

**VI INTERNATIONAL
CONFERENCE
QUALITY SYSTEM
CONDITION FOR
SUCCESSFUL BUSINESS
AND COMPETITIVENESS
PROCEEDINGS**



CENTER FOR
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KRAGUJEVAC



FACULTY OF
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KOPAONIK, 28/11.-30/11/2018

**ASSOCIATION FOR QUALITY AND STANDARDIZATION OF
SERBIA**

VI INTERNATIONAL SCIENTIFIC CONFERENCE

**QUALITY SYSTEM CONDITION FOR
SUCCESSFUL BUSINESS AND
COMPETITIVENESS**

PROCEEDINGS

Kopaonik, 28/11 – 30/11/2018

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ASSOCIATION FOR QUALITY AND STANDARDIZATION OF SERBIA

e-mail: office@aqss.rs

web: www.aqss.rs

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web: www.cqm.rs

e-mail: cqm@kg.ac.rs



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Висока техничко
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P R E F A C E

Dear colleagues, ladies and gentlemen, followers of quality, welcome to the 20th National and 6th International Conference organized by the Association for Quality and Standardization of Serbia, named QUALITY SYSTEM CONDITION FOR SUCCESSFUL BUSINESS AND COMPETITIVENESS, within which the following events are organized:

- 45th National Quality Conference of Serbia*
- 22nd Counselling SQM 2018*
- 2nd National Quality Conference of Bosnia and Herzegovina*
- 2nd International Conference for Quality Research*
- 12th International Quality Conference*
- 12th International conference ICQME 2018*
- 3rd International conference on Quality of Life*

Significant changes are happening on the global plan of quality infrastructure, which strive to constant improvement and advancement.

As far as our country is concerned, we have a trend of a more serious understanding of the need for quality whose task is to contribute to a higher quality business through the quality of products and services, education, health care, public sector, politics, media, and by that, to the quality of life of our citizens.

It is of high importance for the Republic of Serbia to put all the available resources in function of advancement of economy. We believe that the resources are not exploited enough, especially the human potential, that is, scientists and experts who work with the system of quality.

By organizing scientific conferences so far, including this one, 20th National and 6th International Conference, the Association of Quality and Standardization wishes to give a scientific and expert contribution to the tendency of economic growth, and thus to the improvement of the standard of life.

A larger number of topic fields will be processed on this scientific conference related to: Quality system condition for successful business and competitiveness; Improvement of quality infrastructure management systems; Development and establishment of management (in theory and practice); Management by knowledge; Quality of products; Audit and certification; Global quality; The Culture of quality; Management systems in the public sector; Quality and risk; Information system in the function of management system development; Motivation and quality; Organizational behaviour, leadership and management; Quality and quantity of life; Influence of science and technology on the quality of life; Local, regional and global quality of life.

Organization of “round tables” on the topics:

- Development and implementation of system for performance evaluation of high education institutions and systems in Serbia;*
- Availability and safety of food: From vision to reality;*
- We will process the topics and draw conclusions for two very significant fields such as high education and food safety.*

Papers published in three collections give a possibility to leaders in the real and public sector to find the right strategy, politics, vision and mission; to strengthen their competitive position on the market by a good setting of goals and their realization, and to increase the satisfaction of their customers and users of their services.

This year, 20th National and 6th International Conference will be organized in cooperation with:

- The Centre of Quality of Faculty of Engineering in Kragujevac*
- The Centre of Quality of Faculty of Mechanical Engineering in Podgorica*
- Faculty of Mechanical Engineering, University in East Sarajevo*
- College of Applied Studies In Technics and Technology from Krusevac*
- Middle and South East countries quality initiative*

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- Ministry of Economy Of the Republic of Serbia*
- Ministry of Education, Science and Technological Development*
- Ministry of Trade, Tourism and Telecommunications*
- Serbian Association of Employers.*

On behalf of the organizational board of the 20th National and 6th International Conference, I would like to thank all the authors and co-authors of papers, co-organizers, sponsors and donators, means of public information, participants from Serbia and abroad who helped us organize this conference.

The Chairman of the Organizational board
Professor Zoran Punoševac PhD

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SPIRITUAL LEADERSHIP OF PROJECTS IN CONDITIONS OF HIGH COMPLEXITY, RISK, INTERDISCIPLINARITY, INVESTMENT AND A LARGE NUMBER OF STAKEHOLDERS

Prof. dr Slavko Arsovski¹

Abstract: Project management has been well deliberated in literature and generally, it implemented in practice. With complex and costly projects with present risks, it is necessary that besides the management there is a strong leadership in projects. Leadership vision and its spread to each participant in the project, and later to the realization of project solutions, in many cases solves numerous problems at all stages of the project. However, if the project is complex, risky, and interdisciplinary and requires involvement of a larger number of stakeholders, the aspect of spirituality should also be included.

In this paper, the emphasis is on the role and contribution of spiritual leadership to the success of this type of project. For such a project, the key necessary aspects of spirituality and the expected results in the response to the "classic" approach to project management are defined.

Keywords: Spiritual leadership, Project, Complex, Interdisciplinary, Expensive, Long-term

JEL Classification: Y50

1. INTRODUCTION

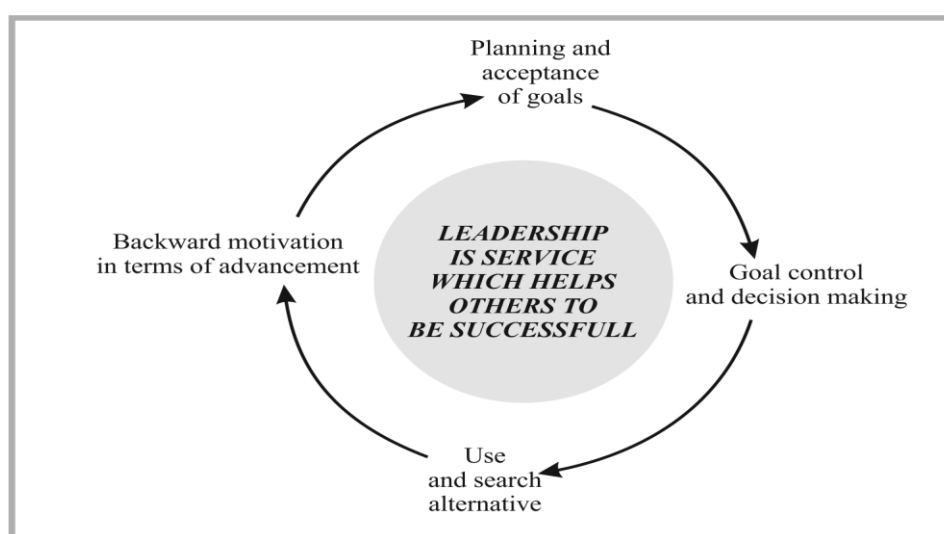
A project management and project leadership are concepts developed and partly standardized at the end of twenty century as answer on requests on quality or risks of the projects. In case of very complex and risks relate projects, as well as with high interdisciplinary, investment and large number of stakeholders a project management – and leadership on „classical“ kind is not satisfy. Is needed more, including aspect of spirituality. As leading project manager author recognized it for one concrete project called „European Ethno Village Tekija“ with 45 macro projects defined in area of culture, philosophy, sciences, ecology, art, media, sustainable growth, economy, construction, education, archaeology, knowledge economy, transport, food, etc. That needs many changes including aspect of spirituality, what is the subject of the article.

¹ Prof. dr Slavko Arsovski, University of Kragujevac, Faculty of engineering, Kragujevac, Serbia, cqm@kg.ac.rs

Article is organized on following way. After introduction, in second chapter is literature review of project management-and leadership and chapter three aspect of spirituality. After that, in chapter four is presented relationships between project leadership and emotional intelligence and spiritual development and in chapter five leadership. In chapter six are analyzed relationship between science and spirituality and in chapter seven effect of spiritual project leaderships in praxis.

