgments. Whilst, this uncertainty, and vague information or subjective likelihood judgments. Whilst, this uncertainty, and vague information might be due to a lack of knowledge or experience, wrong historical analysis. Thus, in construction research area one of the applications of fuzzy risk analysis is to outline an approach to the assessment of the construction project risk by linguistic analysis. Early on, it was recognized that FL had a potential role in risk assessment.

Traditional risk models are based on probability and classical set theory. They are widely used for assessing the market, credit, insurance, and trading risk. In contrast, fuzzy logic models are built upon fuzzy set theory) and fuzzy logic and they are useful for analyzing risks with insufficient knowledge or imprecise data. These latter types of risk typically fall into the operational risk or emerging risk category (Shang, Hossen, 2013).

The modern construction and the new sophisticated design have shown significant obstacles and uncertainties to complete the project safely; thereby it is inevitable to search a new approach to deal with uncertainties. The ability of a fuzzy system to deliver its reasoning process is presented by Chaher and Soomro (2016) to have an absolute result within the field of risk analysis. In addition, the fuzzy set theory is mainly subjective and associated to deal with inexact and vague information in construction projects.

„Fuzzy logic may be viewed as an attempt at formalization/mechanization of two remarkable human capabilities. First, the capability to converse, reason and make rational decisions in an environment of imprecision, uncertainty, the incompleteness of information, conflicting information, the partiality of truth and partiality

of possibility – in short, in an environment of imperfect information. And second, the capability to perform a wide variety of physical and mental tasks without any measurements and any computations” (Zadeh, 2008).

Risk analysis can be applied through using the theory of probability which evaluates the Likelihood and consequence of any risk listed as a hazardous to complete the project safely. Due to some vague and unknown factors which influence project success, probability theory cannot always deal with principal aspects of project uncertainty and cannot illustrate some important aspects of discovered project management practice (Pender 2001). The risk analysis process, utilizing fuzzy logic, is found to be the best approach to handle project risk management, which is mainly subjective, and varies substantially from project to project. The fuzzy risk quantitative process is described here stage by stage; the level of severity is the result of multiplication of likelihood and the impact, whilst probability and impact charts are proposed as fuzzy variables (PMI, 2008).





Risk assessments are often not precise instruments of measurement and reflect: (i) the limitations of the specific assessment methodologies, tools, and techniques employed; (ii) the subjectivity, quality, and trustworthiness of the data used; (iii) the interpretation of assessment results; and (iv) the skills and expertise of those individuals or groups conducting the assessments.

Conclusions

It is important to note that definition of risk, risk information, its classification, and identification, as well as risk measurement and hazardous events identification, consideration of recent studies results, similar problem diagnostic, and risk analysis, are critical elements and facets of risk that must

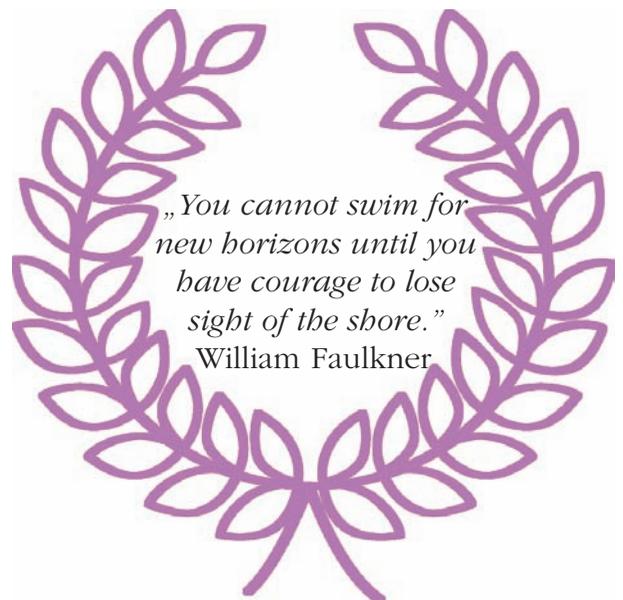
be resolved. Deficiencies are not equal problematic, but they occur with sufficient frequency to raise doubts about the adequacy and validity of the risk results obtained. In most instances, the identified problems lead to an underestimation of the risk.

Making projections about the future is always a risky enterprise, especially in an area as complex as risk analysis and risk management. Nonetheless, a historical perspective suggests certain trends that can reasonably be expected to be important in the foreseeable future. Improved scientific, technical, and engineering capabilities should lead to steady improvements in our ability to control, reduce, or eliminate risks. Improved risk management capabilities will be outstripped by improved risk identification capabilities.

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Significance of Quality Principles

Hassane Bouaouine, Safia Zouhir

School of Engineering, Mohammedia, Maroc

Abstract

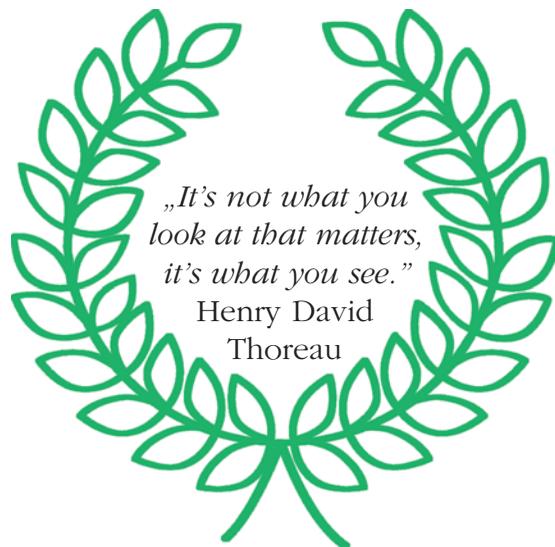
This document aims to present a bibliographic research of the various principles adopted for quality management in a medium or small company, that presents the largest part of economic industries all over the world, taking into account the characteristics of these special entities.

Keywords: quality management, ISO 900: 2015, principle of management

Introduction

In order to get to this level, and ensure sustainability of the company in the market, companies started to adopt the concept of «Total Quality Management», which means the implementation of a business project based on quality approach, mobilizing all the staff and all involved parties in a product or a service production, which is to say a global strategy whereby the whole company puts every effort to satisfy its beneficiaries, which is beyond the presented ordinary approach according to the 2015 version of ISO 9001 standard.

We will begin with a presentation of the historical evolution of quality approach, from the inspection to the 2015 version of the ISO 9001 standard. The next step is to present the principles of quality management observed in the 2015 version of ISO 9001 standard and in other management and quality improvement approaches, namely the Total Quality Management (TQM) and other management approaches like the Lean Six Sigma approach. We finish this article by presenting and identifying other quality management principles, which can help companies achieve a higher level of organization and management.





History of Quality

Based on the international definition of quality: the *degree to which a set of inherent characteristics fulfils the requirement* (ISO 9000-2015), we may conclude that quality is the concern of every producer to present a product that meets the requirements and expectations of consumers, buyers or users.

The construction history of pyramids in the time of Pharaohs showed that they incorporated an inspectorate to check the construction work of the pyramids, so the introduction of the concept of measures system and standards during the 18th century, proved the interest in verifying and checking distances and quantities. Not to mention also the appearance of the con-

cept „Acceptable/Unacceptable” at the producing companies level during the 19th century, which gave rise to verification and products acceptance standards. (Lerat Pytlak, 2002, p. 15).

It was during the 20th century that quality began to know its great development and organization in the industry in the world, through the creation of standards, the generalization at the level of several actors in the economic fabric and also the creation of organizations and founders of standardization.

According to a study directed by the Ministry of Industry, Trade, Energy and Mines, the quality evolution during the 20th century is marked by the following periods, presented in Table 1.

Table 1 – *The quality evolution during the 20th century*

Company needs	Quality evolution
Sorting years: from 40s to 60s	
<ul style="list-style-type: none"> * Increase production capacity to meet market demand. * The availability of the product outweighed the expected performance. * Companies must survive despite the war. * The importance of the introduction of more effective methods to control their products, for certain companies. 	<ul style="list-style-type: none"> * Development of statistical control of reception or final inspection of the American army during its war effort of the 40s. * Formalization of procedures called Military Standard, which will formalize a method that will spread slowly in the rest of the Industry. These procedures are based on AQL: Average Quality Limit, which represents the percentage of defective elements. * The statistical control applied to products gradually replaced the classical inspection. * Sampling plans make it possible to estimate the quality of batches produced from a representative sample of the product.
Control years: from 60s to 80s	
<ul style="list-style-type: none"> * The growth of production capacities became greater than the demand of domestic markets. * Real competition was then established between companies to reduce production costs because increasing production without cost control will be suicidal. * Consumers are becoming more demanding in terms of product performance, deadlines and prices. 	<ul style="list-style-type: none"> * The statistical techniques applied to the products have been transposed to the manufacturing processes. * Subsequently, the majority of statistical methods used today were introduced, such as process control charts, failure studies, etc... <p style="margin-left: 20px;">We can finally say that this period corresponds to seeking control of production processes.</p>
Improvement years: from 80s to nowadays	
<p>More competition and market globalization. Further orientation towards research in development, production and distribution.</p> <p>The goal is to increase the overall performance of the company to face the competition.</p> <p>On the other hand, consumer movements coordinate their forces and demand not only technically efficient products but also safe products accompanied by a service. They are loyal to a brand as long as it represents a value. Quality has a price, but not anyone.</p>	<ul style="list-style-type: none"> * Innovating in quality approaches. * Concepts: quality assurance and total quality become more important. * The development of ISO 9000 standards by ISO in 1987 and their revision in 1994 and 2000: A repository on the quality management that improves efficiency, operating and economic performance, and the quality of their products and services. * Interest in total quality extends its concern to the overall functioning of the company, by focusing on management and competitiveness, putting people at the centre of the process.

(Source: DCI 2006)

Principles of Quality in ISO 9001 Standards

ISO TC 176 Committee: Management and Quality Assurance, worked on the improvement for the 5th time of the ISO 9001

standard, in order to adapt more to the industrial and intentional markets, and on the other hand to meet the needs and expectations of companies. The latest revision of the ISO 9001 standard and the 2015 revision

provides a more exhaustive summary of the principles for successful quality management in a company, namely: Client orientation, Management responsibility, Staff involvement, Process approach, Improvement, Evidence-based decision-making, Relationship management with stakeholders.

These mentioned principles have been improved compared to the 2008 version, in order to focus more on the sustainability, environmental and corporate aspects. The preventive section has become increasingly effective for solving problems and threatening situations in the product and service realization. In addition, the 2015 version incorporates the concept of process risks and opportunities, allowing SMEs to properly analyze the risks and opportunities that they face. This section favours the preventive orientation of the standard (Bouaouine, Zouhir, 2018, pp. 60-62).

Principles of Management in the TQM Approach

TQM is defined according to several studies as a school of thought, which aims to optimize quality by adopting a quality management approach, which aims to obtain a broad mobilization and involvement from the whole company, to achieve perfect quality. It is based on the participation of all the actors of the company which is oriented towards the total satisfaction of the interested parties, as well as the profitability and the good results of the company.

Since the end of the 1970s, the TQM approach has been adopted by several organizations across the world, particularly in the United States, Australia, Europe, Japan, China, etc. Many researchers claim that TQM is a holistic approach to quality management, allowing companies to build



a competitive advantage (Bouaouine, Zouhir, 2018, pp. 60-62).

As part of my research, the management principles with a TQM approach are Client orientation, Top management, Employees involvement, Techniques and tools, Constant improvement, The quality of the company culture, Training.

Principles of Lean Management

A LEAN method is an approach invented and raised by the giant Toyota, and which is applied mainly in the military field, within large companies like Lockheed, Rolls Royce, and Boeing. The method is based on the principle of eliminating all the waste of value within an organization. Toyota has benefited from the positive results of this approach through (Driss Meddeb 2012): the increase in productivity by 40%; the decrease of production defects by 20%; the decrease of dead-lines by 50%.

The principles of the Lean Manufacturing approach are a set of managerial principles aimed at eliminating all wastage,



all along the value chain, because a waste of a good or service is not paid by the customer, but by the company only. Several studies have been published to define the exhaustive list of the principles of the Lean approach, some of which we will mention subsequently.

Five principles for Lean Manufacturing have been identified (Womack, Roos, 1990), (Milosan 2014): to define the value; to identify the value chain; continuous flow; pull system (from the customer request); Aim for perfection.

Thereafter, Licker defines the Lean approach as a philosophy and a long-term strategy for companies whose successful implementation is based on the knowledge of all types of waste that exists at the level of the production chain, and to be able to eliminate them (Pankaj *et al.*, 2013, pp. 40-44). Licker defined these wastes as: excessive production; waiting time; unnecessary tasks; unnecessary movement;

unnecessary transportation and handling; stock in excess and uncontrolled; product defects, which generates an additional cost for the correction; insufficient skills exploitation.

The implementation of Lean requires the involvement of the whole company staff, as well as a process optimization and more importantly, solving everyday problems.

Licker argues that the Lean approach is based on 14 principles: Founding decisions related to the company and the production chain, on a long-term philosophy; Organization of the production in flow piece by piece to update the problems; Use of drawn systems (to avoid overproduction); Smoothing of production; Create a culture of immediate problem solving; Standardization of tasks; Visual inspection; Reliable technology; Training managers who know the job well; Training of people who will apply the Lean approach; Enrich and develop the partnership network and suppliers; Interaction with the field, for a better understanding of the problems; Consensus decision making; Systemic Thinking and Continuous Improvement.

When we talk about the Lean approach, we must think at the same time as these three components, that the combination together promotes the success of the approach. The first component is the Lean Thinking which is a way of thinking that is based on the definition of elements that increases the additional value from a customer point of view, and at the same time ensures the uninterrupted flow of the production chain, by continuously improving to reduce the sources of waste. When we talk about the Lean approach, we must think at the same time at three components which combined together promote the success of the approach (Moeuf *et al.*, 2015).

The Management Approach with Six Sigma Method

Like the Lean method, the main objective of the Six Sigma method is to satisfy the customer, but by reducing the costs and at the same time improving the level of quality. Contrary to the previous method, Six Sigma is based on the statistic methods to reduce process variability, which may contribute to the decrease of product or service quality, and subsequently generate additional costs of repair or non-compliance.

In the Six Sigma methodology, the pursuit of the quality level corresponding to 3 to 4 defects (or errors) per million opportunities, takes place according to one of the two main continuous improvement models associated with Six Sigma: DMAIC or DFSS. DMAIC is an acronym that characterizes a standard method of process improvement through the elimination of problems, which is achieved through the steps: *define, measure, analyze, improve and control* (Dean, Bowen, 1994, pp. 392-418).

The Six Sigma concept is based on the normal law, using the Gauss curve. In the traditional approach, the organization aims for a level of quality corresponding to ± 3 standard deviations, ie 99.73% of compliant elements and 2700 defective units per million (defective parts per Million). Conversely, the objective of the „Six Sigma Process” is to obtain, for the same tolerance range (in the specifications), a quality level of ± 6 standard deviations, which corresponds to 0.002 defective parts per million. In the statistical approach, we can calculate the process quality with the capability indicators that must reach the values $C_p = 2$ and $C_{pk} = 1.5$ in the Six Sigma process (Leseure Zajkowska, 2012, p. 26).

According to Simanova (2015), the advantages of the six sigma method are several, of which we can mention the following ones: Decrease unwanted process variations, and complete process stability by avoiding unplanned events; Six Sigma is a method for eliminating process level deviations; Improved communication between top management and employees. The Six Sigma method has several benefits, it can be used for different levels of the quality management system and ensures continuous process improvement through the use of efficient methods and techniques.

Conclusion

The improvement of a quality management approach in a company has become a necessity, in order to guarantee sustainability, and survive in international and local markets. All the quality management approaches mentioned above, adopt principles that are based on continuous improvement, the employee's involvement, and leadership. They are, therefore, the stages of the success of each quality approach.



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Stress in the Academic Environment

Loredana-Cristina Dascălu, Iuliana Grecu

University POLITEHNICA of Bucharest, Romania

Abstract

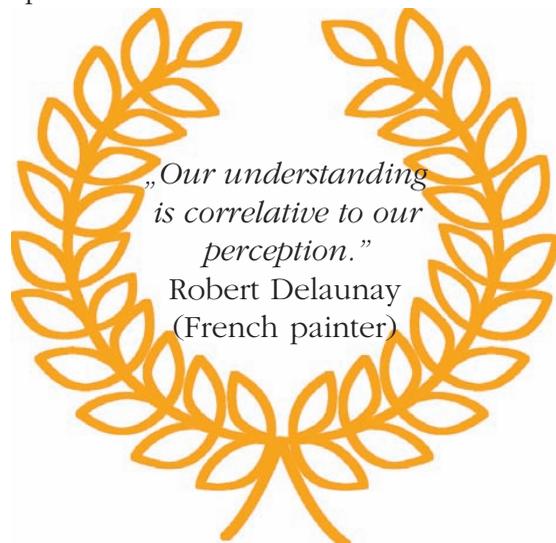
Students can be stressed due to different stressors such as academic, health, financial, lose a friend, etc. The case study presented in this article consists of three questionnaires meant to detect stress in people working in the academic environment. Stress in the academic situation can have both positive and negative consequences. According to Greenberg and Baroon, stress is personal, physiological and emotional reactions against the stimulus. Stress has been associated with major life events and changes in life. Over the time, many of the studies conducted in the field of stress took have been targeting the academic environment: the students or even the entire staff. Stress is a common and inevitable component in the lives of every individual, regardless of race or cultural background. As per affirmation of, the student's academic learning and performances can be affected by many factors such as gender, age, teaching staff, economic condition, family's, accommodation, insufficient sleep, illness, job responsibility as a student, etc. The concept of stress still remains a subject that is open to debate, and other approaches will continue to exist.