2. PROJECT MANAGEMENT AND LEADERSHIP

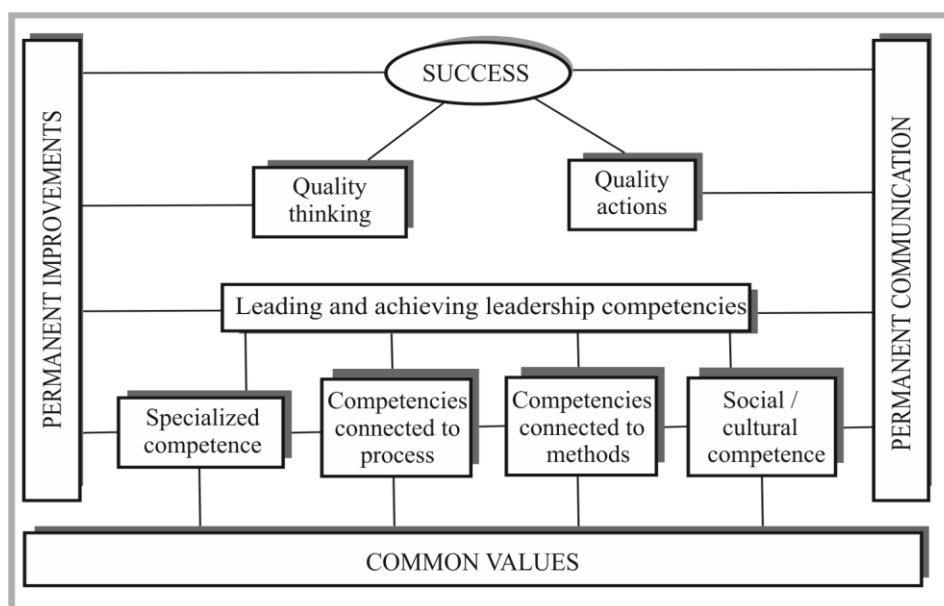
A project management is developed in second part of 20th century from the aspects of project quality [1], team management, collaboration in projects [2],[3]. In 21th century emphasized aspects of intangible aspect of a project [4], risks (ISO 21500, ISO 10006) [5], knowledge [6], etc. In this period are analyzed different aspects of mutual project management and leadership [7][8][9][10]and project leadership [11][12][13][14][15][16][17]. Next aspects are related to complexity [18], interdisciplinary [19] etc. based on previous literature sources is defined circle of iterative leadership process (Picture 1) as service which helps to others to be successful.



Picture 1. Circle of interactive leadership

Source: Author 2018

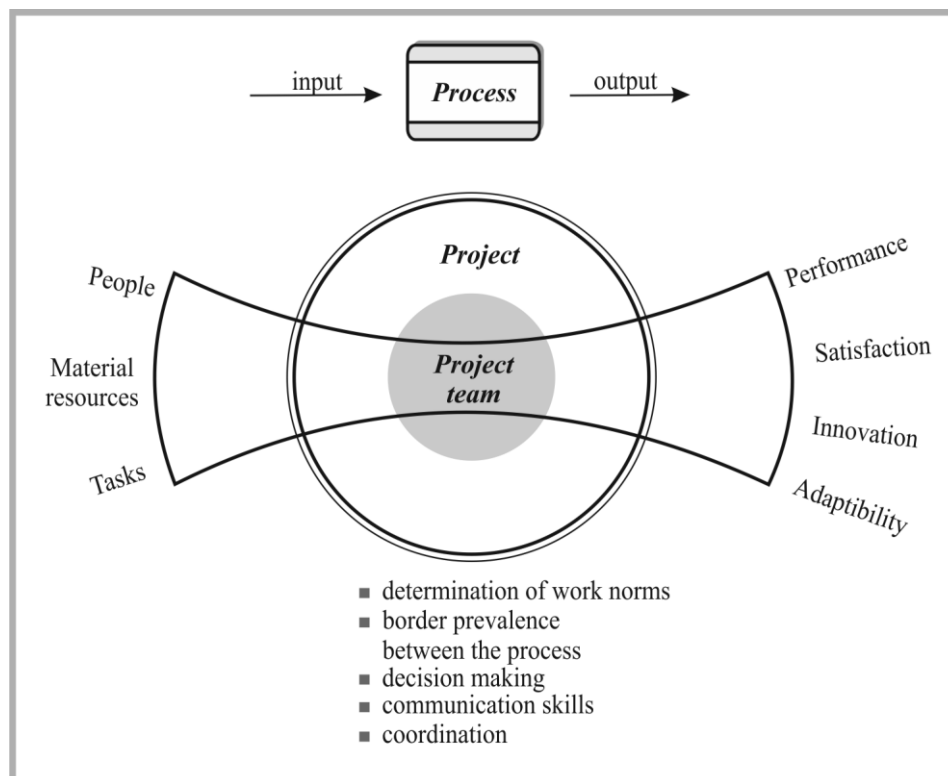
A leadership competences [16] directly influences organizational success (Picture 2). This model of leadership competences is based on mutual values, continual improvement and communication.



Picture 2. Model of leadership competences

Source: Author 2018

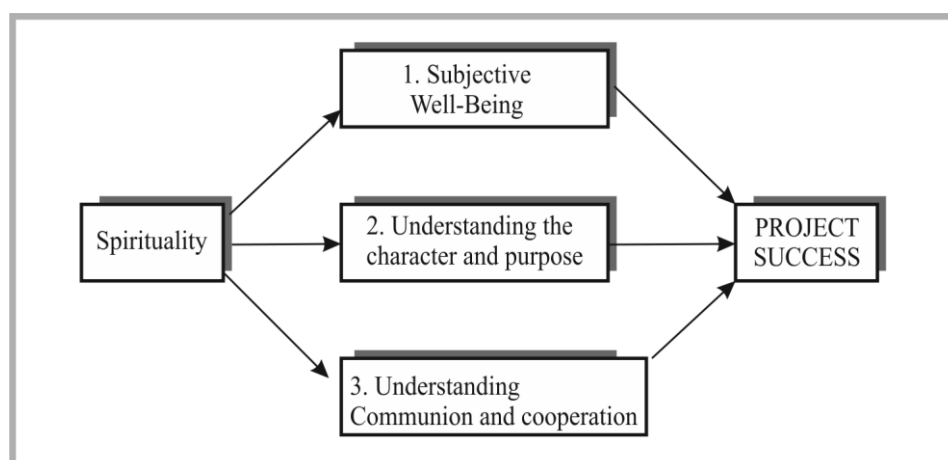
A model of team leadership (*Picture 3*) is based on process approach. Inputs in a process are people, material resources, tasks, etc. and output are performances, satisfaction, innovativeness, and adaptability. A project team through project realization has to perform of task and a role of project team leaders are more on tactical and operational level.



Picture 3. Model of team leadership
Source: Author 2018

3. SPIRITUALITY AND PROJECT MANAGEMENT AND LEADERSHIP

A management of complex project needs a high level of competences related to emotional intelligence (EQ) and spiritual intelligence (SQ). A spirituality in project is more related to practical work in project, especially to achieved performances (*Picture 4*).



Picture 4. Why spiritual leadership?
Source: Author 2018

Through history many projects, especially big, long-term had spiritual or religions objectives (pyramids, cherubs, monasteries, buildings, etc.).

Word spirituality has origin from latin word „spirare“ (breathe) and „spiritus“ (breath). This is life energy which making as live and leading as through life. Spirituality is frequently defined as connection:

- things which give purpose and importance,
- purpose of human being,
- quality of spiritual behaviours,
- state of relationship between values and morality,
- recognition of truth about him, self and others.

Faith is defined as:

- faith and loyalty to god,
- faith in traditional religion doctrines,
- faith in something (a.e. corporate or national values),
- complete faith.

A spirituality in project leadership is connected with faith and religion (Picture 5). One aspect of spirituality is related through spirituality on work, what is un voided in comprehensive business (a.e. Center for Spirit of Work, Spirit in Business, Tyson Center for Faith & Spirit at Work).

Why is so important spirituality in projects? Spirituality helps to find answer on three spiritual questions: (1) who am I? (2) why I am here? (3) what I have to work? Also, spirituality gives a new view on organization (new structure, goals/objectives, social importance, personal promotion, etc).

According to reference [20, pp.51] a spiritual leadership has defined from different theorist as S. Freud, C.G. Jung, T. Kuhn, M. Weber, H.G. Gadamer, B.F. Skinner, John Locke, A. Comte, K. Marx, etc. A leadership effectiveness depends on working with rational or non rational meaning. In first case leadership effectiveness (performances) arise through executive control and emotional stimulation to one maximal level and than decrease. In second case performances arise through improvement of caring and meaning attribution.

Spirituality increases the subjective and overall well-being of the project's engagement, in particular the leader's project through:

- increasing their morale, engaging in the project and productivity,
- reducing stress and overloading the project.

Spirituality enables project staff / project managers and project leaders to better understand the significance and purpose of project work.

Spirituality enables the project's employees to understand the need to improve community and co-operation, loyalty and belonging to the project organization.