Keywords: stress, academic stress, stress and performance

Introduction

The purpose of this paper is to detect the stress level in university. We applied the Cohen Williamson Questionnaire to determine stress level. This study was conducted during the one semester of the academic year 2017-2018, at the University Politehnica of Bucharest in the group of students to whom I taught the Stress Management course.

Over the course of time, textbooks have defined stress in various ways and below are a few of the meanings attributed to



stress. Stress can inhibit and suppress learning, which is called ‘unfavourable stress’ and is associated with inhibition of students’ academic performance. Some of the reasons why students perceive stress are time pressure and the need to perform well in the exams (Erkutlu & Chafra, 2006). Other reasons why stress can occur are the fear of academic failure (Kolko, 1980) too many assignments or the competitions with other students (Fairbrother & Warn, 2003).

Hans Selye, the founding father of research in the field of stress, says that „stress is not necessarily something bad – it all depends on how you take it. The stress of exhilarating creative successful work is beneficial, while that of failure, humiliation or infection is detrimental” (Selye, 1956). So the effects of stress depend on one’s positive or negative perception over the situation. Psychologist Richard S. Lazarus defined stress as follows: „a particular relationship between the person and the en-

vironment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (Lazarus, Folkman, 1984).

The study is a novelty because it was elaborated by the group of students after they learnt for a few months about Stress Management. It is very important to have information about stress because it can change the perspective of life and the way in which we can see that a situation can be a negative or positive one.

Experimental

The present case study was elaborated by the group of students who was attending the course Stress Management for one academic semester. In order to verify the validity of the hypotheses and to achieve the goals that had been set, the following tool was used: the Cohen Williamson Questionnaire, to identify the level of stress (Dascălu, 2015).

For each question choose from the following alternatives:

0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

1. In the last month, how often have you been upset because of something that happened unexpectedly?

2. In the last month, how often have you felt that you were unable to control the important things in your life?

3. In the last month, how often have you felt nervous and stressed?

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

5. In the last month, how often have you felt that things were going your way?

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

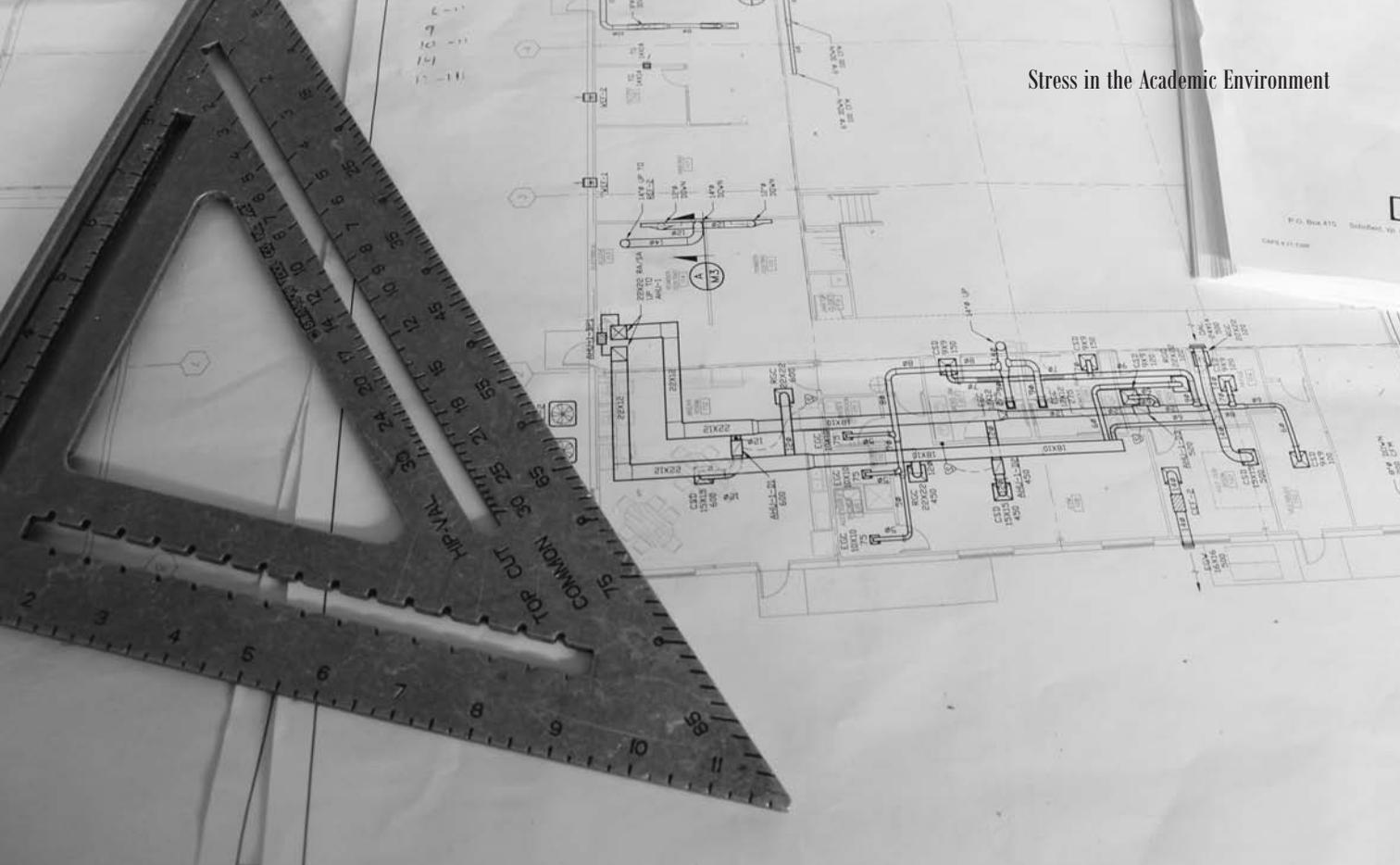
7. In the last month, how often have you been able to control irritations in your life?

8. In the last month, how often have you felt that you were on top of things?

9. In the last month, how often have you been angered because of things that happened that were outside of your control?

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Figure 1 – *Questions from the Cohen Williamson Questionnaire*



The Cohen questionnaire is a self-report measure consisting of 10 items purported to measure „how unpredictable, uncontrollable, and overloaded respondents find their lives” (Cohen & Williamson, 1988, p. 34).

Each item is rated on a 5-point scale ranging from never (0) to almost always (4). Positively worded items are reverse scored, and the ratings are summed, with higher scores indicating more perceived stress. Cohen questionnaire scores are obtained by reversing the scores on the four positive items. For example, 0 = 4, 1 = 3, 2 = 2, etc. and then summing across all 10 items. Items 4, 5, 7, and 8 are the positively stated items.

Individual scores on the Cohen questionnaire can range from 0 to 40 with higher scores indicating higher perceived stress.

- Scores ranging from 0-14 would be considered low/without stress.

- Scores ranging from 14-20 would be considered moderate stress.
- Scores ranging over 20 would be considered high perceived stress.

The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly.

Results

In the current study, there were 30 respondents to the questionnaires. The research took place at the end of February 2018 and the respondents were students of the University POLITEHNICA of Bucharest. For the present study, the statistic indicators can be found below (Table 1).

Table 1 – Data pertaining to the Cohen questionnaire

Respondent/ student	Score X_i	X_i^2
1	14	196
2	8	64
3	30	900
4	24	576
5	8	64
6	11	121
7	11	121
8	11	121
9	15	225
10	11	121
11	10	100
12	10	100
13	10	64
14	8	64
15	8	400
16	20	400
17	18	324
18	18	324
19	12	144
20	21	441
21	19	361
22	9	81
23	19	361
24	19	361
25	15	225
26	25	625
27	23	529
28	7	49
29	18	324
30	23	529
$\Sigma = 30$	$\Sigma = 465$	$\Sigma = 8315$

The average for the group of 30 respondents was 15,5 points. According to the answers quota, results show that the group are not under heavy stress. Out of the 30 respondents, a number of 11 students (approx. 36 %) had obtained scored ranging from 14-20 which means that they are under stress. A number of 6 students (approx. 20%) had obtain scored higher than 20 points, thus falling in the category of people under heavy stress. The

other 13 students respondents (approx. 44%) scored less than 14 points, therefore falling outside the category of people under heavy stress.

$$\text{Average} = \frac{\sum_{i=1}^{30} \text{Interview results}_i}{30} = \frac{465}{30} = 15,5 \quad (1)$$

Percentage of respondents

$$\text{with stress} = \frac{11}{30} = 0,36 \quad (2)$$

Percentage of respondents

$$\text{under heavy stress} = \frac{6}{30} = 0,2 \quad (3)$$

Percentage of respondents who are not

$$\text{under heavy stress} = \frac{13}{30} = 0,436(6) \approx 0,44 \quad (4)$$

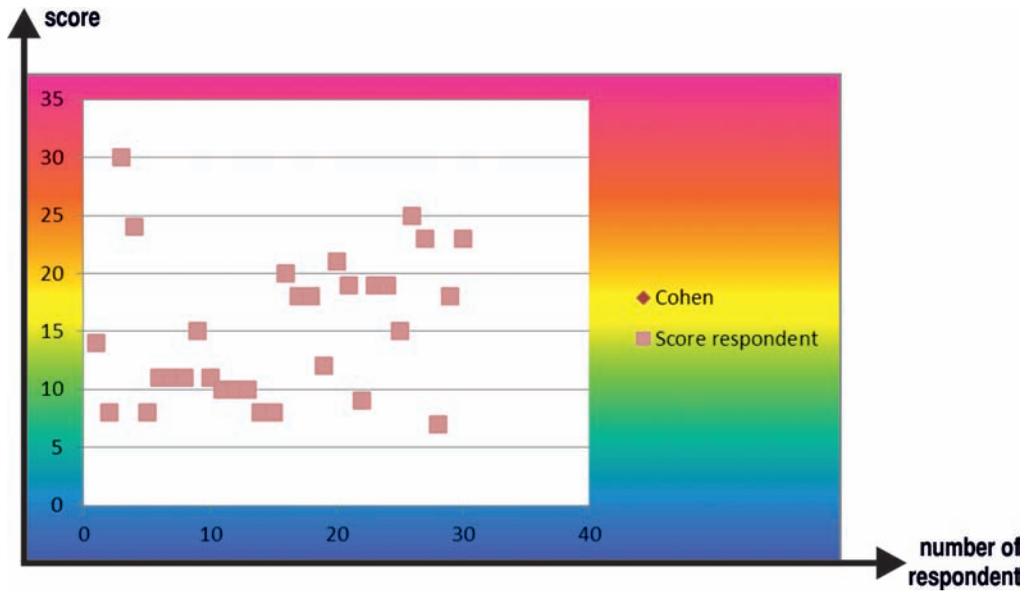


Figure 2 – Cohen Questionnaire results chart

Questionnaire respondents' score

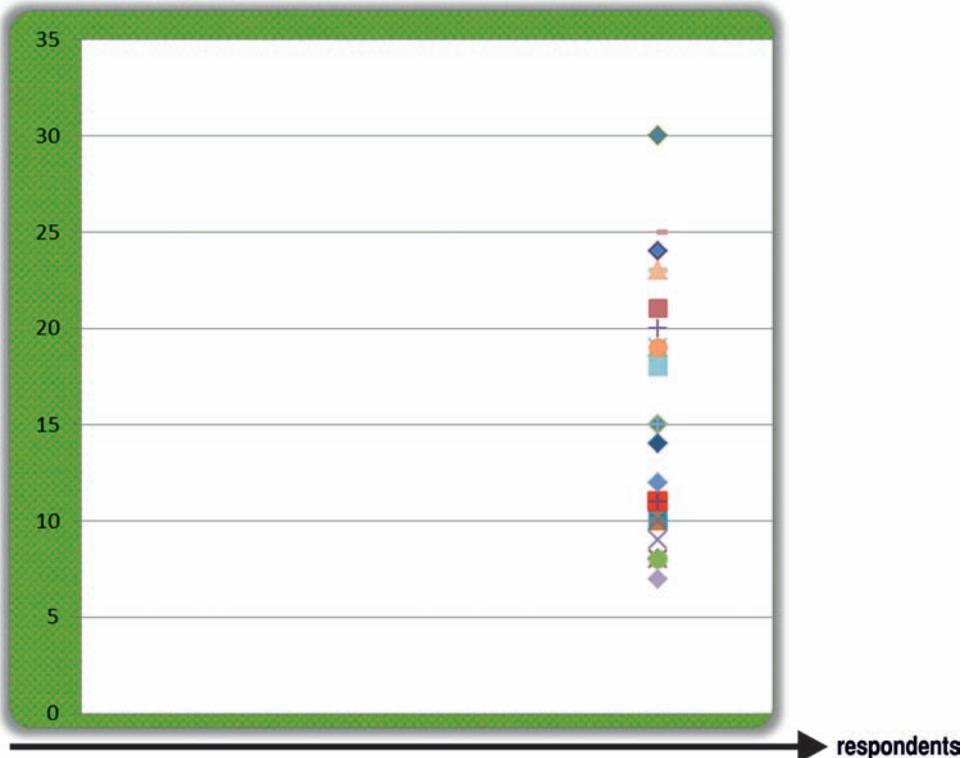


Figure 3 – Representation of the Cohen Questionnaire average

The demographic data related to the questionnaires are presented below (Figure 4).

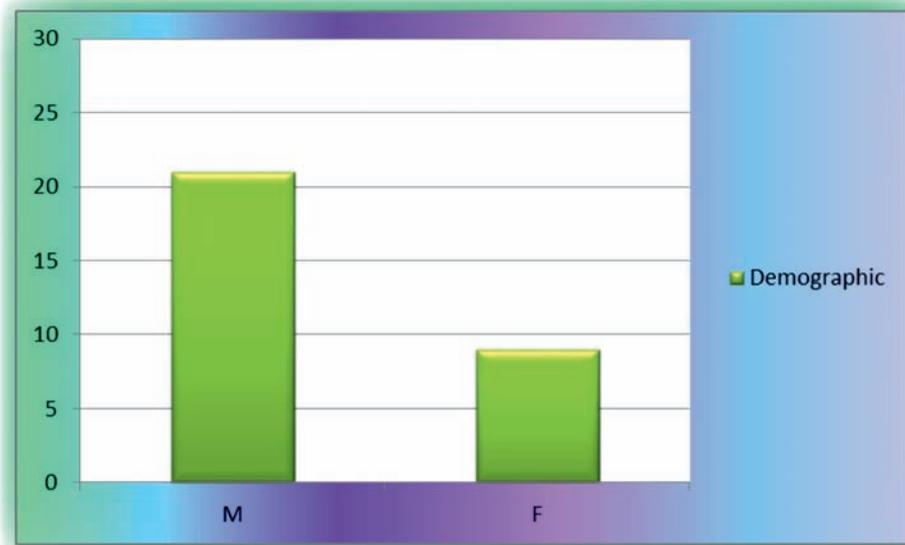


Figure 4 – Representation of the demographic data by gender for the questionnaires in Romania

There were 30 questionnaire respondents from the academic environment in Romania, who took part in this study. In that which concerns gender, out of the total amount of respondents, 21 (70%) of them were males and 9 (30%) were females. The research took place between the months of September of the year 2017 and February of the year 2018.

Discussion

The key to reducing distress is providing student's information about what to expect, about the general concept of stress management and to provide feedback

regarding what can be done to improve their performance. The percentage of students in this study which presented a low stress level was 44%. Knowhow of the management of stress is of utmost importance. The questionnaire was applied to see if they are able to manage their stress well at the end of the stress management course. Therefore students should be helped with different strategies to reduce their levels of stress: develop and maintain the motivation and appropriate behaviour to reach long-term goals, teach students that stress can be more manageable.

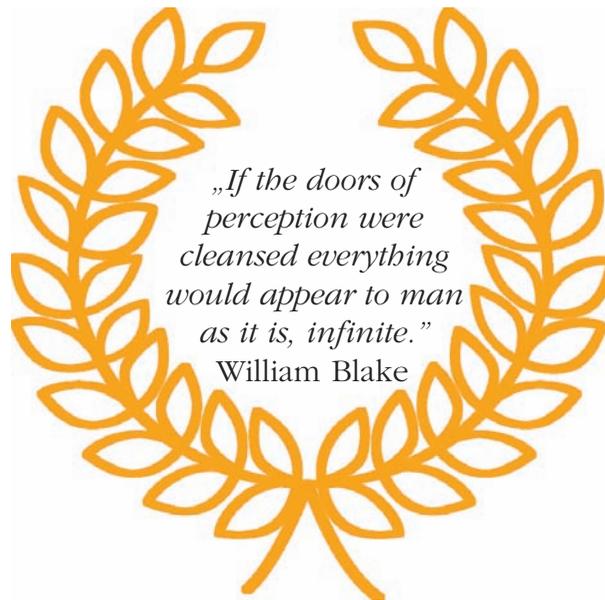
Conclusions

The conclusions of the case study are that the information received in the classroom truly helps students to manage stress and this confirms the need to implement training programs. The aim of this paper was to bring into discussion, on the one hand, the necessity for more research on occupational stress management.