A spiritualized workplace in the 21st century is:

- from the point of view of the human resources perspective - the engagement of people with a strong passion (desire for success),
- from the perspective of a philosophical perspective-a life filled with purpose and meaning,
- from the perspective of an interpersonal perspective-life and work in the community (geographical, professional, etc.).

4. EMOTIONAL INTELLIGENCE AND SPIRITUAL DEVELOPMENT

An emotional intelligence and spiritual development are very connected in different aspects, i.e.:

- a spiritual experience enhances an emotional intelligence,
- individual development and learning has impact on emotional intelligent,
- love to creator has impact on spiritual development and emotional intelligence [21].

According to [22] there are seven key dimensions of spiritual intelligence:

- consciousness,

- grace,
- meaning,
- transcendence,
- truth,
- peaceful surrender to self, and
- inner-directedness.

Other authors [23] distinguished for quadrants and eighteen skills of emotional intelligence (*Picture 5*).

Self Awareness	Other Awareness
■ Emotional self-awareness ■ Accurate self-assessment ■ Self-confidence	■ Empathy ■ Organizational Awareness ■ Service Orientation
Self Management	Relationship Skills
■ Emotional Self-Control ■ Transparency (honest/trustworthy) ■ Adaptability ■ Achievement Orientation ■ Initiative ■ Optimism	■ Developing Others ■ Inspirational Leadership ■ Influence ■ Change Catalyst ■ Conflict Management ■ Teamwork & Collaboration

Picture 5. Four quadrants and eighteen skills of emotional intelligence
Source: Author 2018

Levels of emotional intelligence (EQ) and spiritual development (SD) and spiritual intelligence (SQ) are also differentiated (*Picture 6*).

SQ based on in the Nondual in Oneness and constant reconcillation of apparent opposities	Level I ?
SQ based on love and service	Level II Spirit
SQ based on being conscious & aware in the now from moment-to-moment	Level III The Soul
Development and use of EQ through vision and values for emotional awareness and knowledge	Level IV Images & Imagination
Development and use of EQ for rational decision making appropriate to the situation	Level V The Sensible/Physical World

Picture 6. The development of spirituality, levels of knowledge and of being, IQ, EQ & SQ
Source: Author 2018

They started from level V (development and use EQ for rational decision making on the sensible/physical world and goes to level I which is SQ based.

In literature aspects spiritual intelligence (SQ) and spiritual development (SD) are very good analyzed [24][25][26][22][27][28][29][30]. Based on these researches we can distinguish competencies of spiritual intelligence (*Picture 7*).

	Self / self focused	Other focused
What You See - Inner World	1. Self/self Awareness 1. Awareness of own world view 2. Awareness of Life Purpose (Mission) 3. Awareness of Values Hierarchy 4. Complexity of inner thought 5. Awareness of Ego self/Higher Self	2. Universal Awareness 6. Awareness of interconnectedness of life 7. Awareness of worldviews of others 8. Breadth of Time perception 9. Awareness of limitations/power of human perception 10. Awareness of Spiritual Laws 11. Experience of transcendent oneness
What Other People See - Outer World	3. Self/self Mastery 12. Commitment to spiritual growth 13. Keeping Higher Self in change 14. Living your purpose and values 15. Sustaining faith 16. Seeking guidance from Higher Self Calm, peaceful at all times	4. Social Mastery/Spiritual Presence 17. Wise and effective teacher/mentor 18. Wise and effective leader/change agent 19. Makes Compassionate AND Wise decisions 20. A calming, healing presence 21. Being aligned with the ebb and flow of life Compassionate and Wise Action

Picture 7. Four quadrants of SQ
Source: Author 2018

5. A SPIRITUALITY MEASUREMENT

A spirituality is very difficult to measure [31] because:

- measuring of immeasurable things,
- impact of religion and values on measurement process,
- problems about metrics,
- influence of interpretation of results.

In reference [23] is distinguished:

- rational intelligence (IQ),
- emotional intelligence (EQ),
- spiritual intelligence (SQ).

6. SPIRITUALITY AND SCIENCE

Theologians and religions practitioners prefer definitions that there is not strict division between religion and spirituality. Spirituality is defined as „the living reality of religion as experienced by an adherent of the tradition“.

- Modern physics indicates that all phenomena are interconnected
- science points to the ultimate significance, value, and purpose
- the significance of integrity indicates that people cannot ignore the needs of others
- science, art and spirituality constitute the basic content of culture
- if we begin to share the features, we share the values and develop a common purpose

- Dialogue creates something that everyone wins

Acceptance of common values and leadership is a significant feeling and spiritual reach [32] emphasized personal integration. Spirituality has an integrative and harmonizing function that involves:

- our inner unity,
- our relationship and connectedness with others and to a broader reality that powers our ability to be transcendent.

Most vision of spirituality also involve contact with the sacred or „those forces whose dominance over man increases or seems to increase in proportion to man’s effort to master them“ [33][34].

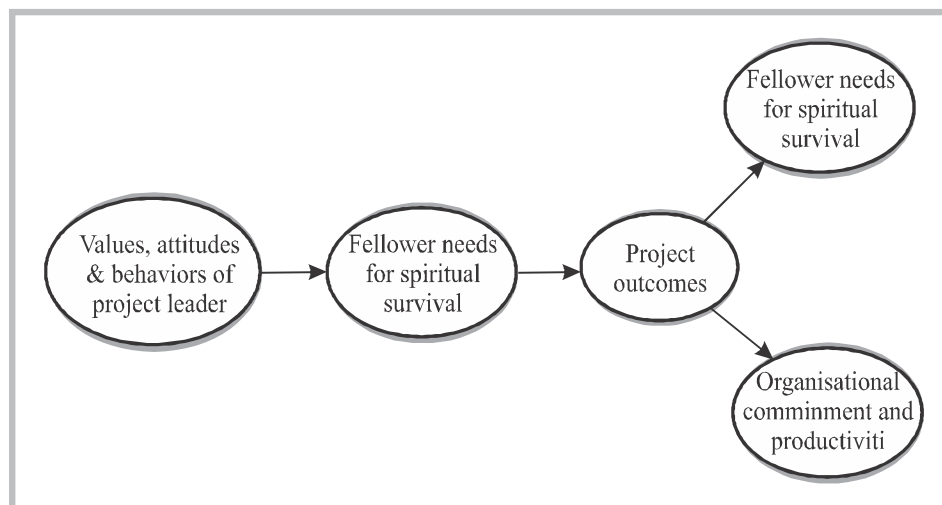
Reference [35] defined spirituality as „the organization (centering) of individual and collective life around dynamic patterns of meaning, values, and relationships that are trusted to make life worthwhile (or, at least, liveable) and death meaningful“.

There are three points of view about religion and spirituality today, i.e.:

- the secularisation hypothesis,
- the religious transformation hypothesis, and
- the cultural divide hypothesis.

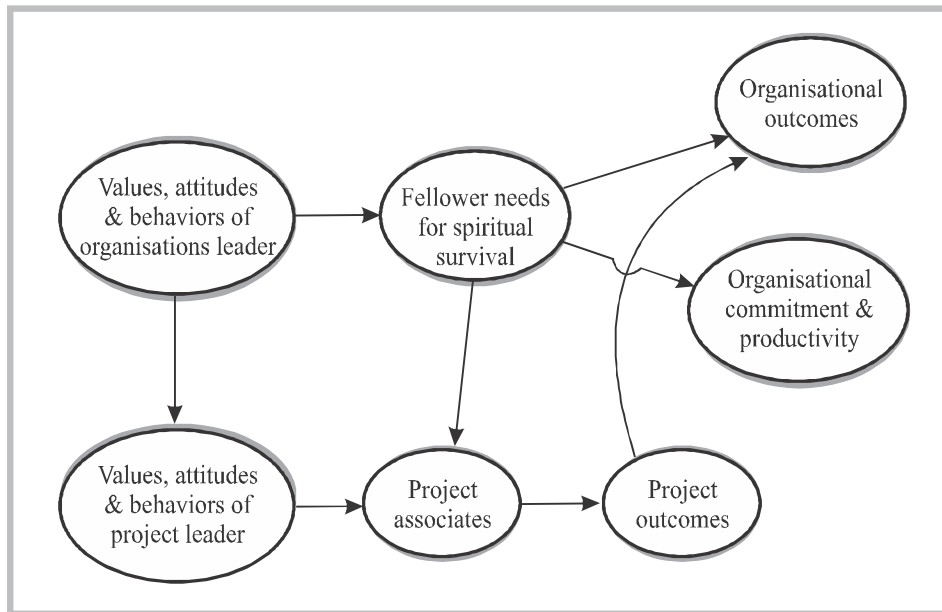
7. EFFECTS OF SPIRITUAL PROJECT LEADERSHIP

According [36] a causal model of spiritual leadership has three macro variables (*Picture 8*). The input variable has two main sub-variables: (1) vision and (2) altruistic love which are connected through hope/faith.