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Perception of the Organizations Reputation

Mariana Balica, Sorin Ionescu

University POLITEHNICA of Bucharest, Romania

Abstract

Organizations need to acknowledge the necessity of adapting their activities to the change of the final consumer's behaviour, as well as to the perception that the final consumers have towards the organization. The awareness of the stakeholders' perception towards the reputation of the organization at a certain time is highly important. A good reputation in the marketplace where the activity is carried out will definitely lead to performance. The present paper analyzes the perception of some Romanian organizations. It uses the investigation as a method and the questionnaire as an instrument applied to some clients of foodservice companies. The purpose of the research was to identify the perception of some stakeholders towards the reputation of some Romanian companies, as well as to identify some solutions that would change the existing perception at a certain time.

Keywords: reputation, climate, image

The Concept of Reputation

The new business environment that includes permanent consumer behavioural changes requires organizations to give reputation an appropriate consideration. Specialists from a number of fields have been concerned with defining the concept of reputation and with establishing elements that would contribute to the development of a good reputation for the organizations. Their studies have led to the conclusion that „the key elements of the reputation are: performance, financial performance, products/services, leadership management, ethics, identity, brand and organization image” (Lloyd, Mortimer, 2006) and that constituents



have been established for each of these elements, such as: „achievements, trust, client satisfaction, stakeholders’ loyalty, provided quality, flexibility, innovation, appreciation etc” (Lloyd, Mortimer, 2006).

By analyzing the definitions given to reputation, Mattcartmell (Mattcartmell, 2014) classifies them from three perspectives, namely: as perception, as appreciation and as an organization’s asset in Figure 1.



Figure 1 – Reputation definitions

(Source: Mattcartmell, 2014)

Back in 1965, Levitt defined reputation as „the clients’ perception towards what they know as good or bad, trustworthy, respectable about a company” (Levitt, 1965). Later (in 1996), Fombrun defined reputation (from the same perception perspective) as the „perceptual representation of a company’s past action” (Fombrun, 1996). In 2000, Bennett & Kottasz redefined reputation as „the perception towards what the company had developed over time” (Bennett, Kottasz, 2000).

For marketing specialists, reputation is „a concept that covers all aspects of corporate marketing: image, identity, branding, personality, corporate associations and communication” (Bennett, Kottasz, 2000). Shamma’s opinion is that specialists from this area define reputation „in an abusive manner, by using marketing elements, which would have led to a misunderstanding of the concept itself” (Bennett, Kottasz, 2000).

According to other specialists, reputation „is the guarantee of the quality of the products, the guarantee of some efficient strategies” (Sandu, 2012). Also, reputation „can be a key factor for an organization’s success, but it may well be a contributing factor for the organization’s failure” (Behesh, Korouki, 2013).

Permanent research has led to other conclusions concerning the concept of reputation. Therefore, reputation was considered by other specialists to be „a direct influence on the workforce” (Behesh, Korouki, 2013). Others considered reputation „the result of the development of an organizational culture and history” (Iyamabo, 2015). Based on this research, there was developed a model that covers several elements such as mission, reputation, culture, environment and communication (Lloyd, 2007), in Figure 2.



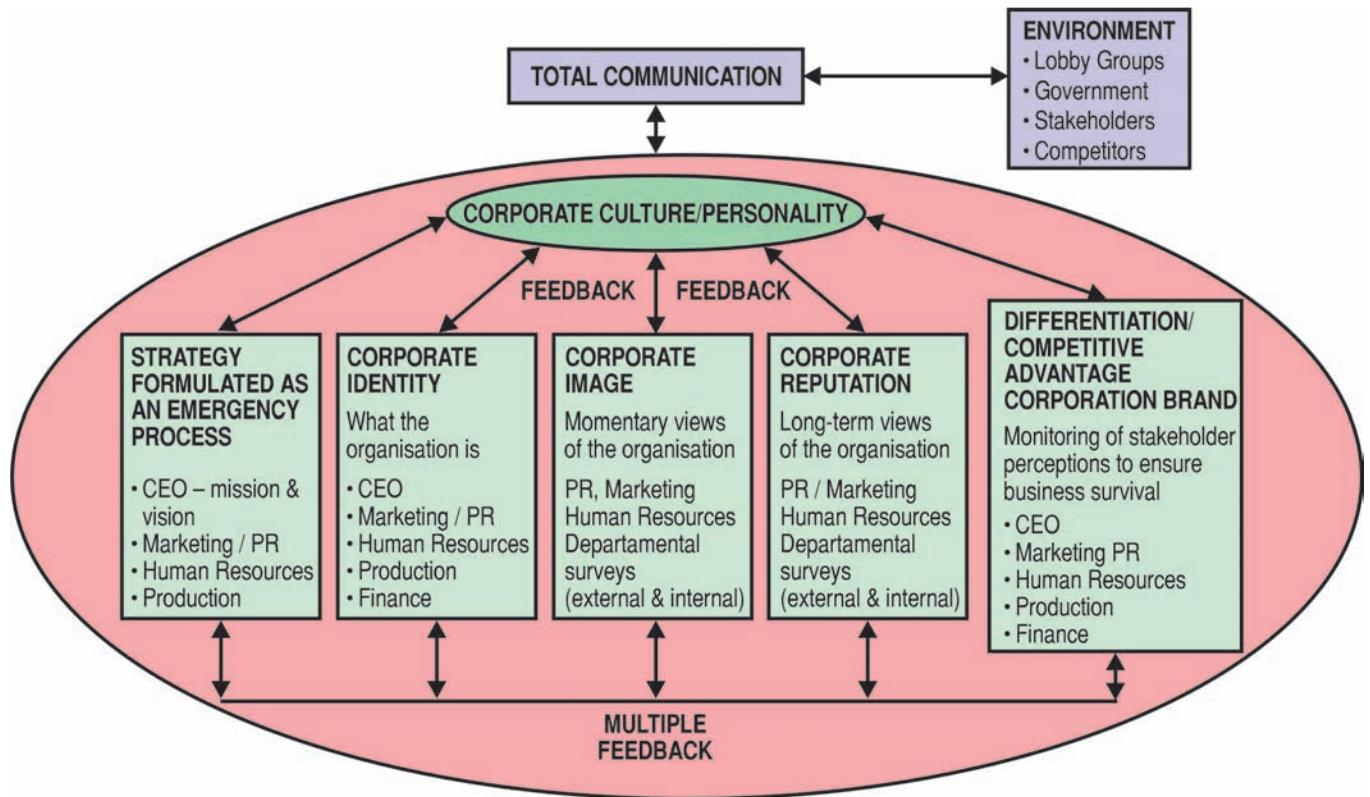


Figure 2 – Model Bick, Jacobson & Abratt

(Source: Iyamabo et al, 2015)

In this model, the authors consider that feedback is important for elements like reputation, image, environment, feedback, mission and philosophy, culture, personality and strategic management (Lloyd, 2007).

As a response to the specialists' concerns, Charles Fombrun and Cees van Riel founded The Reputation Institute in 1997, which operates globally (Reputation Institute). They have conducted and are currently still conducting research in the field of reputation and they have released new concepts regarding this, such as reputation management, reputation economy, reputation responsibility, good practice concerning the management of reputation.

Kasper Ulf Nielsen (a collaborator of the Reputation Institute), for example, issued the concept of economy reputation, in 2014, as a result of a research on 301 business

leaders (out of 29 countries and 28 industries) on the complexity of the business environment and the business reality as a result of reputation (Reputation Institute, 2018). This concept was defined as „a competitive situation in which people make decisions about relying companies on market differentiation” (Reputation Institute, 2018) and 78% of the subjects, agreed to the concept of economy reputation. The results of the research concluded, „16% of these leaders admitted that they are capable of managing the reputation of the company they come from”, 85% admitted they are at the earliest stages of building reputation, as the reputation management was a new concept and they hadn't used reputation as a strategy of business development” (Reputation Institute, 2018).

Moreover, the concern for the reputation of organizations led to the development of a coefficient for measuring the reputation, known as the RepTrak Coefficient (Reputation Institute, 2018). In a research published on the Institute's website (Reputation Institute, 2018), they analyze the most world-renowned powerful companies, in order to „support the companies in establishing the existing reputation at a certain time, in protecting the reputation they have and in establishing the business impact on the reputation management” (Reputation Institute, 2018).

To conclude with, it is highly important for specialists from several areas to reunite and define the concept of reputation as clearly as possible, so that managers can build, modify or change this reputation within organizations, according to the stakeholders' perception.

The Impact of Reputation on Organizational Climate

Specialists in the field analyzed the impact of reputation on the organizational climate and vice versa. On one hand, they defined the organizational climate as „an individual perception of the behaviours assessed and awarded by the organization” (Wang, Rode, 2010). James and collaborators (in 1977 and 1981) issued the above-mentioned definition, which was agreed and taken up by Wang and Rode following a study conducted in 2010 on „the relationship between management, identifying some employees as leaders and the innovative climate” (Wang, Rode, 2010). The authors considered that there were several dilemmas concerning the organizational climate and the reputation within the specialized literature and therefore supported the managers from public and



private organizations by providing solutions. They concluded, „the organizational climate moderates the relationship between the transformational leader and the employees' creativity, so that the relationship becomes weaker within a highly innovative climate than within a low innovative one” (Wang, Rode, 2010).

Permarupan (2013) took over the definition given by Reichers and Schneider on the organizational climate as „the common perception of the organizational politics for practice and procedures”, which they later developed by „taking into consideration the properties of the working environment and the direct and indirect employees' perception” As far as the authors are concerned, the management of the organization needs to approach the external factors that could influence the organizational climate and the employee's behaviour towards his passion at work and his tasks. This study, together with other studies conducted by specialists concluded that, based on the perception that the passionate employees have at work, they would recommend the organization to other stakeholders. This means that their employees will recommend the organizations with a good reputation to stakeholders more often than in the case of a bad reputation.



Later, Tsai analyses another definition of the organizational climate enunciated by Stone and collaborators, in which the climate represented „the employees’ perception towards organizational features, such as: making decisions and norms at work” (Tsai, 2014). The author agrees with the definition of the organizational climate as „a set of characteristics that describe the organization, distinguishes the organization from the other ones, lasts over time and influences the behaviour of employees” (Tsai, 2014). One can notice that in this definition, the direct effect of the organizational climate is the reputation built by the organization over time. Likewise, the organizational climate, reputation is built over time, it influences the behaviour of the stakeholders, it distinguishes between the organizations and lasts over time.

To conclude with, the organizational climate influences the reputation, but the reputation influences the climate as well. The stakeholders’ perception concerning the reputation of the organization at a certain time will influence the organizational existing climate. Possible candidates will

head towards companies with a good reputation because they perceive a good organizational climate. The employees will recommend the company to all stakeholders. Satisfied customers will also recommend the company to all stakeholders. The managers need to be very well aware of the reputation of the company they come from in order to be able to attract quality personnel. It is important that top managers are aware of the effects of organizational climate on the activity of the organization, in order to build a reputation. The extremely complex business environment requires a special attention from the organizational management with respect to the effects of reputation on the organizational climate. The distinction that organizations obtain needs to be preserved over time and not destroyed.

The Impact of Reputation on the Organizational Image

The specialized literature states that image represents „how management expresses key ideas to stakeholders through products, communication, behaviour and environment” (Hatch, Schultz, 2007). In the definitions given to the concept of image in the specialized literature, the concept of reputation is also included. For example, the British Standards Institute (1995) stated that the organizational image represents „the total of impressions and expectations built by the organization in the stakeholders’ minds” (Lloyd, 2007). Other authors consider the image as „organizational points of view developed by stakeholders, the overall outside impression of the organization” (Lloyd, 2007). Others consider the image as „the immediate impression of an organization” or „the personal perception towards a company” (Lloyd, 2007). As far

as other specialists are concerned, „reputation and image are criteria that measure the social performance of the company” (Lloyd, 2007). All these image definitions are actually the effects of reputation at a certain time.

Specialists from the field tried to support managers by providing models that would make them acknowledge the importance of the organizational image and of its relationship with reputation. Research conducted over time highlighted dependent or interdependent connections between reputation and image. An example is Fombrun’s model, in which the author considers that „the reputation of a corporation begins to become a product of its image, together with its relationships and

performances” (Lloyd, 2007). A representation of Fombrun’s definition appears to be as follows: „The reputation of the organization = the organizational image + relationships + performance” (Lloyd, 2007, p. 32).

Another example is the model of Yeo and colleagues, from a more recent conducted research, which concluded, „the image is the equivalent of reputation and the important component within it” (Yeo, Goh, Tso, 2011) and a „competitive sustainable advantage would be a favourable image and reputation of the organization” (Yeo, Goh, Tso, 2011). Following a research conducted in the retail field, they elaborated a model in Figure 3.

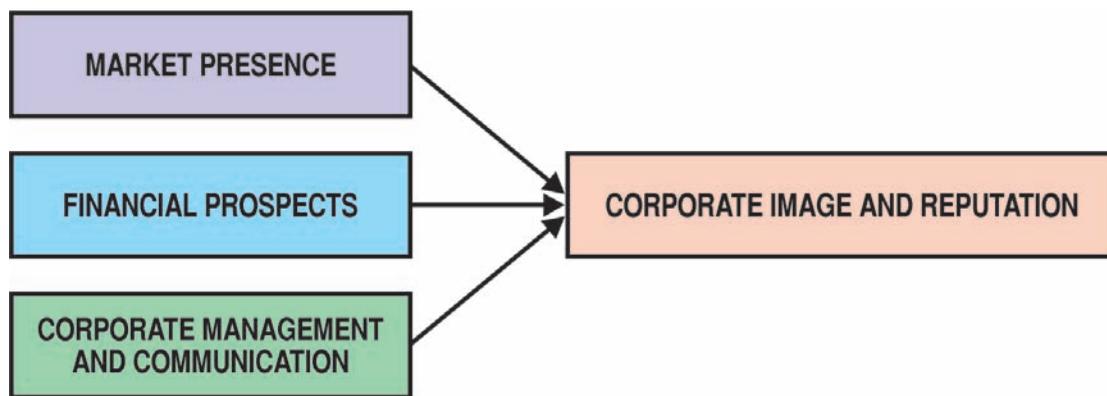


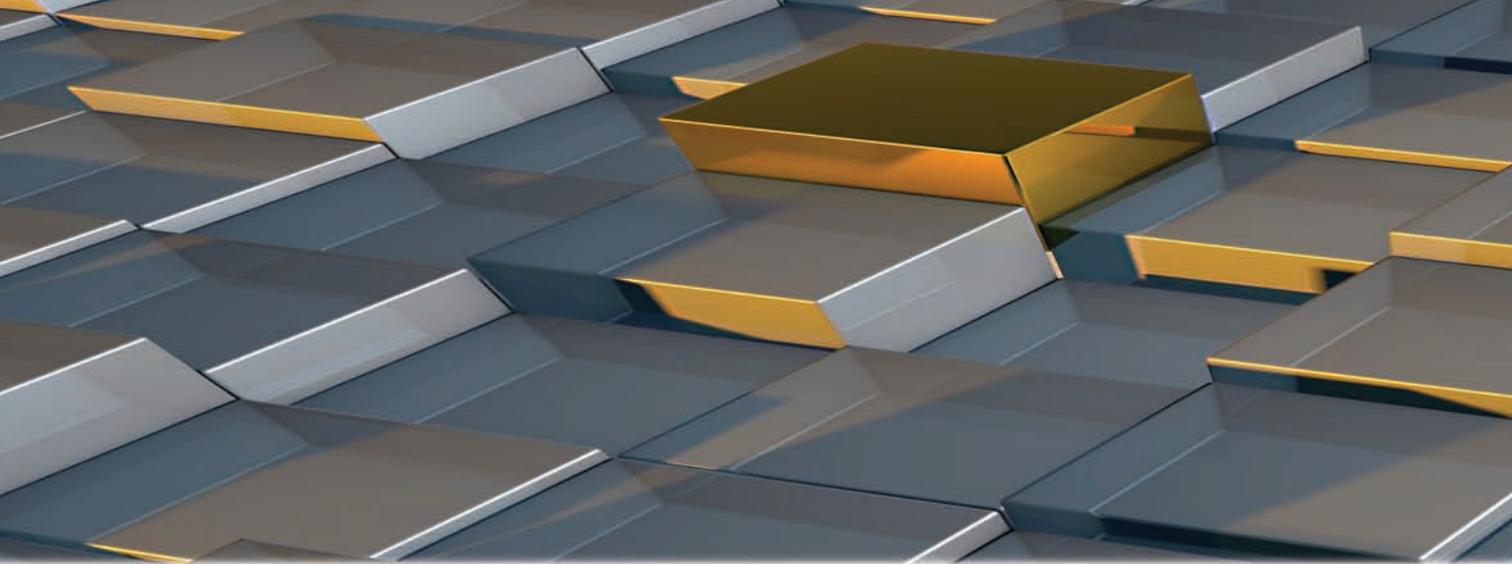
Figure 3 – *Yeo Model*
(Source: Yeo *et al.*, 2011, p. 206)

The research, which was carried out within Chinese large retail companies, started from the idea that „image and reputation are closely connected and one is needed for the others that are about to be developed” (Yeo, Goh, Tso, 2011). One can conclude from the analyzed studies that a good image of the company will lead to a good reputation and vice versa. Managers of companies with good reputation need to manage it very well in order

not to affect the image perceived by the stakeholders.

Reputation of Romanian Organizations

The purpose of the research was to identify the stakeholders’ perception regarding the reputation of some Romanian organizations. The main objectives aimed to: identify the perception concerning the



reputation responsibility within Romanian organizations, identify the perception concerning the reputation and performance of the Romanian organizations, and identify the ground of building a reputation for Romanian organizations.

As for the methodology of the research, the authors used investigation as a method and the questionnaire as an instrument applied to a number of clients of some food-service companies from Bucharest. A number of 100 clients from multinational companies (37%), small and medium-sized companies (36%) and the rest from national companies and others were engaged in the research. Most of the companies were from

the service sector (70%). Most of the subjects were from the commercial-sales (21%) and administrative (19%) departments. The most numerous were the subjects with higher education (40%), then with postgraduate studies (32%) and secondary education (24%). The respondents were predominantly men (57%). Most of the subjects (64%) were aged 21-30 years old, and 24% of them were aged 31-40 years old.

The first question was „*In your opinion, the reputation of a company is given by Business ethics*” where the majority answered that reputation was linked to business ethics to a very large extent (36%) and to a largely (34%), in Figure 4.

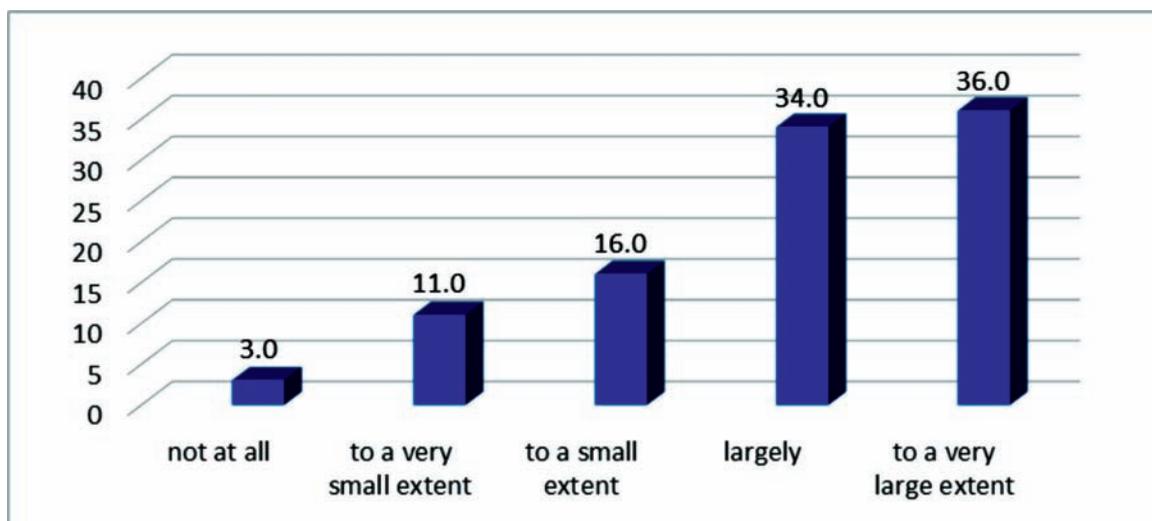
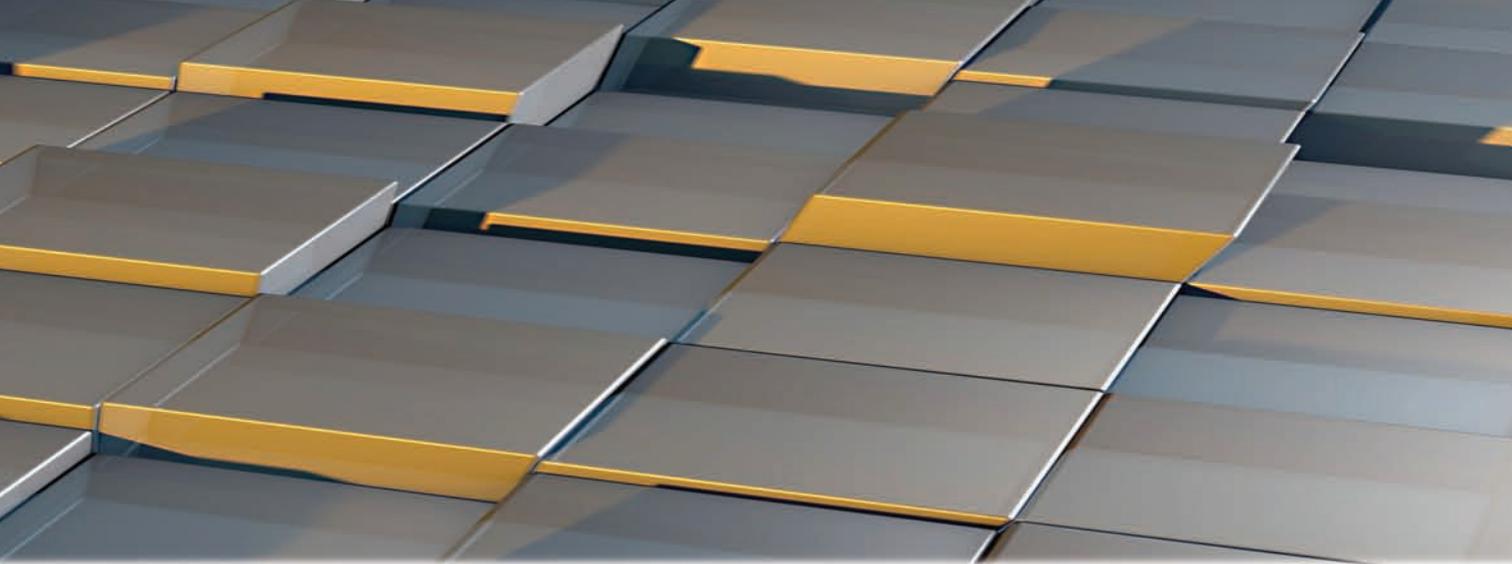


Figure 4 – *Reputation and business ethics*



Another question was „Do you agree that a good reputation would influence the economic aspects of the company” where the great majority (93%) answered that there is an influence between reputation and economical aspects.

Another aspect taken into consideration by this research was to establish the

clients’ opinion towards the responsibility concerning the reputation of the company. One can notice that regarding the first question item (the general director is responsible for reputation), most of the subjects (42%) considered this to be true to a very large extent in Figure 5 and to a largely (33%).

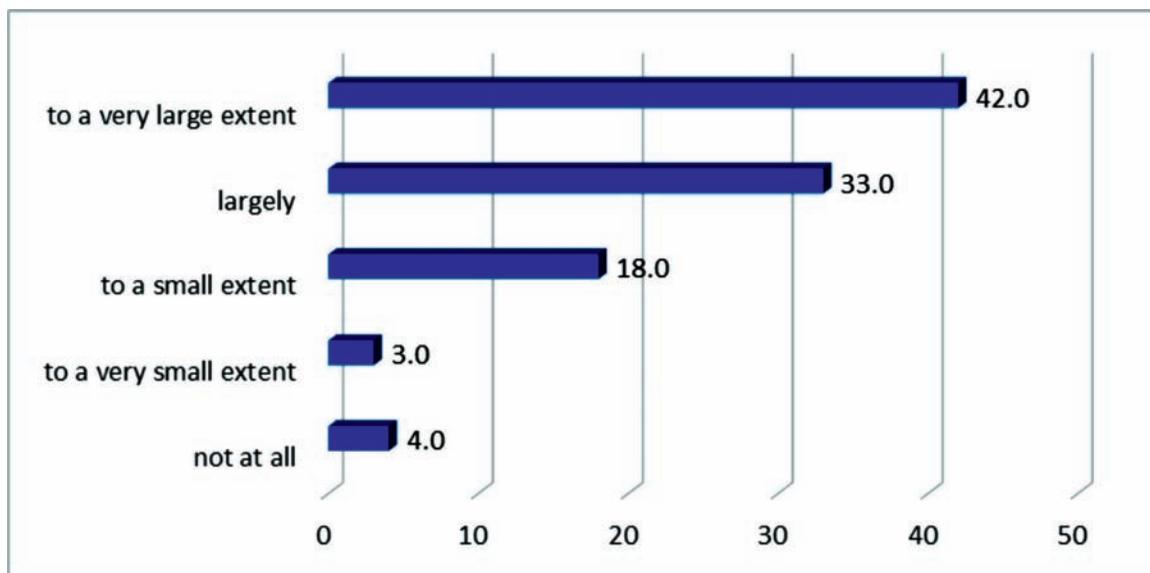


Figure 5 – Reputation responsibility- general director

The fact that the main responsibility concerning reputation lies with the directors/managers of the company is true to a great extent for most of the subjects (40%) and to a very large extent for 37% of them. One can notice that most of the subjects con-

sider the general direction to be the main responsible for reputation. Furthermore, the same subjects considered the department/compartment managers to be responsible for reputation to a very large extent and to a largely (77%) in Figure 6.

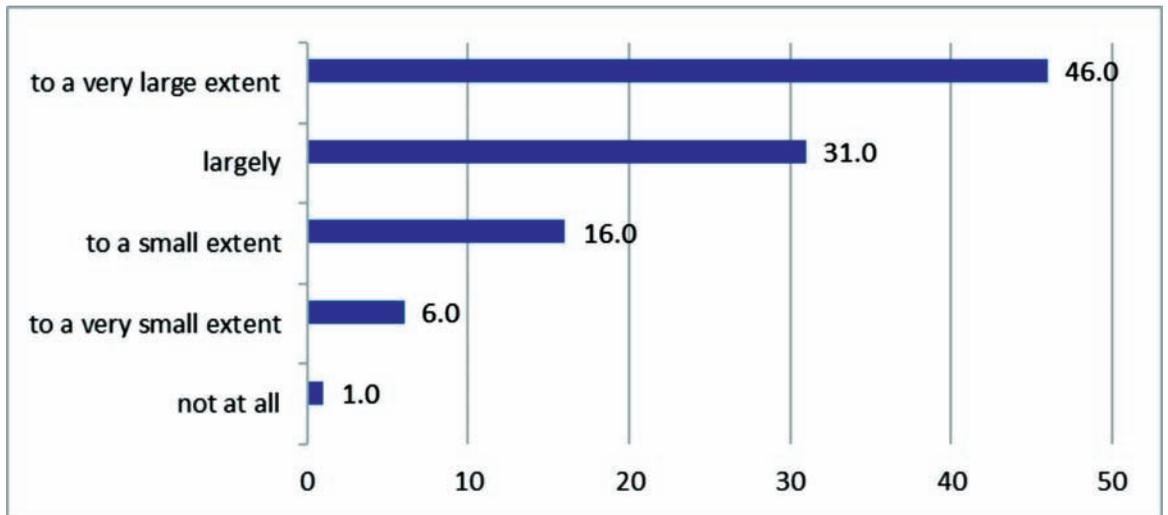


Figure 6 – Reputation responsibility – department managers

From the point of view of the same subjects, the main reputation responsibility within a company lies with operative personnel to a very large extent (37%) and to a largely (33%). For 71% of the subjects, the main reputation responsibility lies with a management team to a very great and great extent. As for the company's ownership, the responses were very different, as only 29% agree to it to a very large extent. A significant 51% of the subjects consider the reputation responsibility to be assigned

to the ownership to a small extent, a very small extent or not at all.

Another question was related to the good reputation of a company and elements such as performance, products/services that the company provides, innovations made by the company, social actions, and business ethics. The relationship between the good reputation and the company performance is important to a very large extent for most of the subjects (62%), in Figure 7.

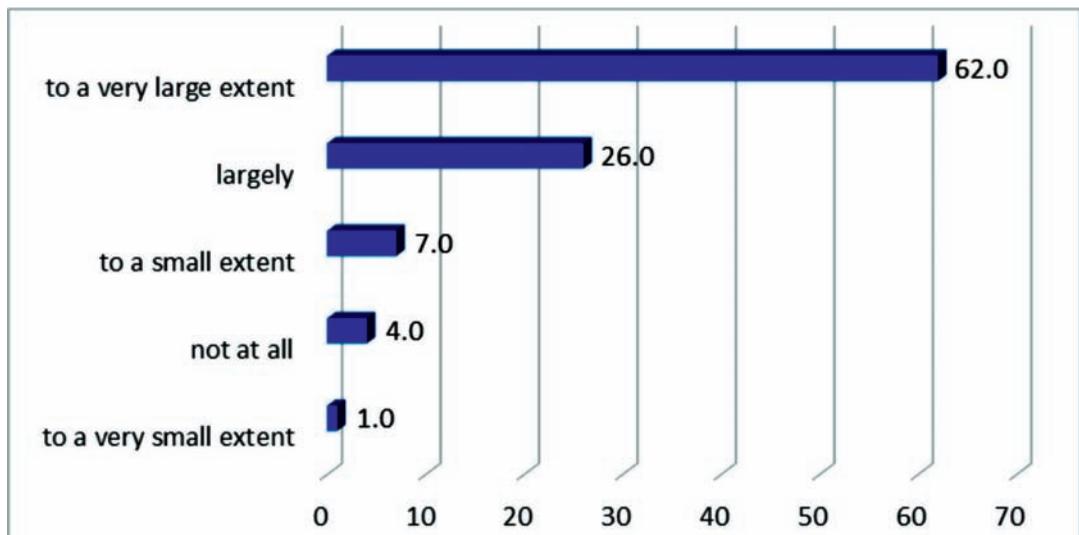


Figure 7 – The relationship between good reputation and performance

A significant 0.231 correlation (Pearson Correlation) resulted in the size of the subjects' company and the performance of the company based on a good reputation (correlation is significant at the 0.05 level).

For the „Products/Services that the company provides” item of the same question, the great majority of the subjects (59%) considered to a very large extent that the reputation is based on the products/services that the company provides. A very small percentage (12%) didn't consider that reputation was based on the company's offer. A significant 0.226 correlation (Pearson Correlation) resulted in the size of the subjects' company and the performance of the company based on a good offer (correlation is significant at the 0.05 level).

For the „innovations made by the company” item of the same question, the great

majority of the subjects (78%) considered to a very large extent and to largely that, the reputation is based on the innovations. As for the „*Social actions of the company*”, 31% considered them important to a larger, and 29% to a small extent, which could mean that the subjects were not very interested in the social actions taken by the companies. „*Business ethics*” on the other hand is highly important for the majority of the subjects (70%).

Another question with several items was if the subjects would recommend the company, they work for to their acquaintances. One of these items was „*Do you recommend the products/services of the company you work for*” 62% admitted to doing this often, while the rest of 38% did it very rarely, Figure 8.

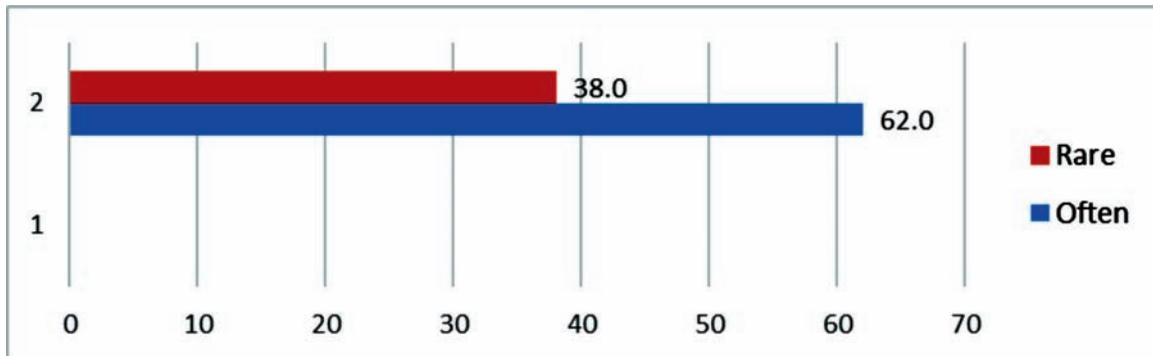


Figure 8 – *Recommending the products/services provided by the company*

Another item referred to „Recommending the company to investors” for the company the subjects worked for. Most of the subject responded with often (55%) and rarely (45%). A significant negative -0.223 correlation (Pearson Correlation) resulted in the size of the subjects' company and recommending the company to some investors. For the „Do you recommend the company you work for to possible candidates” item, most of the subjects (58%) answered that they often recommended

the company to possible candidates for vacancies.

Good reputation attracts possible candidates because they consider the working climate to be a good one. Moreover, for item: „Do you recommend a certain product or company brands, others than the ones from your own company”, the most common answer was that this happens rarely. However, there were also subjects who recommend other brands than the ones of the company they work for (46%) in Figure 9.