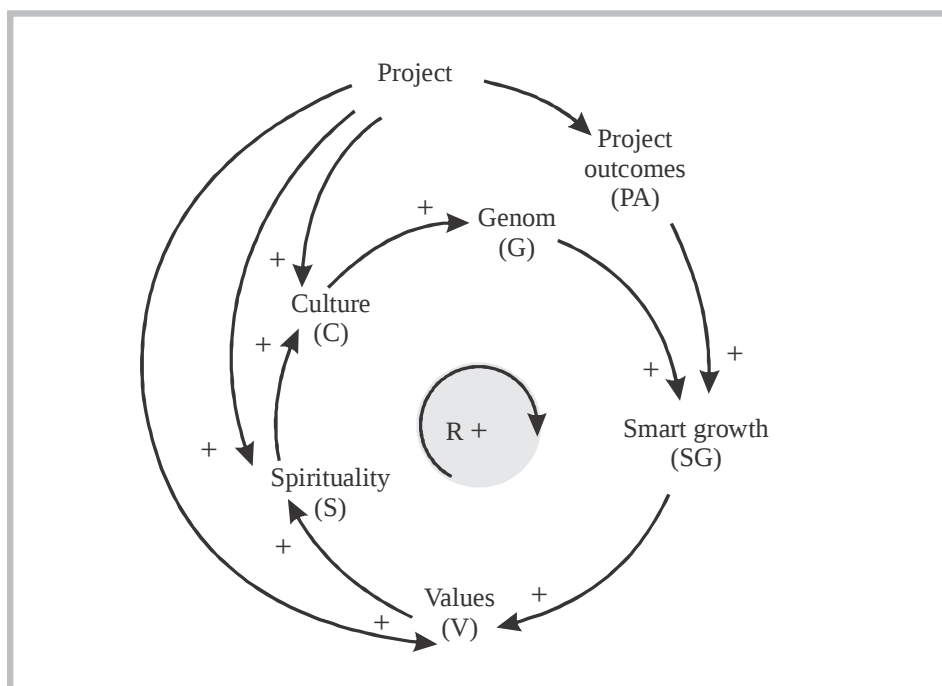
Picture 8. Causal model of project spiritual leadership
Source: Author 2018

If this base model make more broad with spiritual intelligence and project quality this model will be as model presented in *Picture 9*.



Picture 9. Impact of project outcomes on organisational ofcomes

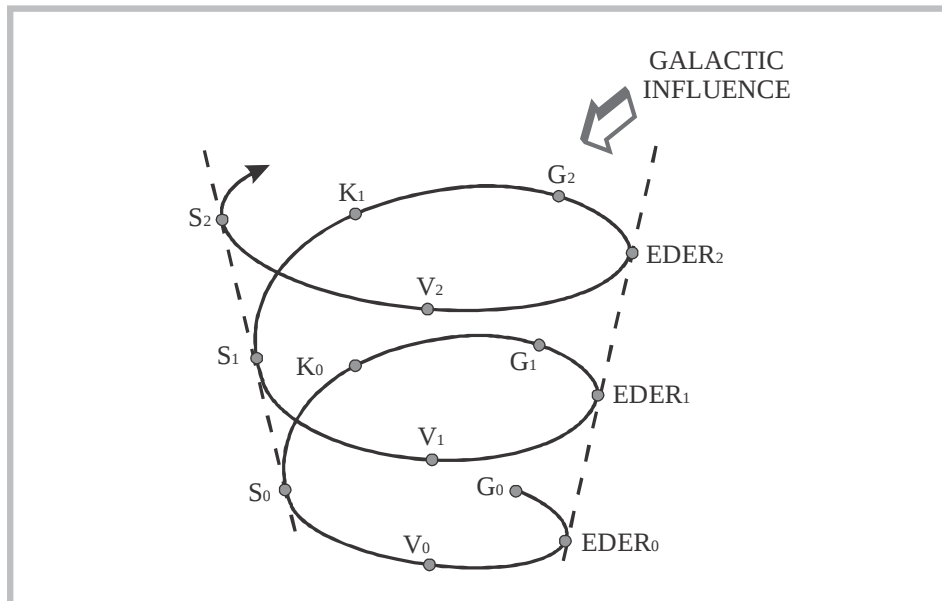
Impact of spirituality on project outcomes is presented in Picture 10.



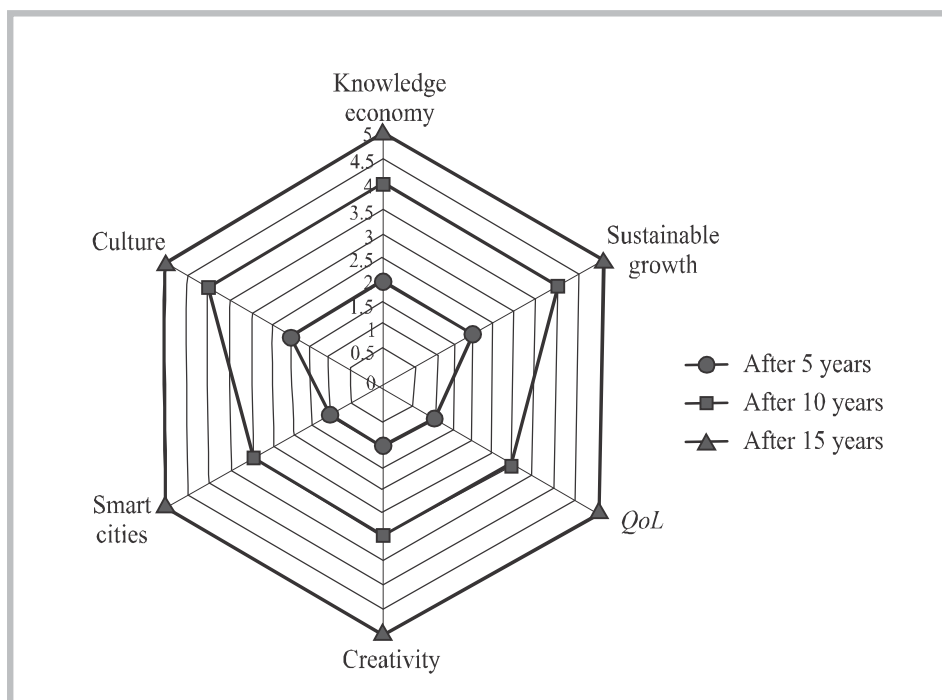
Picture 10. Impact of project on cultural footprint based on genom

Source: Author 2018

This impact has growing influence during time (Picture 11) and level of achieving of new paradigms (Picture 12) for one big and complex project.



Picture 11. Impact of spirituality influence during time
Source: Author 2018



Picture 12. Impact of the project EEST on cultural footprint
Source: Author 2018

8. CONCLUSION

A spirituality leadership for big, complex and time related projects has a raising role. Spiritual leadership of projects must have the following high-profile characteristics:

- High common / key values,
- A strong leadership vision,
- Faith / trust and hope,
- Altruism,
- Understanding the importance of project participants,
- Creating a sense of belonging to a project organization,
- Support for project participants and

- Effectiveness and efficiency through project management (work teams).

For improving project outcomes a project leader must have spiritual behaviour and followers need for spiritual survivor. Spirituality also has impact on culture and during time through many cycles it has impact not only on organizational outcomes. Many researchers speak about Galactic influence based on Jungian approaches.

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LEAN 6SIGMA IN HEALTH CARE SERVICES

Prof. Krešimir Buntak, Ph.D.¹

Sanja Zlatić²

Matija Kovačić, bacc.oec³

Abstract: *One of the main factors that impact the quality of today's life are ecological sustainability, trends showing an increase in average age, and overloaded health care system. These are the main reasons for an increasing need for continuous improvement of organizational processes and quality of health care service. Lean 6sigma is one of the most efficient methodologies used to improve the processes in the health care system. Health care organizations and their processes are quite challenging when it comes to their improvement. The main reason for this is the fact that nonconformities and mistakes can result in death or decreased quality of life. Additionally, health care institutions are among the largest users of money that is provided by the state budget. Decreasing costs, increasing efficiency and productivity of the health care system will directly impact the quality and the pleasure of society and overall expenditures of the state budget.*

Key words: *process improvement, quality of life, lean, lean 6sigma*

JEL classification: *I15, P46*

1. INTRODUCTION

Nowadays, the quality and process improvement should not be seen only through the aspect of manufacturing organizations but also through the aspect of providing services. Everyday social life is characterized by problems related to an already impaired quality of life, which is often a result of environmental unsustainability. One of the factors that affects the quality of life is health care. Aging of the population, the lack of adequate medical equipment, staff incompetence, long waiting lists created as a consequence of inefficiencies are just some of the problems affecting today's health care and hospital system.