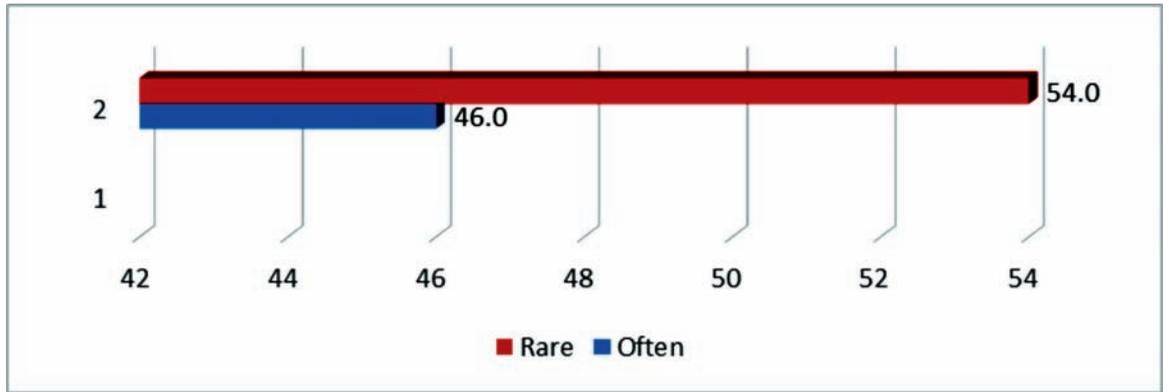


Figure 9 – *Recommending other brands*

The RepTrak Coefficient was also applied to the same subjects. In their opinion, reputation is strongly influenced by the following dimensions: products/services (39%), governance (36%), behaviour (35%), leadership (33%), innovation (33%),

workplace (32%) and financial performance (32%). One can notice that all these dimensions have a significant influence on reputation from the clients' point of view, in Figure 10.

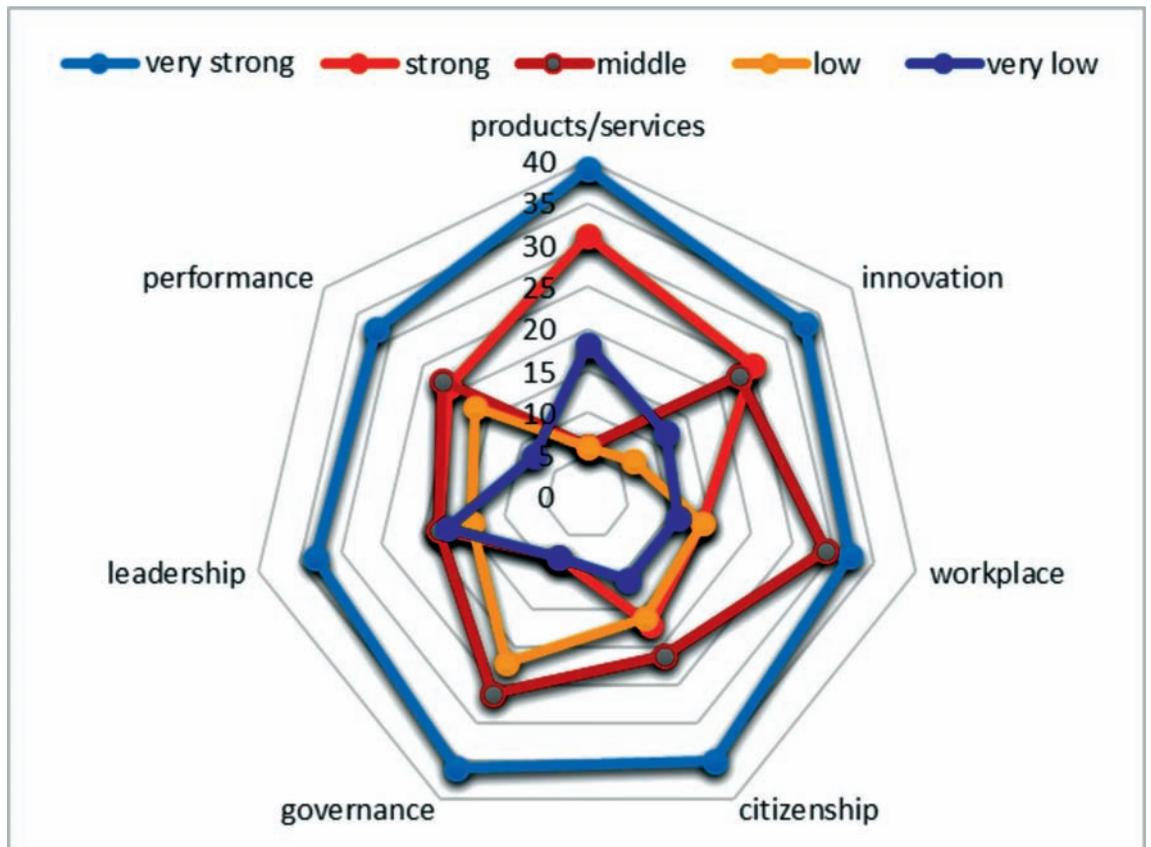


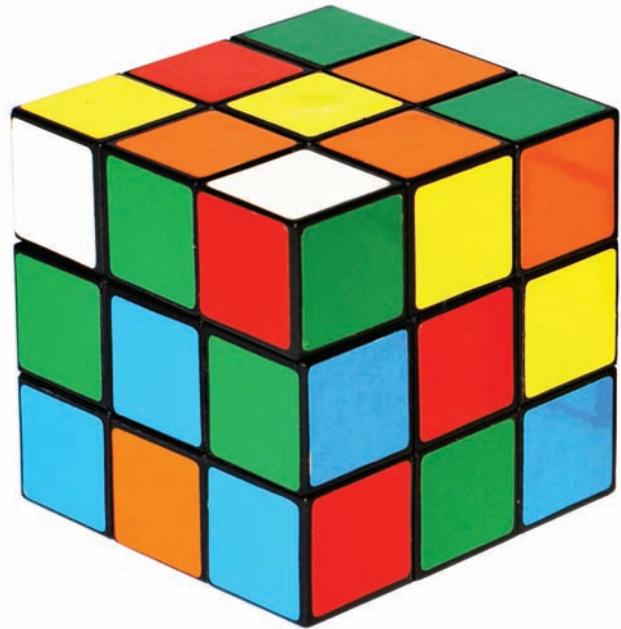
Figure 10 – *The influence of the seven dimensions on reputation, according to clients' opinion*

On the other hand, the following dimensions, according to clients' opinion, excellently influence reputation: products/services (31%) and innovation (25%). In the clients' opinion, reputation is influenced to a medium extent by the following dimensions: workplace (29%), governance (26%) and innovation (23%). There is also a significant clients' opinion that the governance (22%) poorly influences reputation.

To conclude, one can appreciate that the respondents consider reputation to directly influence the economic results of the organization. In order for the results to be significant and indicative for the managers of the Romanian companies, the research should be extended on more subjects in the future.

Conclusions

The perception that stakeholders have at a certain time concerning the reputation of a company is important. According to the conducted research, it depends to a very large extent on business ethics. It is influenced by the company performance, the products/services that are provided, the innovations made by the company. The reputation responsibility lies both with the

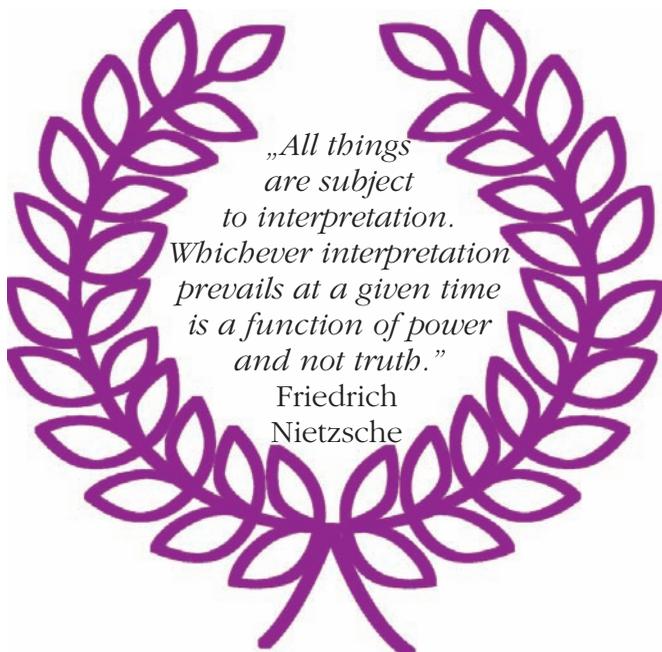


general director and with the department managers, who should form a team within the company. Products/services, vacancies and business development with other investors are often recommended by employees from companies with a good reputation. Identifying and analyzing some factors, which influence reputation, represent the reason why organizational management establishes strategies and action plans. A growth in reputation leads to a growth of the economic and financial advantages and not only.

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A Novel Set of Metrics for the Clean Energy Deployment

Daniela Cristina Momete

University POLITEHNICA of Bucharest, Romania

Abstract

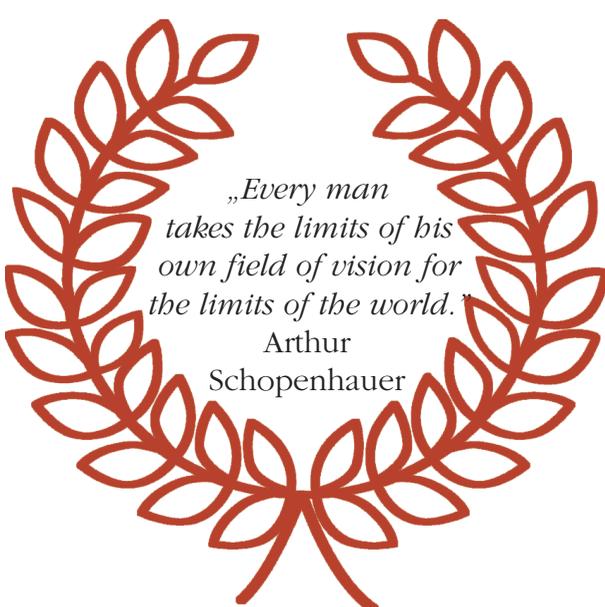
This paper aims to identify a novel set of metrics for a conceptual evaluation framework able to depict the performance of a country on the clean energy path. This implies the identification of a proper set of key performance indicators (KPIs) for clean energy deployment and is based on Romania's example. The first part of the paper deals with the critical analysis of Romania's fuel mix, and the country's situation in the European context in terms of advancements in clean energy.

The second part of the paper identifies the most fitted KPIs to be used in order to depict a given country's clean energy performance. The findings of this paper show that, despite real gains in European targets for clean energy, Romania has still to unlock its real potential in the clean energy field and has to take into consideration its technical sustainable progress. The conceptual evaluation framework introduced by this paper allows the identification of suitable levers for the transformation of the economies to cope with the clean energy requirements. The findings of this paper may be used by regulatory authorities and policymakers as support for more suitable and better-planned measures and policies essential for clean energy development.

Keywords: clean energy, energy efficiency, energy policy, key performance indicators, renewables

Introduction

The world still heavily relies on the fuels of the first industrial revolution, namely fossil fuels, as they are representing today more than 85% of its primary energy consumption (British Petroleum – BP, 2017). Their use has continued over the last 150 years due to their technical and economic



*„Every man
takes the limits of his
own field of vision for
the limits of the world.”*

Arthur
Schopenhauer



accessibility, easy storage for all gas, liquid and solid forms and the current structure of the energy system (Connolly *et al.*, 2016). There are numerous declarations and commitments regarding the need of energy system radical transformation and its transition to a safe, clean, green, with lower CO₂ emissions and more efficient system (European Commission (a), 2016; European Commission (b), 2016; Organisation for Economic Co-operation and Development – OECD, 2015). There are also promising trends that indicate that the global energy system is starting to change, primarily due to innovative technologies, but at a very slow pace mainly due to lack of policy support (International Energy Agency – IEA, 2017).

The impact of the energy system on economic growth, welfare and environment stimulated numerous studies to find alternatives for fossil fuels and recommended the switch to renewable energy sources (RES) (Momete, 2007). Literature presents many approaches to evaluating the effectiveness in implementing RES in different countries, but some are limited to developed countries (OECD, 2017; Energy Eco-

nomics Group (EEG), 2007). Moreover, they are mainly focused on targets and compliance with the targets (IEA, 2015; IEA, 2013), without allowing a more in-depth comparison among the countries. Unfortunately, all the employed approaches offered practical yet limited scope and insight (Nicholls *et al.*, 2014). To address this problem, this paper introduces an integrated approach based on an easy-to-apply evaluation framework specifically tailored to also accommodate the situation of emerging economies. The identification of the relevant key performance indicators (KPIs) is inspired by Romania's situation, a country with excellent scoring in the EU targets, but with great lags in actual sustainable energy deployment.

The rest of the paper consists of two main chapters: the first one investigates the clean status in Romania, while the second one introduces a new set of KPIs able to depict the clean energy deployment. The conclusion part outlines the main findings and the way forward.

Status of the Clean Energy in Romania

The primary fuel mix in Romania still relies on fossil fuels, about 74% of its primary energy consumption from 2016 coming from oil, coal, and gas (BP, 2017). The rest of about 8% comes from nuclear energy, while about 18% comes from RES (hydro-energy and modern). However, both the production and consumption of fossil fuels decreased over the years, recording major negative growth rates, the only sources with the major increase being RES, (Table 1). The decline was mainly due to the decrease of the consumption in the industrial sector (Romanian Energy Regulatory Authority – ANRE, 2015).

Table 2 – *Main clean energy drivers in EU28 and Romania (RO)*

Country/year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Target by 2020, %	Compliance in 2015, %
EU28 Overall energy efficiency gains, %	6.40	8.00	9.50	10.80	12.10	13.40	14.80	16.00	17.00	17.40	18.10	27	67
RO Overall energy efficiency gains, %	21.30	23.50	25.30	26.60	27.90	29.40	31.10	32.80	34.50	35.80	36.40	27	135
Mean EU28 share of RES in gross final energy consumption, %	9.00	9.50	10.50	11.10	12.40	12.90	13.20	14.40	15.20	16.10	16.70	20	84
RO share of RES in gross final energy consumption, %	16.30	17.30	17.10	18.30	20.50	22.70	23.40	21.40	22.80	23.90	24.80	24	103

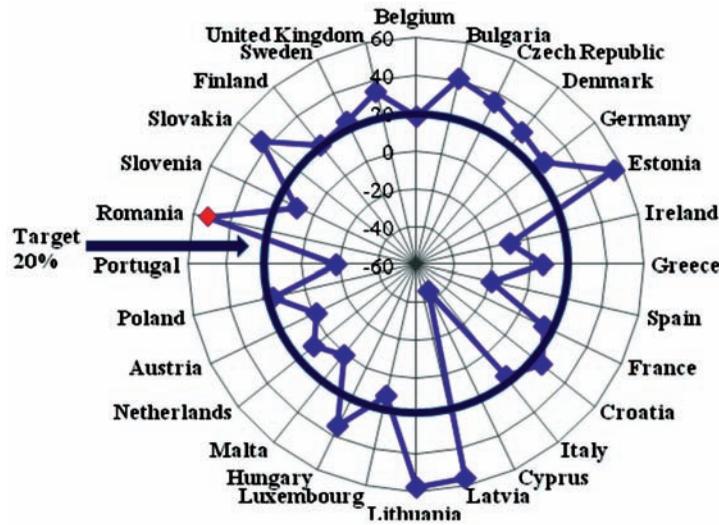
(Source: compiled and calculated from Odysee-MURE Database, 2017; Eurostat online database, 2018)

By analyzing more into depth the clean energy drivers in Romania for 2015, judged against the values from EU28 and the targets, the Romania situation is better than most of the rest of the EU member states (see figure 1). By analyzing the data, the perception is that Romania scored remarkably well to all indicators, in comparison with EU mean and targets, except the transport ones. But the things should be put into perspective, as for instance the CO₂ emissions decreased, but also is the industrial output. Since 1990 the industrial output has decreased by 35% (World Bank (a), 2018), therefore the CO₂ emissions reduction cannot be correlated only with an enhanced efficiency. Moreover, the industrial output also includes the constructions, which were on an ascending trend since 1990, therefore the remaining for the manufacturing industry is even lower. Another factor that encouraged this situation in terms of compliance with clean energy target is the relying on the very low consumption of households, as only 33% of the households were connected to gas infrastructure at the end of 2015 (Iuga & Dudau, 2018).