The health system is becoming overloaded parallel to aging of the population, environmental unsustainability and the development of new types of health problems. Migration of the population as well as the migration of competent medical staff can greatly reduce overall quality of the provided

¹ Krešimir Buntak, Sveučilište Sjever, Koprivnica, Hrvatska, kresimir.buntak@unin.hr

² Sanja Zlatić, Sveučilište Sjever, Koprivnica, szlatic@unin.hr

³ Matija Kovačić, Sveučilište Sjever, Koprivnica, Hrvatska, matkovacic@unin.hr

medical service. Analogous to a lower level of medical services, the quality of life of the population is decreasing.

Factors affecting the quality of life can be divided into physical and psychological. The group of physical factors consists of hygiene, pain, quality of nutrition and safety, while the psychological category of factors affecting the quality of life includes communication, dignity, psychological security, etc. [1] Psychological and physical factors are an integral part of health care system and directly correlate with the satisfaction of people in health care institutions. However, with the individual factors that are contained in each person individually, the quality of health care is closely related to the factors from the environment, i.e. the factors related to the health care institution itself. The factors related to health care providers are competence, motivation, and socio-demographic characteristics. On the other hand, environmental factors affecting the quality of health care protection are the health care system in general alongside legislation defining and shaping it, infrastructure, supra-structure, management and partnership. [2] Described factors of health care service quality are shown in Figure 1.

The aforementioned factors defining the quality of health care correlate with each other. Environmental factors influence institutional factors, while institutional factors affect individual factors. In other words, poor infrastructure, poor management, and generally poor business system of health care institutions will result in employees being less motivated and with greater employee fluctuation. This will inevitably affect competence, which correlates with the pleasure of end users, i.e. health care consumers.

By systematically improving all the processes from all three organizational environments, health care organizations have an impact on improving the satisfaction of end users, i.e. health care users. One of the methods, or one of the approaches to constant improvement, is the 6sigma or the DMAIC methodology.

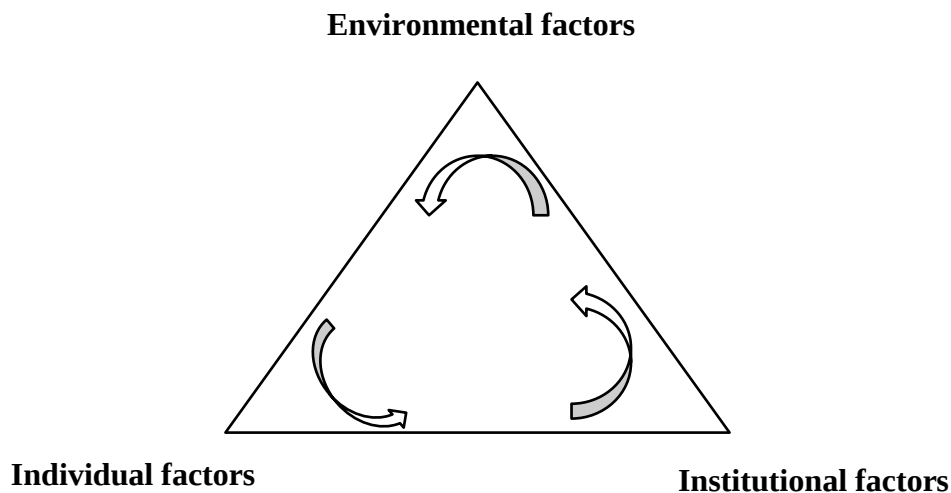


Figure 1: Factors affecting the quality of health care service

Source: Authors based on Mosadeghrad, A.M., 2014. Factors influencing healthcare service quality. International Journal of Health Policy and Management, 3(2), p.77.

2. REQUIREMENTS FOR CONTINUOUS PROCESS IMPROVEMENTS

Requirements for continuous improvement of processes derive from the ubiquitous turbulence within the organizational environment. Growing competition and increasing customer demands for more quality products and services are just some of the factors that influence the need for constant improvements.

The continuous improvement of processes is a requirement that is not only defined by the turbulent environment and growing user demands but also by the standards. ISO, as the umbrella organization for standardization, in the ISO 9001:2015 standard, in point 10, highlights the importance and necessity of continuous improvement of processes and the systematic approach to eliminating and managing nonconformities. [3] Depending on their type, nonconformities can pose a different risk. Nonconformity of physical products can be easily and quickly identified, which reduces the risk for the end user. However, risk reduction does not eliminate or cancel the risk. That is why a particularly problematic area where special attention should be paid to managing nonconformities is the provision of services, or health care and hospital care. As a result, nonconformities within such systems could have fatal outcomes for a patient. Nonconformities and the way they should be managed within health care institutions will be discussed in more details in Section 3.

Each nonconformity is the result of anomalies or instability of the process. The result of the process instability is inefficiency leading to ineffectiveness, which results in uneconomical activities. In other words, the production of a nonconforming product results in waste of resources leading to inefficiency. Inefficiency stands for failing to implement defined plans and values, i.e. objectives defined by the plan, which influences ineffectiveness. Inefficiency and ineffectiveness mean higher expenses because the buyer is not willing to pay for a nonconforming product, and the organization has to invest additional resources to eliminate the nonconformities, which leads to higher expenses. [4]

Each nonconformity and customer complaint must be checked and corrected. However, resolving a complaint or a nonconforming product results in additional costs, or in hiring additional resources, which results in a worse business result. On the other hand, expenses incurred due to not resolving nonconformities and complaints are considerably higher because of the higher probability that an unsatisfied buyer will replace the organizational product or service with the competitor's. However, consideration should also be given to the possibility of damaging the organization's reputation on the market, which is considerably more dangerous than the one-time financial cost of correcting the nonconformity. [5]

In the context of health care services, nonconformities and anomalies result in far more serious consequences, as has already been mentioned at the beginning of this section. Resolving nonconformities in the health care sector is much more challenging than in other sectors, especially because of the fact that nonconformities can result in the death of a health care consumer. For this reason, there is a need for preventive actions that will reduce the probability of anomalies appearing in the process to a minimum, which will result in a lower risk associated with potential health and other problems of a service consumer.

3. 6SIGMA AND CONTINUOUS PROCESS IMPROVEMENT

The relevance and currentness of the topic of continuous processes improvement has resulted in the design of different approaches to quality and improvement issues. Throughout history, organizations have approached constant improvement in various ways. In the 1980s, quality circles were the dominant improvement technique until the appearance of the statistical process control (SPC). The introduction of ISO standards led to 9000ff standards, the dominant methodology of quality management and continuous process improvement, which is still used. Through increased turbulence in the environment and increasing demands for improvement, there appeared a need for a different view on quality, resulting in the emergence of Lean and 6sigma approaches to quality in the 1990s. [6]

The 6sigma approach contains a large number of different methods and tools used for process improvement. One of the most commonly used methodologies for improvement is DMAIC and its derivatives such as DMADV. The application of such methodologies implies mapping and identification of all the organizational processes as well as opportunities for improvement within them. The DMAIC methodology will be explained in Section 3.1.

However, the process improvement does not only refer to curative actions but also to activities related to designing the process according to customer requirements. Customer requirements are one of the crucial factors that an organization must take into account when designing its processes. In order for an organization to define the requirements that customers and other interested parties have, they should be researched. Quality Function Deployment (QFD), focus groups, brainstorming, etc., are commonly used for that purpose. Once generated Voice of Customer (VOC) is the basis for creating a Critical to Quality (CTQ) chart used to define activities that will ensure the required quality of products and services.

6sigma as an approach to continuous improvement is based on analyzing the existing state and reducing the variability of the process through 6sigma improvement projects. If only starting from the semantic observation of 6sigma, it is apparent that the term sigma itself is taken from statistics, where sigma represents standard deviation, i.e. the standard deviation from the average. Depending on the size of sigma, the quantity of products or services that will be nonconforming to the requirements is also determined. The organization that achieves 6 sigma process variability in other words has 3.4 nonconformity products per million produced. On the other hand, the 3 sigma variation has 66,800 nonconforming products per million produced. [7]

Therefore, 6sigma is one of the new approaches to process improvement based on quantitative, statistical indicators that reduce the probability of nonconformity production to the minimum. In combination with the Lean system, the benefits for the organization implementing such a system are numerous. As such, Lean system is directed towards eliminating the process waste, which increases the flow of resources through the process, while the 6sigma approach eliminates the variability of the process, thus actually generating synergy.

3.1 DMAIC

The methodology used for constant improvements within the 6sigma approach is the already mentioned DMAIC, which is an acronym for Define, Measure, Analyze, Improve, Control. Through process analysis and mapping, it identifies process waste and activities within the process that do not add value, or which are a source of risk for defects. By increasing the resource flow and reducing the risk, the probability of producing a nonconformity product is reduced to a minimum.

The methodology consists of five distinct steps that have an impact on the development of the improvement project. Each DMAIC project requires the formation of a team consisting of 6sigma specialists, or Green Belt, which is also a key factor in the improvement project, or Black Belt, which has the role of mentoring and approving projects, project sponsors, and other team members.

At each stage of application of DMAIC methodology, specific tools and methods are used, depending on the improvement project itself.

The steps of DMAIC methodology are as follows:

- D (Define): The first step of the DMAIC methodology is defining or identifying the problem. In this step, the 6sigma team creates a process map for the process that is being improved, defines customer requirements, and creates a project charter and other project documentation.
- M (Measure): In the second step, the 6sigma team measures the existing process performance. In addition to process performance, it is necessary to measure all the variables that are of particular importance to the customer, affect, and define their satisfaction and the requirements.
- A (Analyze): In the third step, the problem is analyzed, i.e. the cause of the problem is explored. The organization has a number of tools at its disposal; they are aimed at finding process waste, defects and other factors affecting the probability of nonconformities.

- I (Improve): The fourth step also means defining the ways in which the problems identified in the third step are corrected. The 6sigma team generates a number of solutions from which only the optimal one is chosen.
- C (Control): The final step of the methodology is directed towards controlling implemented improvements. This step also refers to defining how to proceed in case defects are identified in the process. [8]

By applying the DMAIC methodology, the organization has a long-term impact on reducing the probability that a defect will occur in the process that will result in nonconformities. In addition, the process incorporates preventive actions, checkpoints, and designs new work instructions, or procedures that will define work tasks to be performed. The costs incurred in carrying out the improvements, i.e. that are the result of measurements, should be considered as preventive costs later in the process, or as the costs that ensure quality.

4. 6SIGMA IN HEALTH CARE INSTITUTIONS

The factors described in the first section make 6sigma an ideal approach to continuous improvement of the processes in health care institutions. As a proof, a fact that ensuring that 99.00% of services meet the requirements and the rules is not enough should be mentioned. More precisely, 99.00% of conformity means that every week during the course of providing health care services, more than 500 surgical operations would be performed incorrectly; at an annual level, 15,000 newborn babies would fall out of hands at birth; in the same period, 20,000 medical prescriptions would be wrongly issued. [9] Costs due to poor quality health care services with 99% conformity are extremely high. Nevertheless, it is not only about the costs, but also about human lives and their quality. By providing unsatisfactory health care services, individual factors defining the quality of life, as discussed in Section 1, are aggravated.

The primary reason for introducing the Lean system in a health care institution lies in the fact that there is an increasing number of demands for an efficient and quality health care service. The identification of customer quality requirements stems from the fact that the process of providing health care services must be observed precisely through the end-user perspective and what is perceived by the end user as an added value to it. [10] However, one must not forget about employees as well as all other interested parties who must proactively be involved in the elimination of process waste with the sole purpose of meeting their requirements. [11] Process waste implies activities that do not add value to the end user, or do not affect the quality of the provided service. [12] Table 1 shows the most common activities identified by Alkrisat (2014) as an integral part of the process waste in the health care process. In order to increase the quality and customer satisfaction, process waste has to be removed. However, the projects for its elimination differ from organization to organization, as well as the identified waste. Based on the similarities between the activities of health care institutions, it depends on whether or not the organization will use similar improvement projects or develop its own customized projects focused solely on the problems identified in its processes. [13] Regardless of how the organization will deal with the improvement process, the key role in proposing improvement projects is given to Green Belts [14] under the supervision of Black Belt, who is also the process owner, i.e. the project leader, who accesses analysis and identification of process waste. [15] The largest number of improvement projects are related to administration and associated costs, which often involves eliminating unnecessary documents, waiting for their signing, redundant documents, and the speed at which they are processed. One of the greatest challenges in implementing and defining improvement projects is the fact that the Lean 6sigma system is in most cases used in production processes and needs to be adapted to health care services and related processes. However, despite the specific challenges, 6sigma and Lean have proven to be applicable in all areas and all hospital processes, particularly in medical emergency care departments, in which, through process optimization, employee productivity and patient satisfaction have improved. In the first place, concepts taken from logistics and tailored to hospital requirements are responsible

for productivity increase. However, it is important to emphasize that different health care institutions access health care services in various ways, which results in the need for adapting improvement approach of the system in which the improvement is being implemented. [16]

Table 1: Problems in the processes within a health care institution

Problem	Description
Transport	1. moving patients from room to room 2. poor workplace layouts
Inventory	1. overstocked medications in units or in pharmacy 2. unnecessary instruments and equipment filling the area
Motion	1. leaving the patient's room to perform activities related to their treatment
Waiting	1. waiting for internal transport between departments 2. unnecessary administration
Over-Production	1. multiple signature requirements 2. multiple information system entries
Over-Processing	1. asking the patient the same questions multiple times
Defects	1. wrong-site surgeries and patient complaints 2. hospital-acquired conditions (infrastructure)
Skills	1. staff incompetence 2. no suggestions for improvements made by employees

Source: Author based on Alkrisat, M., (2014), *Six Sigma Applications in Healthcare*, available on [https://www.nhfca.org/psf/Materials3/9-10-14/six_sigma_applications_in_healthcare9-13_0\[1\].pdf](https://www.nhfca.org/psf/Materials3/9-10-14/six_sigma_applications_in_healthcare9-13_0[1].pdf) p. 43 (11 September 2018)

Table 2 shows the savings associated with implementing Lean 6sigma in hospital facilities. However, in order to save, the imperative is to involve employees. Employees are those who are in daily contact with all the activities and know what needs to be improved. [10] Engaging employees does not only affect project quality, but also process maturity. The highest level of process maturity is achieved by involving employees into improvement projects, which results in constant processes improvements, affecting both the quality of the services provided and the products sold. [17]

Table 2: Savings through improvement implementation

Improvements	Target cost values (€)	Annual savings (€)
Improving patient scheduling Operating Theatre	50,000	229,000
Reducing accounts receivable	20,000	225,000
Optimizing maintenance	20,000	211,000
Revision of terms of payment	20,000	60,000
Reducing admission time hip replacement	46,000	56,000
Improving logistics activities	50,000	44,000
Reducing waiting times in car- diology	34,000	34,000

Source: Author based on van den Heuvel, J., 2007. *The effectiveness of ISO 9001 and Six Sigma in Healthcare*. p. 83

Processes in health care and hospital institutions are full of process waste that affects their efficiency. An increase in inefficiency affects the increase in costs, which makes the health system more

burdensome. [18] This is also the root cause of the growing interest of scientists and practitioners for studying ways to improve the process in health care organizations. [19] However, process improvement does not only affect cost reduction but also an increase in customer satisfaction. In addition, the risk of accidents is reduced through improvements. Taking into account that 6sigma implies 3.4 mistakes per one million of the produced products or services provided, it implies that there are 3.4 accidents per a million of interventions in the health care facilities. [20] More important is the fact that by implementing the Lean 6sigma system, the flow of health care service users through the process increases just as the concern for them increases along with their satisfaction. [21] An increase in concern is also related to the provision of timely health care, which can be crucial for medical conditions requiring urgent medical care. Yeh et al. (2011) reported in the research of a health care facility in Taiwan in which the Lean 6sigma approach was implemented that the process efficiency increased from the initial 32.27% to 51.81%, which resulted in significant savings. [22] However, this is not the only example, with the example shown in Table 2 that shows the savings and an increase in the satisfaction of health care service users after implementing the Lean 6sigma system. Ullah in a feasibility study aimed at demonstrating viability of implementing the Lean 6sigma system in hospital facilities presents a number of examples that prove savings upon implementing this kind of improvement system. [23] To achieve savings and increase customer satisfaction, organizations have a variety of tools and methods at their disposal, most of which are taken from industrial process improvement projects, i.e. production processes. It is recommended to use 11 improvement tools which is, compared to about 160 tools that Lean 6sigma's methodology of improvement, very little:

- identification and elimination of process waste
- value stream analysis process
- standard work
- spaghetti diagram
- quality assurance / mistake proofing
- 5S
- JIT (Just-in-time)
- pull system
- quick changeover
- A3 report
- cascading annual planning process [24]

However, achieving a defined quality is possible through assurance, i.e. by achieving a number of factors, such as a system oriented exclusively to the customer's health care services, quality assurance at entry, process and job standardization, employee involvement, etc. [24] It is important to emphasize how each of these tools is used in different stages of DMAIC methodology. However, in order to ensure the success of the Lean 6sigma system implementation, it is essential to provide adequate training that will enable all employees involved in the process to be educated on the ways of improvement as well as tools that can be used in each stage of improvement. [25] Most importantly, improvements in the system must, as a result, have the development of a different consciousness and a different culture on the relationship with the users of health care services. Assuring the management focused on health care service users is one of the foundations and priorities since management is a crucial factor that defines goals and strategies for achieving goals that are used in shaping organizational processes. [18]

5. CONCLUSION

The quality of life in today's turbulent environment is defined by a number of factors that depend on the service and production sectors. The quality of the product is ensured through already developed and proven methods, while the case with the services is quite the opposite. The product quality analysis is based on verified techniques that quantify individual product parameters based on which

conformity is assessed. However, measuring service conformity is more challenging because each service can be different in itself, and service consumer requirements may differ. Particularly challenging area for quality management is health care service. Aging and the decline in environmental sustainability results in increasing requirements of health care service users, which affects increase in total costs. [26] Nevertheless, an increase in total costs is not only the result of larger demands and a greater number of health care users, but also of a decrease of process efficiency. [18] One of the ways health care and hospital organizations can contribute to increasing service quality as well as to increasing the customer satisfaction regarding their service is implementation of one of the methodologies of continuous process improvement. A particularly effective methodology of improvement is Lean 6sigma. By eliminating all activities that by no means affect adding value or activities such as workplace organization, the total running costs of the process are affected. By using the Lean 6sigma approach, it is possible to include all job positions as well as all activities in the health care system, from the laboratory processes to the processes related to emergency medical care. [27] Furthermore, in order to ensure the quality of life and the quality of provided health care, it is recommended for health and hospital organizations to continuously improve processes by identifying and eliminating the risks that could jeopardize the quality of the provided service. Reduced quality of health care as well as the realization of identified risk can result in death. This is possible through conducting customer service satisfaction assessments, i.e. taking into considerations their complaints. [28] By educating employees and by creating organizational culture aimed at constant improvements, an organization is oriented towards the strategy of achieving excellence. In addition to motivating and promoting the importance of improvements, the involvement of employees in change can additionally result in an increase in their personal motivation for detecting problems and in their project suggestions aimed at elimination of the detected problems. Without the existence of an adequate education model directed towards acquiring new knowledge and skills in the area of constant improvement in quality, organizational staff is not competent enough to find opportunities to improve [29] nor to suggest improvement projects.

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MANAGEMENT WITH THE COST OF QUALITY IN THE HOTEL INDUSTRY OF MACEDONIA

Prof. Elizabeta Mitreva¹

Julijana Sazdova²

Abstract: *This paper presents the findings of the research regarding the analysis of the costs of quality in the hotel industry in Macedonia, the ability of managers to build up a good system for analysing the cost of quality, as well as the directions that they need to go through in the process of optimization of the business processes.*

The need for quality cost analysis can help managers understand the impact of poor quality on financial results and the poor image of hotels. First, it will help managers to increase their activities to improve the quality of business processes, products / services.

Designing and applying the total quality management system rather than classical quality control of products / services implies the design and application of the methodology for optimizing business processes and changing the organizational structure where the quality is integrated into each segment of the operation.

Keywords: *Internal standardization; Cost of quality; TQM (Total Quality Management) system; Optimization of business processes.*

JEL Classification: *C83, D23, L15, L83, M21*

1. INTRODUCTION

No activity in the world in the last few decades has had such an increase in development and impressive results as tourism. Thanks to such expansion, tourism became one of the most important social and business phenomena from the end of the last and the beginning of this century as a result of the dynamic development of modern information systems and traffic.

The expansion of tourism on international scale is a consequence of the development of the numerous activities that participate in the creation of the tourism product, among which a significant role is played by the hotel industry. Thanks to its facilities, catering and other, hotel business has strongly encouraged tourists to use the services of accommodation and other

¹ Elizabeta Mitreva, Faculty of Tourism and Business Logistics, Gevgelija, University "Goce Delcev" - Stip, Macedonia, elizabeta.mitreva@ugd.edu.mk; elizabeta.mitreva@gmail.com

² Julijana Sazdova, Faculty of Tourism and Business Logistics, Gevgelija, University "Goce Delcev" - Stip, Macedonia, julijana.sazdova@yahoo.com

accommodation related services (food, entertainment, recreation, trade, etc.). In the wide range of facilities offering accommodation services, i.e. different types of categorized accommodation facilities (hotels, motels, boarding houses, apartments), the hotels are the most homogeneous part of this activity, because through their functioning all important features of the business processes in relation of other types of accommodation are reflected. As such, they present the total accommodation offer and represent a map for the hotel industry, regardless of whether they operate independently (within a certain system) or a hotel group.

The hotel offer is specific in terms of the spatial, technical and technological and organizational - personnel capabilities, which within a whole provide a complete catering service (accommodation with different combinations of food and beverage and other additional services).

The performance of the hotel activity is conditioned by the existence of objects of purpose character which fulfill spatial, technical and technological, sanitary and hygienic and organizational - personnel standards and represent a guarantee for providing satisfaction to those staying in them. The orientation towards the quality of hotels in meeting the needs and demands of the tourists becomes an imperative, an important element for distinguishing the products and a key element of the loyalty of the tourists towards certain tourist places, that is, the choice of a hotel. The orientation towards the quality of hotels in meeting the needs and demands of the tourists becomes an imperative, an important element for distinguishing the products and a key element of the loyalty of the tourists towards certain tourist places, that is, the choice of a hotel. The essence of the quality orientation is reflected in its ability, at the same time, to provide market expansion, increase productivity, optimize costs and raise the level of quality. This approach is present both in hotels that operate independently and those that are integral to large companies and hotel groups through joint ventures, franchises, management or other integration processes. In tourism and hotel management, the sale of services depends on the quality of service that should correspond with the expectations of the guests and the achieved level of their satisfaction. The realization of this pleasure implies permanent monitoring of the requirements of the modern tourist, respect of the established standards and continuous improvement of the hotel offers, which is also the essence of the quality management and hotel management.

The ranking of quality in hotel business is expressed through the categorization of hotel facilities. The categories of hotels around the world are largely equal in quality of service, especially when it comes to hotel groups, where the level of quality is guaranteed in the same circle of the same chain regardless of the country in which the hotel is located. Quality increases the value of the service in the users' eyes, and thus creates room for higher price formation. High quality, capable of higher prices, reduces the cost of errors and their repetition, which positively affects the overall financial results. In hotels, there is a simultaneous process of production and consumption of hotel services. Unlike the manufacturing sector where the production and consumption processes are spatially and temporally separated, in the hotel industry these processes take place simultaneously. The separation of these processes in the production activity allows the elimination of bad (blemish) products before they reach their user. While in hotels, numerous products are produced and used at the same time, so there is no possibility of eliminating the bad product / service (the current position of the receptionist, the cookbook or the waiter), nor their storage. The poor service leads to guest's dissatisfaction. Namely, most of the individual services are delivered at certain intervals of the hotel's guest stay cycle that conditions the simultaneous production and usage (consumption) of the services. This is a serious management problem, because demand is identified by consumption that becomes a determining generator of the concept of a hotel product.

The combination of such complex relationships and features cause many implications that greatly affect the quality of the hotel service primarily in terms of simultaneous proves in the process of production and consumption of the hotel service. A large number of segments of the service system are "responsible" for the ultimate level of services provided and its overall quality. As a consequence of the influence of numerous and various elements participating in the formation of the

hotel service, there is insufficient uniformity in their creation and inequality (variability) in the quality of the individual parts of the service. Commitment to management is vital in quality management and above all in cost analysis in order to achieve a certain level of quality at competitive prices. Cost analysis provides prevention, reduces the number of failures / delays / errors / failures, thereby avoiding failure, as it can destroy team spirit and negatively affect financial performance.