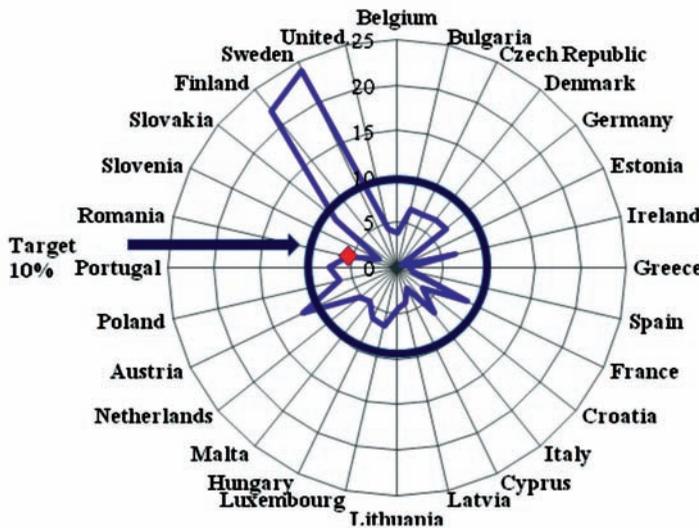
Identification of a New Set of KPIs

Selection of the relevant key performance indicators. The KPIs are generally employed by businesses with the aim to provide valuable information needed to track the performance and formulate required adjustments to ensure success (van Gorp, 2005). This paper follows a similar approach and identifies the relevant KPIs designed to depict the performance of clean energy support in a given country. The identified KPIs will be used on a subsequent research to track the performance in the clean energy field for a pool of countries and to provide specific information needed for the success of the transition towards a clean energy system.

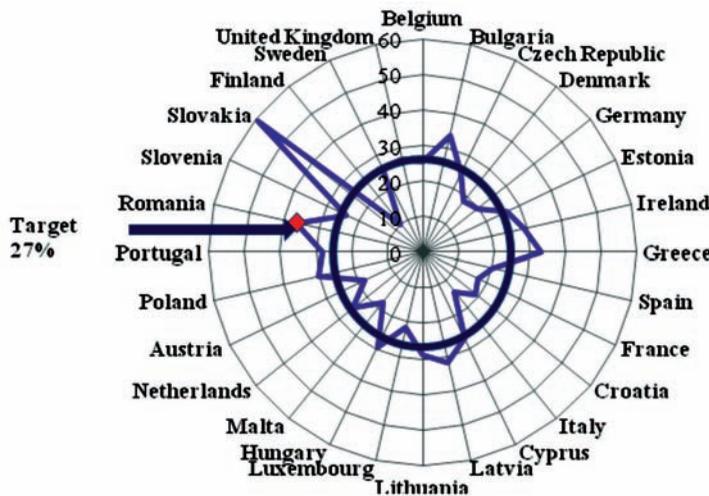
Considering the analysis presented in chapter 1 and the fact that the context is what matters most in selecting the best economic levers in energy and environment area (Phaneuf and Requate, 2017), a new, more relevant, easy-to-apply, transparent and reliable evaluation framework is considered for the clean energy deployment.



a. GHG emission drop in 2015 in respect with 1990 in EU28



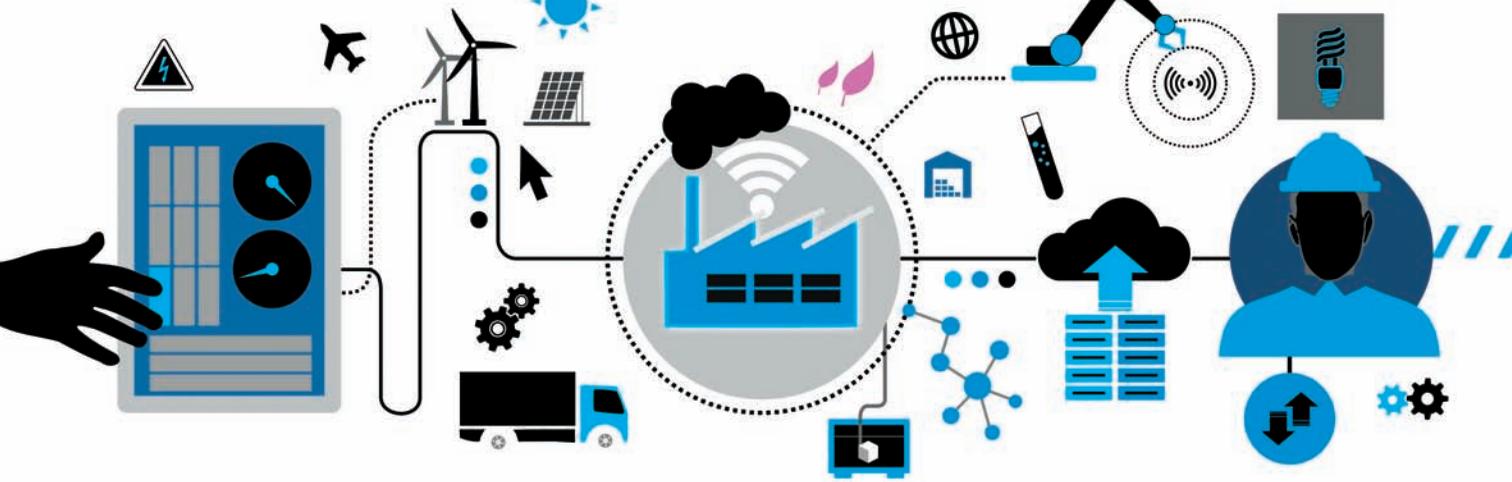
b. RES consumption in transport in 2015 in EU28



c. Energy efficiency gains in 2015 in EU28

Figure 1 – Clean energy status in EU28 in 2015 and common targets for 2020

(Source: compiled and calculated from Eurostat, 2018a; Eurostat, 2017; Odysee-MURE Database, 2017)



The framework contains two dimensions: (1) technical progress and the success of its implementation through; (2) sustainable progress. The selection of the relevant KPIs within the two dimensions of the evaluation framework takes into account the relevancy for the energy field, but also the sustainability related to economic, social and environmental viable indicators. Therefore, in order to identify the most adequate mix of KPI for clean energy deployment, the following data are considered, classified under two main drivers of performance: technical and sustainable progress. In such a way, by integrating all the relevant KPIs into an easy-to-apply evaluation framework the overall best and worst performance may be furthermore clearly and impartially identified.

(1) Technical progress in clean energy package- showing the commitment of countries to pursue on the clean energy path

1. RES consumption in transport: indicates the support of the Governments for the development of RES in the transport area.
2. RES consumption in electrical energy: shows the support of the Governments for the development of RES in generating electricity.
3. RES consumption in heating & cooling (H&C): indicates the support of the

Governments for the development of RES in H&C.

4. Governments' interventions in the energy market: illustrate the financial and/or regulatory support mechanisms from Governments for energy.
5. Total environmental taxes: show the pricing of environmental damage as revenue used by Governments to foster the development of clean energy.
6. Industrial development indicates the actual use of energy products, expressed as industry value added (% of gross domestic product-GDP).
7. Dealing with wastes: illustrates the enforcing of legislation by the Governments in energy efficiency area.

(2) Sustainable progress in terms of clean energy deployment –expressing gains obtained by countries in their quest to implement the technical clean package

1. Energy security: expressed by the energy dependence for all fuels.
2. Energy affordability based on electrical energy: expressed by the price of KWh in purchasing power standard (PPS), with all taxes and levies included.
3. Standard of living in energy terms based on residential fuel selection: expressed as a number of households connected to the gas network.

4. Economy competitiveness: expressed as competitiveness index of a country.
5. Environmental emissions: expressed by greenhouse gases emissions (GHG) per capita.
6. Energy efficiency: expressed by the total energy efficiency gains for main sectors of the economy.
7. Energy intensity of the economy: expressed by the consumption of energy divided by GDP.

Concise discussion on the reasons of the selection of KPIs. The first driver of performance encapsulates indicators that reflect the technical performance recorded by a given country. As the energy system relies on three main individual sectors, electrical energy, transport, and H&C, they are included in the present selection. Moreover, the Governments' support is seen as a major enabler of the clean energy success, therefore several indicators are correlated with the actual energy policies and measures.

RES in transport: this indicator is included as transport is responsible for about 27% of global final energy consumption and is mainly based on fossil fuels (IEA, 2017). Therefore, its support by appropriate Governments' measures is likely to produce a significant shift towards the success of clean energy goals.

RES in electrical energy: this indicator is selected as the advancement in this field reflects the willingness of Governments to support RES development by appropriate incentives and transformation of the electrical infrastructure to incorporate intermitted RES.

RES in H&C: this factor is introduced as the H&C in industry and buildings constitutes globally 40% of the final energy consumption, about 65% of this coming

from fossil fuels (IEA, 2017). Therefore, the political support of RES in this domain is essential for energy savings based on energy efficiency and clean final energy carriers.

Total environmental taxes: this indicator is introduced as its use is an opportunity for the Governments to incorporate the pricing of environmental damage and includes resource taxes, transport taxes, energy taxes, and pollution taxes. Its use is seen as dual, as a way to raise revenues, but also as a means to discourage a given unsustainable behavior.

Governments' interventions in the energy market: this indicator is considered as the actual policy packages in the energy field in EU, intentionally, unintentionally or by design, continued to support energy consumption from fossil fuels rather than RES. Therefore, its inclusion is an expression of the recognition of externalities and is expressed by the tax subsidies based on tax reductions/exemptions.



Industrial development: this factor is introduced in order to place all the indicators in a broader context and to better correlate the environmental emissions and energy efficiency with the actual industrial production.

Dealing with wastes: this indicator is thought expressly for recycling rate of electrical and electronic waste (e-waste) as it shows the willingness of the Governments to pursue the collection and recycle indicated by the EU decisions (Official Journal of the European Union, 2012). Its value results from the multiplication of collection rates of e-wastes with their reuse and recycling rate.

The second driver expresses the gains obtained by countries in their quest to implement the technical clean package and reflects the actual sustainable progress in terms of clean energy deployment.

Energy security: this indicator relies on energy dependence for all fuels and is essential for the security of supply in EU, where the fossil fuels are scarce and the energy dependence was above 54% in 2015 (Eurostat, 2018 (b)).

Energy affordability: shows how affordable are the electrical bills for households and takes into consideration the price of KWh expressed depending on the actual purchasing power of the consumers.

Standard of living in energy terms based on residential fuel selection: given the fact that urbanization is very important for energy-related indicators, this factor is introduced to portray also the situation of countries with about 50% rural population as Romania (World Bank (b), 2018) and is expressed as number of households connected to the gas network.

Economy competitiveness: expresses how competitive is a given economy and is based on individual competitiveness



index (Schwab, 2017), which is calculated on elements relevant to clean energy as technological readiness and innovation.

Environmental emissions: given the tremendous effects of the energy system on the environment, the environmental concern is introduced here by considering the GHG emissions per capita.

Energy efficiency: shows the energy efficiency gains obtained by a country on main sectors of the economy: households, industry, transports, and services.

Energy intensity of the economy: illustrates how efficient is the consumption of energy in a given economy and is expressed by the consumption of energy divided by GDP.

The (2 x 7) conceptual framework is meant to holistically capture the actual performance of a given country on clean energy deployment and it constitutes an easy-to-apply approach. The use of multiple indicators might be challenging as the overall picture might be complex and difficult to interpret. Therefore, the KPIs are limited to 14 to prevent overcrowding and to keep the model easy-to-apply.



Conclusions

The world is on the quest to identify the best means to address the energy challenge in terms of consumption, security, CO₂ emissions, and climate change. However, despite the consensus on the need for a change of the energy system, the effective levers and the terms of this change are still uncertain. The system inertia, doubled by the market failure to account the externalities needs a firm Governments' commitment on the path to a clean energy future. The initiation and enforcement of better-designed policies and regulations in the energy field by political actors may lead to a real shift of energy towards a cleaner one. Therefore, the purpose of this research was twofold: to understand to real progress in clean energy based on Romania's example and to identify an appropriate set of KPIs able to depict the performance of a country on the clean energy path. The KPIs included the consideration of Governments' contributions and successes on this challenging road.

Nevertheless, institutional arrangements (laws, regulations, enforcing administrative structures) are to be better designed, considering the rapid penetration of the internet of things (IoT), referring to the connectivity among physical and digital environments through advanced technologies (Arshad et al., 2017). If the IoT will revolutionize the world like the Internet itself, over the next 10 years the discussions will fundamentally change.

Further research is on the way to quantify KPIs with the aim to use the introduced metrics to rank and classify the clean energy deployment in the EU member states.

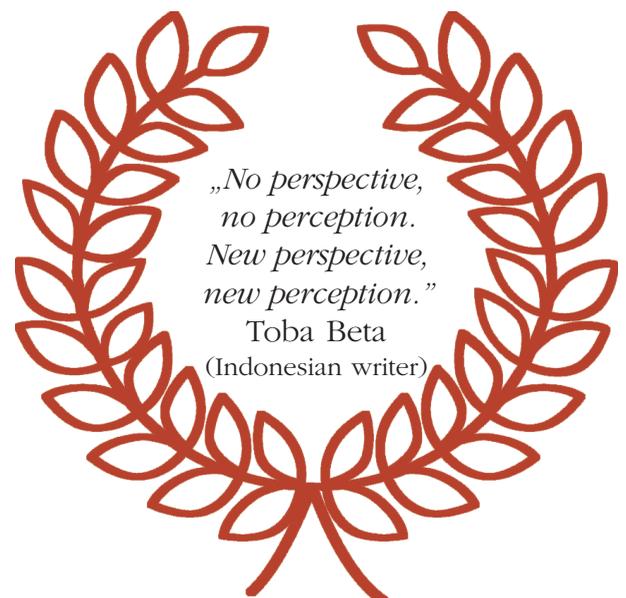
While the quantitative approach is beyond the purpose of this work, the actual transposition of the conceptual framework into an effective tool for performance assessment presumes historical harmonized datasets for each indicator (data series covering a long period of time for the countries involved in the focus group). Therefore, the actual application of this conceptual framework is limited by the availability of data for all the considered countries and years, but this might be addressed by the appropriate customization of KPIs within further research. This research containing the conceptual evaluation framework will be continued with the actual identification of a composite index of clean energy deployment in the EU member states.

The identified KPIs may be used by policymakers as a support of up-to-date, better designed, more coherent policies in the area of clean energy. This, in turn, will serve the multiple policy objectives in energy field related to reliability, affordability, security of supply, climate change, and toxic releases.

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Digital Marketing Tools Used by Companies

**Olivia Doina Negoită (1), Anca Alexandra Purcărea (1), Mirona Popescu (1),
Andrei Niculescu (1), Cătălin Nicolae Coman (2)**

(1) University POLITEHNICA of Bucharest, Romania, (2) VALAHIA University, Târgoviște

Abstract

Digitization is becoming more and more present in business, not just changes in consumer behaviour, but the adoption of new technologies, tools and applications is highly disruptive, with immediate impact on the business of all companies. This study aims to find out the degree of use of digital marketing by companies in Bucharest Romania. A questionnaire was produced and distributed to those responsible for marketing in the companies so that the results were conclusive. From the data extracted, it was possible to determine the most used methods for companies to promote and which of them contribute to the competitive advantage.

Keywords: digital marketing tools, IT&C companies, social media channels

Introduction

Both in traditional and online marketing, the fundamentals remain the same: identifying and describing the potential customer/buyer, followed by designing what marketers call Unique Selling Proposition (USP), that is, the unique factor the vendor argues as being the primary motivation for the customer to try a particular product or service.

Continuing classic marketing processes, the next step in online marketing to make an effective plan is to study the market: identifying clients, describing their profile, identifying online places where they spend time. There are currently many tools to carry out true marketing studies, whether paid or free of charge, depending on the allocated budget.





Regardless of the tactics created and adopted by traditional companies, digital marketing has proven to be „a necessity programmed”. Companies that already have an online presence are developing their marketing strategies and the rest is rapidly upgrading their business models to ensure compatibility with the ever-changing digital world.

Prior to that, small businesses focused on competition on the local market. Globalization and digitization have led to an increase in both omnipresent opportunities and competition. Apart from effective digital marketing ideas, companies need to come up with strategies to impact their audience. The only way to survive the competition today is that this competition along with the adoption of an effective digital marketing strategy will take you one step closer to achieving this goal.

The article aims to investigate the current level of knowledge and use of digital marketing in Romania. To customize the results, a questionnaire for IT&C companies are being built. It was distributed through email and social media channels to companies in Bucharest. After collecting the answers given by the marketers, the authors highlighted the most used digital marketing techniques and which of them have helped to get a competitive advantage for companies.

State of the Art

Numerous researches targeting digital marketing and social media channels are currently being conducted in order to display how companies can build their brand awareness, attract consumers, obtain new projects, etc. (Jaakonmäki, 2017) conducted a quantitative study to determine how messages from Instagram users influence. His purpose was to determine certain patterns to help marketers create engaging content. It is difficult for companies to develop effective content in marketing campaigns, which is essential in engaging consumers. Banner (2018) focused on establishing the relevance of digital business presence. Thus, he organized interviews with multiple companies to determine what a digital presence is, the obstacles encountered and proposed recommendations based on them. In his research, Teixeira (2018) performs a qualitative analysis to determine key factors in adopting a marketing strategy for a start up. Companies just on the market have a fragile structure, low resources, which is why you need to first analyse how they are affected by the adoption of technology. The author uses focus groups to find the views of marketing specialists.

Today for small businesses, online marketing is an opportunity to build strong customer relationships, as highlighted in Nikunen’s study (2017, pp. 171-188). One issue is to maintain these long-term



relationships. The researcher analysed the degree of understanding of strategies for digital marketing tools used by small companies. An individual analysis of various marketing tools is carried out by Camilleri (2018, pp. 85-103) to boost awareness of a company's products and help build a general marketing strategy. Thus, according to his research, it is proposed that managers should keep in mind the market, mission, measurement, resources, media, and objective.

The use of websites and social networking by people has led companies to focus on developing relationships with consumers, as reflected in Khasawneh's (2017, pp. 1-10) article. Within it, the social networks and the defining characteristics of each are detailed and an approach to social marketing tools is explored. Wilson (2018) interviewed 110 people responsible for marketing in small and medium-sized businesses to see their knowledge of digital marketing. He found that although most

use them, they are not used at full capacity due to limited capital. He recommends through the results that these companies should consciously decide on online platforms, has a structured plan and complies with it.

In his paper, Iankova (2018) explains the differences between the use of social networks by B2B and B2C companies. He conducted a focus group study, obtaining 449 responses. The analysis made shows that B2B use these social means for a global effect. A scale for new resources is being developed and theoretically validated by Marchand (2018). He determines the social resources that are characteristic of the media and have an impact on social media marketing and brand performance. By conducting a test, it is highlighted that this social media strategy is important for small businesses, as others focus on social network scanning and social media availability.

Given that one-third of the current population uses online media, the relationship between the company and the consumer is fundamentally changed. Qureshi (2018, p. 47) proposes an environment in which the relationships between basic variables: brand equity and social media marketing can develop. A considerable percentage of the companies in Romania believe that the competitive advantage can be obtained by using social networks. The marketing mix also includes social channels, and companies use them in marketing strategies they develop. Specifically, 87% of Romanian companies say they use social networks in marketing, and 8% say they will start using them in the coming period. According to an analysis by the Financial Market (2017), 80% of companies are seeking marketing efficiency in social networks, and over 50% are proposing to use it in 2018 as a channel to attract consumers.

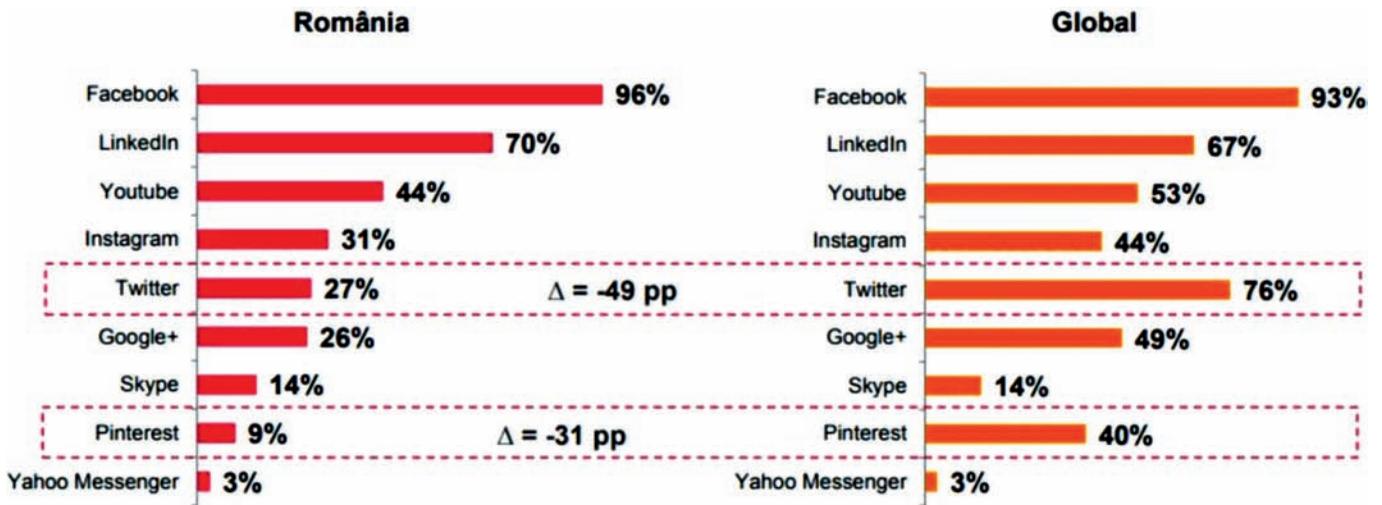


Figure 1 – *The most used social media channels*
 (Source: Financial Market 2018 a)

As you can see in Figure 1, the most used social media platforms for sponsored ads are in Romania: Facebook – 81%, Google – 50%

and LinkedIn – 14%, and globally: Facebook – 87%, Google – 39% and Twitter – 18%, followed by LinkedIn with 17%.

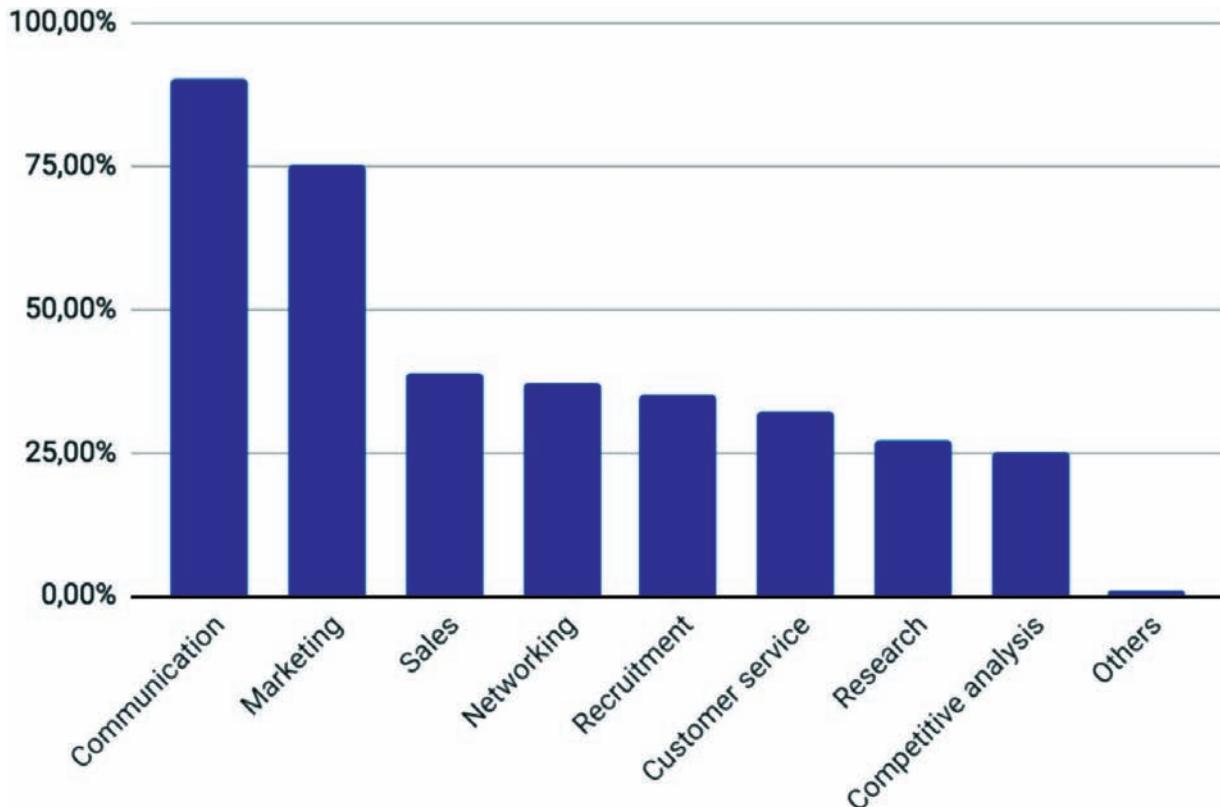


Figure 2 – *The activities that use Social Media in Romania*
 (Source: adapted after Financial Market 2018 b)

A percentage of 37% of Romanian companies used daily social media channels, 31% once every 2-3 days, and 27% of them post each week. Correlated with these results, on know that there is still a major challenge for companies in generating content for social media, which has led to drop 12% in the percentage of companies with daily posts, in the past three years in Figure 2.

Methodology of the Study

The aim of distributing this questionnaire consists of verifying more hypotheses. Thus, within it was used single, multiple answer questions or Linkert scale. The questionnaire consisted of 15 questions designed to verify the validity of the responses received in order to obtain conclusions with a high degree of credibility and certainty. Including the non-validation of certain assumptions is a positive factor in research, indicating that they are not a necessity or not relevant to companies today. The research is a primary one and wants to determine if IT & C companies in Bucharest use digital marketing and on which online promotion methods they emphasize and

prioritize when marketing strategy is drawn up. At the same time, it is desired to find out which of these has led to a competitive advantage in a growing market. Thus, the questionnaire was distributed to the companies in Bucharest between May and June 2018. This was answered by the people who are part of the marketing department if this exists, otherwise, the people who are in charge of promoting the company online, to collect relevant data. They responded individually to the study, which consisted of an online questionnaire sent by email or through social media channels, in the form of a link that redirected the respondent to the front page, the presentation page. It ensures the confidentiality of the data and the anonymity of the company, briefly describing the purpose of the study and how to fill in the questions. The form was made using Google Docs.

Results

After collecting the data from respondents who answered the survey, the following results were obtained and interpreted through graphs and diagrams in Figure 3:

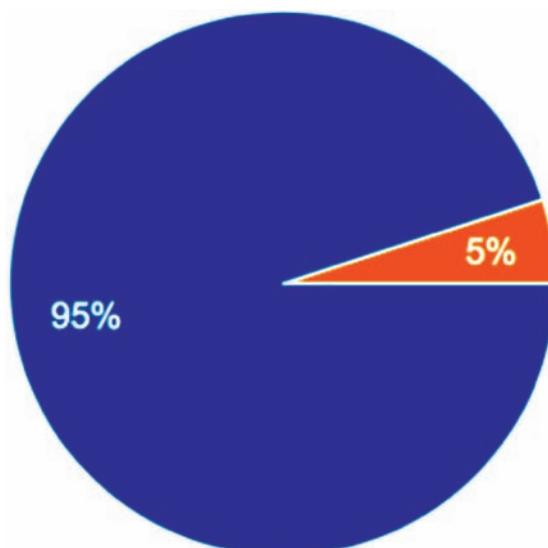


Figure 3 – Usage of digital marketing



Today, using digital marketing is a must for companies that want to have an online presence. Most consumers find out about the existence of services/products by accessing the Internet from mobile devices or laptops, computers. Any company that develops software and hardware is aware of the technological progress and its existence in people's lives, which is why they try to

reach them through digital means. As a result, a majority of respondents 95% confirmed the fact that they use digital marketing channels. The results of this diagram are favourable to the study, as the following answers in the questionnaire will contribute to the relevance of the paper in Figure 3.

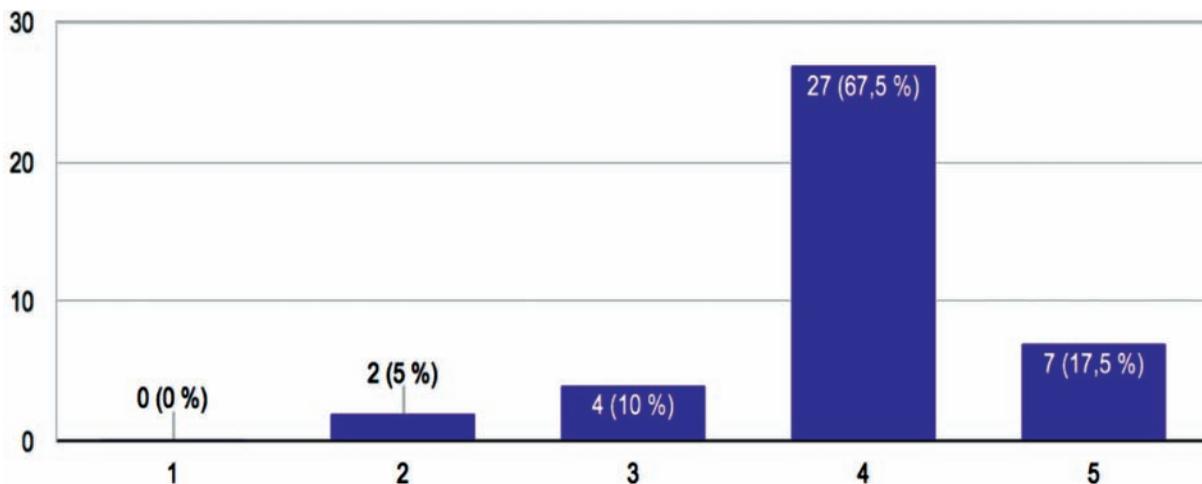


Figure 4 – *Online presence of a company*

As mentioned earlier, people are trapped in numerous activities throughout the day, which is why much of their free time is spent on socializing channels, blogs, the Internet, to keep up with various information,

to make transactions, shop, etc. It can be seen from Figure 4 that 67.5% of the IT&C companies that responded to this questionnaire claim that they have a high online presence and 17.5% a very high one.

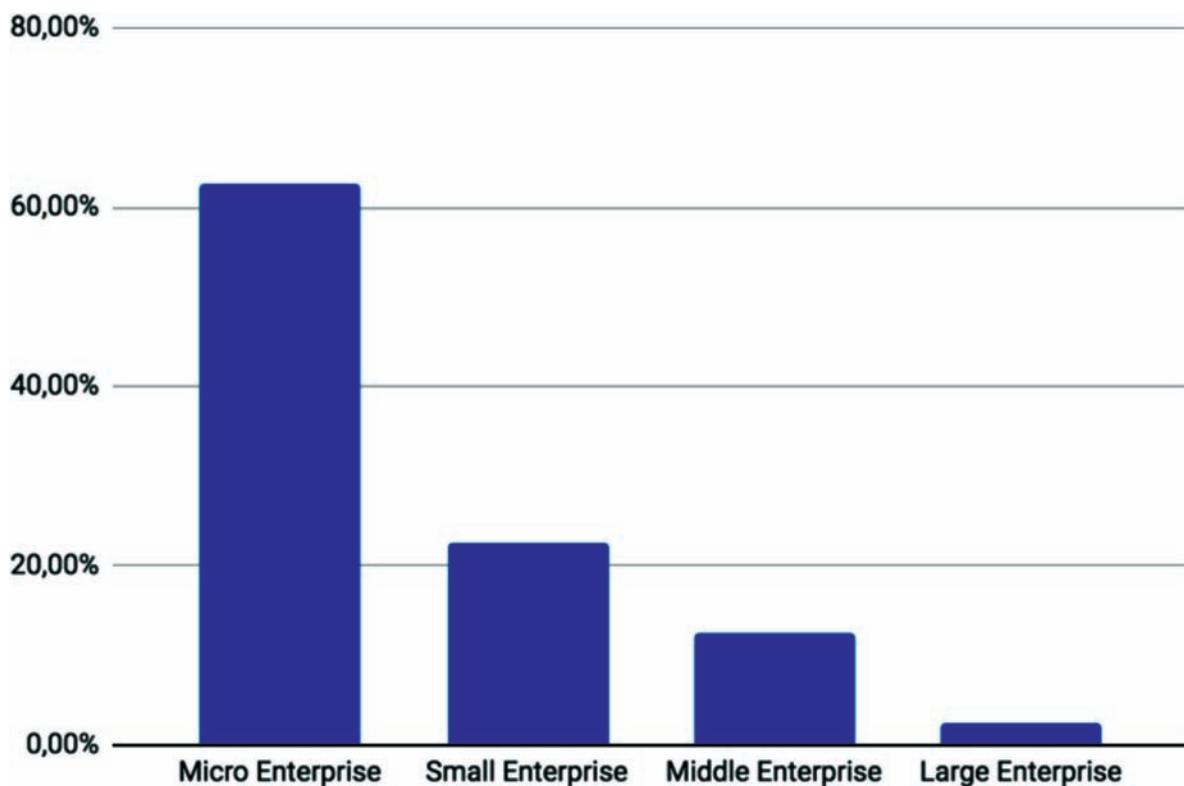


Figure 5 – Types of enterprises

In Bucharest, IT & C field has grown strongly, both through multinationals such as IBM, ORACLE, but also through the emergence of small and medium-sized businesses. The questionnaire was intended for the last ones, as it is more difficult to claim a new company and distinguish it from others that produce also software products. As shown in Figure 5, the majority of respondents who completed the questionnaire work or have micro-enterprises, followed by those in the small and medium-sized enterprises category. Therefore, the results of the study will have the highest degree of relevance at the micro-enterprise level.

85% of SMEs were founded after 2010, while 15% appeared between 2000-2009 in Figure 6. Given that the current paper focuses on the usage degree of marketing channels and their influence on increasing

the number of clients, one of the main objectives of the survey was the fulfilment of the questionnaire by a majority of respondents who selected the option „2010-2018”, because the implementation and use of marketing channels has become more common and complex during this period, especially in Romania, and the respondents’ knowledge about these notions can be much wider.

According to the study, the predominant digital marketing channel, which is usually the one where is allocated the largest share of the budget, is represented by the website. Figure 7 displays that the website remains in the top preferences for the marketing strategies made within the Romanian enterprises. One reason for choosing the biggest amounts to be invested in this channel within SMEs is the ease of building a site and the fact that any company

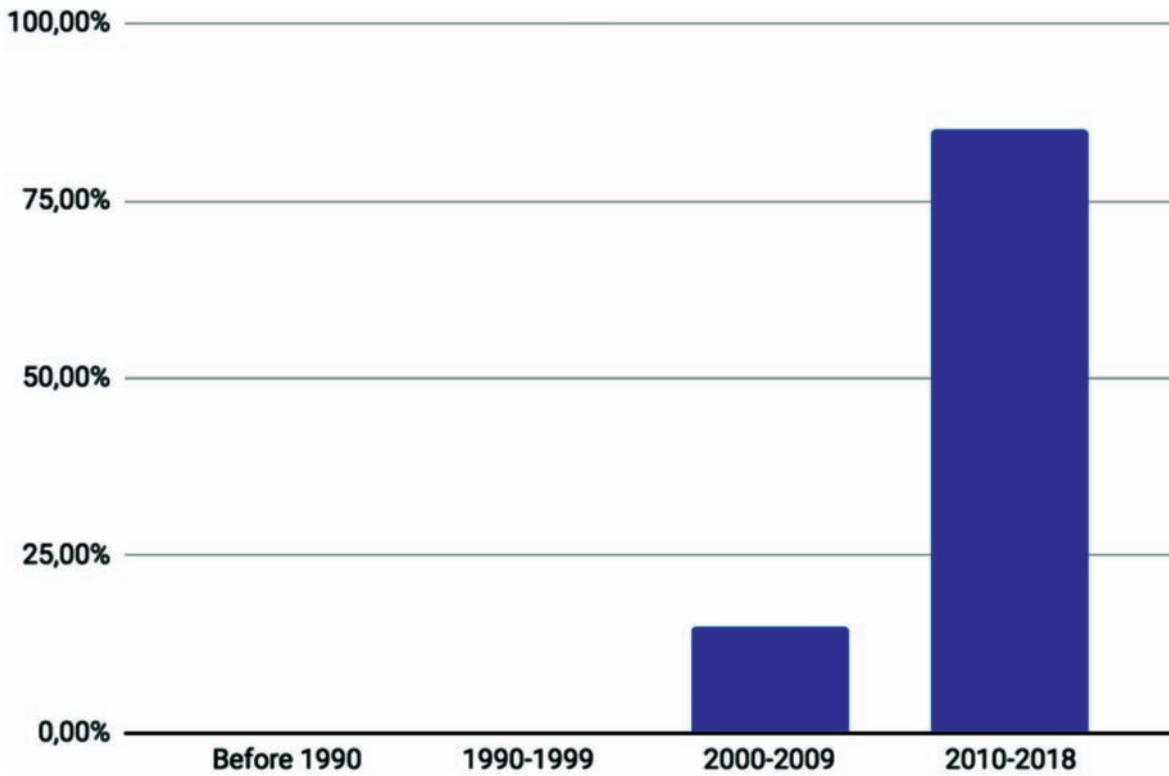


Figure 6 – SMEs date of foundation

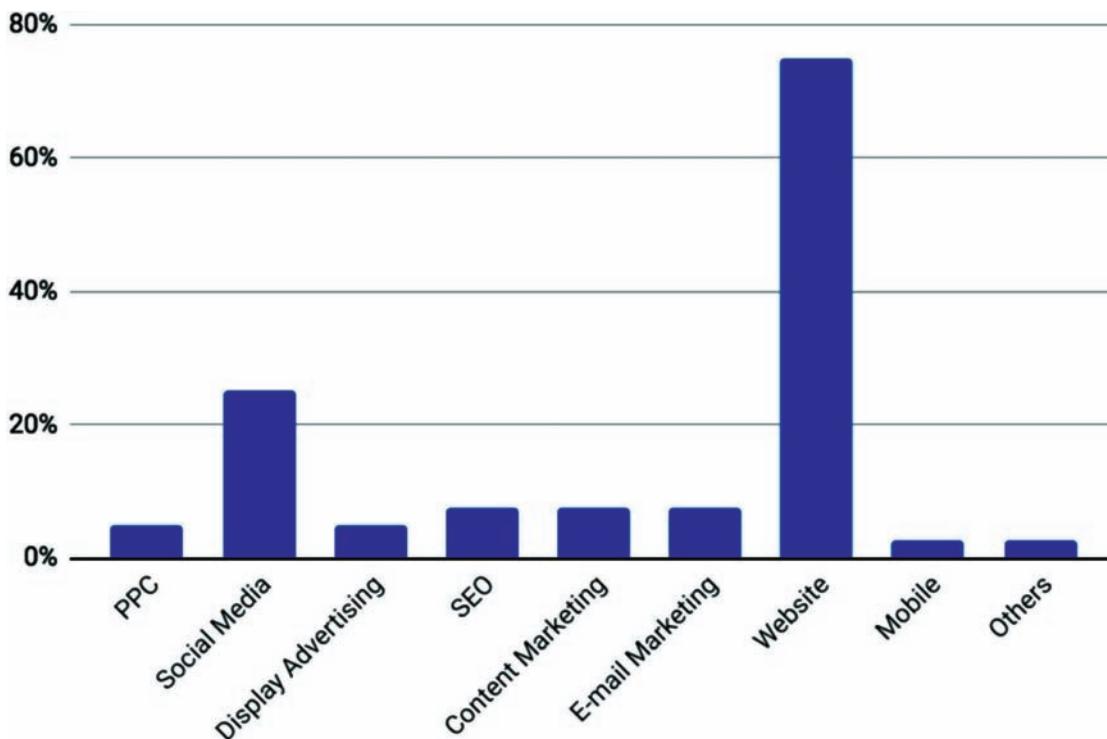


Figure 7 – Distribution of company's marketing budget

wishing to consolidate their brand and generate online conversions requires, first of all, a well-developed and responsive website. In addition to this, there is now wealth of tools, platforms, companies and resources that help create a structured web

page with a flawless design and detailed content that contributes to the surfing efficiency of Internet users. A 25% per cent of companies invest in social media campaigns, where people choose to spend more and more time.

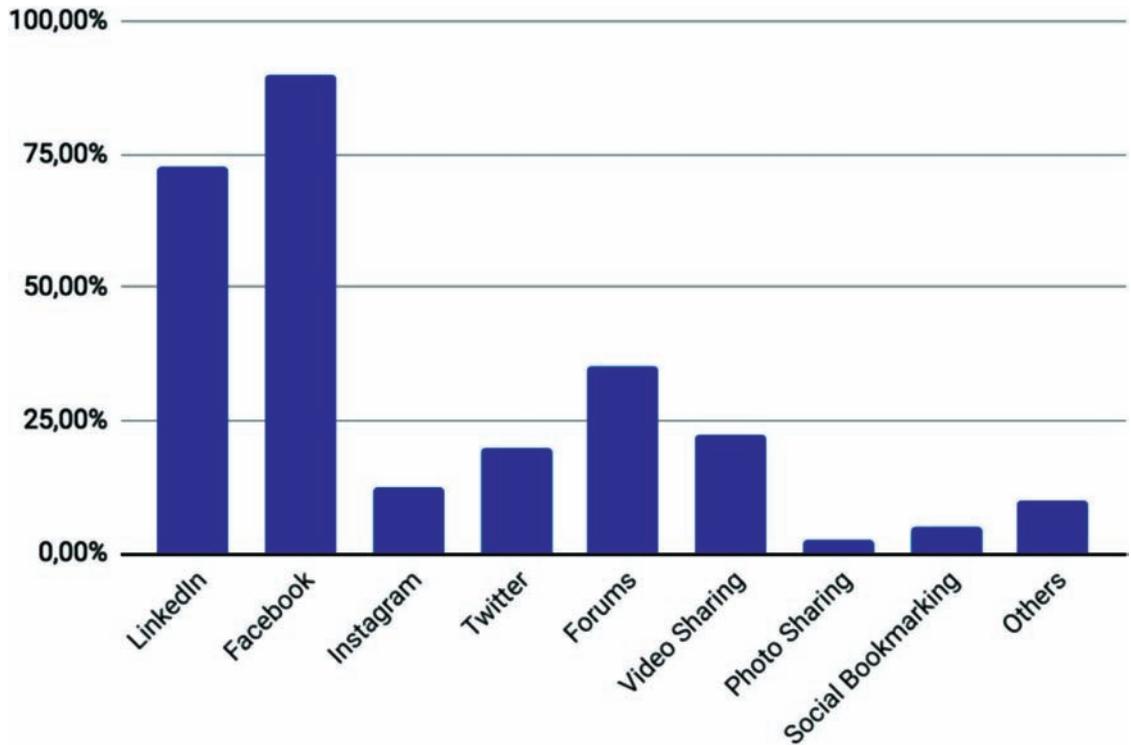


Figure 8 – *Company preferences on social media platforms*

It can be noted in Figure 8 that Facebook is still a leader when referring to social media and information sharing, holding 90%. It is followed by LinkedIn 72.5%, which contributes to an important part of the IT&C companies because most of the companies and employees have a profile created on it. LinkedIn puts more emphasis on developed projects, employee knowledge, promoting the company through these key elements, unlike other social channels that attract the customers via images, videos, and advertisements.

A percentage of 65% of the companies that participated in this study in Figure 9

responded that the website played a decisive role in gaining competitive advantage. Permanently improving it as well as keeping up-to-date information on its pages, the way data is presented, the way people are browsing, the adaptability to many electronic devices is causing the consumer to make a decision about a company in information technology.

Conclusions

In this highly developed era of the Internet, where everything is driven by technology and digital, online Marketing is needed to address the needs or challenges

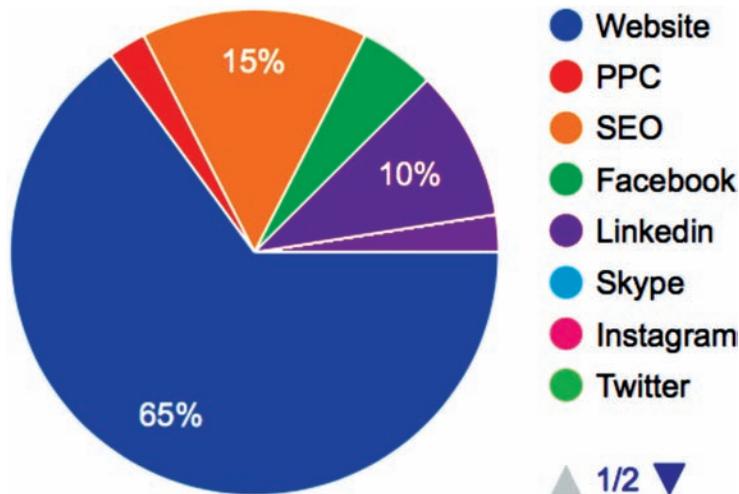


Figure 9 – *Digital marketing for gaining competitive advantage*

of a company. Digital Marketing requires a well-executed strategy involving planning, testing, execution, maintenance and evaluation. Digital marketing can be outsourced to companies entirely dedicated to this activity, but this study wants to see its level of existence and implementation in small-scale companies in Bucharest. It can be noticed that the IT & C domain has developed especially since 2010 since then a growing number of companies have been registered. This fact helps the present study because the means of online promotion have grown in the last years, especially in Romania. Due to the low budget, these companies cannot afford to engage firms that specifically deal with marketing, which is why they are focusing on building a responsive and structured website to attract potential customers. Therefore, this study consists in distributing a survey to IT&C companies from Bucharest in order to determine the use of digital marketing, the social media channel preferred by them, and the means through which a company can achieve its competitive advantage.

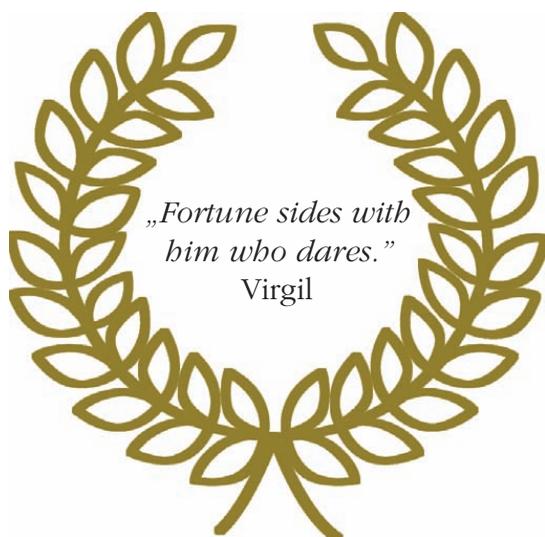
After analysing the data collected through the questionnaire, the following conclusions

were reached regarding the use of digital marketing channels and their role in achieving the competitive advantage:

- The results are relevant, especially at the micro-enterprises level, which dominates with 62.5% in this survey;
- The data obtained are up to date as most respondents argued that SMEs owned or for which they were working were set up between 2010 and 2018, being young and modern. Thus, the conclusions obtained will help in formulating future marketing strategies;
- The popularity of using digital marketing channels is confirmed, as 95% of respondents chose to answer affirmatively the question „Do your digital marketing channels use your company as part of the promotion strategy?”
- The marketing channel in which SMEs choose to invest the largest share of the marketing budget is the 75% website, it is vital at the moment for a company to own a website;
- The main objective of the paper is supported, namely that the use of the website influences the achievement of the competitive advantage of a company.

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All others must
bring data.**

W. Edwards Deming

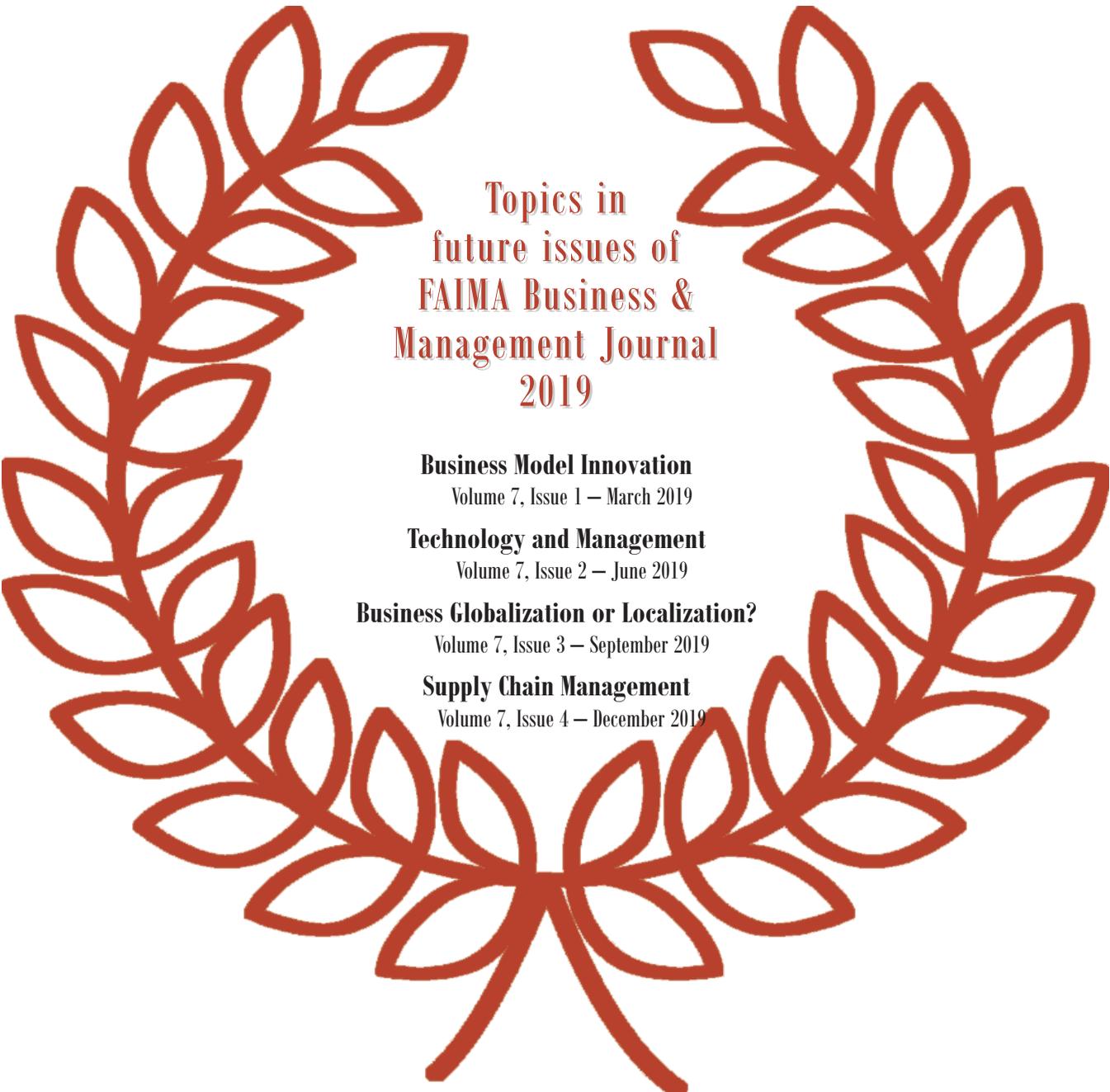
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