Today, the new approach to quality requires new activities in the field of education of employees, introduction of standardization of all processes, introduction of statistical process control due to defective operation, as well as a new approach in the cost analysis. At the same time, this means a drastic change in the behaviour of employees, radical changes in the organizational setup, a clear definition of the rights, obligations and responsibility of each individual in the hotel.

2. LITERATURE REVIEW

The total cost analysis system, which is one of the most useful pillars in every hotel, includes the cost of quality. They arise because of the existence or possible existence of poor quality and their analysis should be simple and practical, and not too administrative and chaotic. Costs of quality cannot be found in traditional cost calculations, but they are of great value to a company. The concept of quality costs has existed for more than 30 years and is an essential part of the TQM (Total Quality Management) strategy [1]-[4].

By analysing the costs, prevention is provided, the number of failures / delays / errors / failures decreases, thus avoiding the failure and negative impact of the financial results of the hotels. Each hotel plans its optimum quality of products / services during its operation. This means that the quality should satisfy the requirements of the consumers as well as the possibility for them to pay, but also for the hotelier, the product / service should be cost-effective. Today there are mistakes and defects that the consumer is not ready to pay, making the hoteliers' suffer losses. It can be freely said that the quality of quality is more expensive. According to Juran and Godfrey [5]: "Costs of quality are a gold mine that deserves attention and pay for their research." Or according to Chepujnoska and Bjen [6]: "Quality is not expensive, expensive is poor quality".

According to James [7], another view of quality costs is that these are costs that will not be created if employees are doing their job perfectly or when business processes are completely reliable and the results of the processes will be fully cost-effective and optimal.

Fields [8] does not use the notion of quality costs, but rather a quality price, which equates the costs of meeting the requirements of consumers, combined with costs that arise when they fail to meet them.

Deming's famous saying about the link between quality and productivity says [9]: Productivity is growing if quality is improved, but this fact is known and applicable only to a small number of educated people.

According to Kaplan and Norton [10], 85% of the omissions affecting the emergence of certain categories of quality costs in companies are attributed to management.

For Deming [9], the goal is, instead of judging people, to help them optimize processes and benefit everyone. When defining the costs, the optimum cost to be paid by the manufacturer to ensure quality according to the expectations of the buyer / user is taken.

The American Quality Association shares the cost of quality in internal and external. Internal are those that result from error detection before the product is delivered (inspections, controls, delays), and external ones are the result of detection after the delivery of the user (complaints, warranty charges, services, product return, change in contracts, decline in the reputation of the hotel, etc.).

Whatever motel is applied when analysing the cost of quality, it is important to achieve the ultimate goal and this is their reduction [11].

The thorough analysis of the cost of quality provides a clear picture of the financial results of the hotel, thus enabling management of the total costs and achieving positive working results. Although the cost of quality can greatly affect the financial results of hotels, there is no legal obligation for their analysis and public presentation. Many managers do not want to deal with this problem. Minimizing costs means that for a given level of production no more sources are used than necessary. For hotels, this will mean higher profits, as there is a greater difference in the cost of production and the selling price at minimal cost [12] – [15]. In practice, this is only realized if they are known: market needs; the price that the buyer is willing to pay for a certain level of quality; as well as the cost of quality (to obtain the optimum level of quality).

If we take into account all the listed costs related to the quality of products and services, it is evident that the quality management system performance must be measured with financial indicators that it warned by the norm of the ISO 9004-1 standard (point 6). García-Bernal et al., [16], see every company as a specific "value chain." "Value" in the "value chain" represents what customers are willing to pay for the product or service. Activities in the "value chain" of a hotel are part of a larger "value system" consisting of the "value chain" of the supplier, the distribution channel, and the processes of production and consumption of the hotel service [17], [18]. Therefore, the achievement and maintenance of the competitive advantage of hotels is of great importance not only for the value chain of the company, but also for the other value chains in the total value system [19], [20]. Thus, the calculation of the costs of basic activities is extremely important for identifying the possibilities for improving the efficiency and effectiveness of business processes. In order to optimize business processes it is necessary to define the goals, and the processes need to be identified, measured and harmonized according to the requirements of the consumers. Everyday practice of employees in the hotel industry should not only be their self-control in the work, but they must be trained to act preventively [21]. They should be responsible, correct their mistakes, and present any problem with regard to the quality they will discover [22]. The application of the new TQM strategy in the hotel industry means the design of a good documented quality system covering all the business processes of the hotel and is an indispensable basis for the successful application of statistical process control (SPC) and efficient teamwork that could otherwise not be set up in the event of a poor quality system [4]. In this way, it is ensured that the attitudes of top management contained in the quality policy are carried out and this creates a climate and information base on which the teamwork can be developed. The appearance of the ISO 9000 series standards and the adoption of the TQM philosophy (Total Quality Management) has led to a massive application on one hand, set as a market strategy to meet the needs of users, and on the other hand, as a superior style of work. The adoption of this philosophy in the hotel industry has led to the promotion of competitiveness and efficiency, cost savings and long-term sustainable development of the hotel industry [23] – [24].

3. DESCRIPTION OF THE HOTEL INDUSTRY IN MACEDONIA

Macedonia actually has a well-developed hotel accommodation offer. As of 16.01.2018, there are 140 registered hotels of all categories in total, Table 1.

Table 1: Structure of hotels in Macedonia as of 16.01.2018

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

Source: Ministry of economy, Sector of tourism and hospitality, Review of categorized hotels

Table 1 shows that the most numerous hotels are those with 4* (32,9%), while the least numerous are those with 5* (2,1%). Since 2013, a new Rulebook of categorization of hotels has been brought officially and a certain number of hotels got additional star as a result of improved standards so they achieved the category superior hotels. The received decisions of categorization are valid for three years.

The increased number of hotel accommodation brought about growth of hotel rooms and beds. The current accommodating touristic offer in Macedonia is versatile and it comprises all kinds of basic and additional capacities that give service for accommodation and stay. So, as of December 2017, from total 28305 rooms and 73168 beds registered in all capacities in hospitality, the hotels with three, four and five stars participate with 6777 rooms (24%) and 14.521 beds (19,8%).

Table 2 shows the dynamic growth of hotel rooms and beds in the period from 2015-2017. It is seen that the total number of hotel rooms with three, four and five stars has grown to 114,4% i.e. from 5.802 rooms in 2015 to 6.777 rooms in 2017.

At the same time the increase of 14,7% is registered in the total number of hotel beds (Table 3), i.e. from 12.390 beds in 2015, to 14.521 beds in 2017.

Table 2: Number of hotel rooms with three, four and five stars in Macedonia according to the structure, 2015-2017

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

Source: State statistical office. (2017)

Table 3: Number of hotel beds in different accommodating objects in Macedonia according to the structure, 2015-2017

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

Source: State statistical office. (2017)

4. METHODS IN THE RESEARCH AND ANALYSES OF THE RESULTS

In the research qualitative and quantitative methods are used. The qualitative approach includes a review of the literature of many publications that generally deal with the issues of the quality system and its application in practice.

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

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

Table 4: Sample in the survey

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

Source: Government of the Republic of Macedonia, Ministry of Economy, Sector for Tourism and Catering.

Note: Data as of May 2018.

Although the survey was ambitious and involved a total of 94 hotel managers with three, four and five stars, only 37 of them responded to the electronic survey. The distribution of responses by type of hotel is visually presented in Table 5. The obtained response rate of 39,4% is relatively high given regarding the fact that it is an electronic survey where, due to lack of personal contact, the percentage of answers usually ranges between the 16- 25% [16], [27].

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

Type of hotel	number	%
Hotel with 5*	10	27
Hotel with 4*	17	46
Hotel with 3*	10	27
Total	37	100

The electronic survey consists of a questionnaire structured in four parts: Part I: General data (open questions based on the type of hotel, years of operation, number of employees, categorization, etc.); Part II: Total quality management system (thirty-five yes / no questions related to the design and implementation of a quality system); Part III: Pillars of the house of quality. The House of Quality is held by four subsystems: internal standardization, methods and techniques of quality, education and motivation and cost-benefit analysis, at the top of which is top management, and basically is measuring, evaluating, analysing and comparing quality / poor quality (thirty-five questions related to the application of the quality system in companies). The third part of the research should determine the "age", that is, the development of hotel capacities on the pillars of the house of quality (from a young and underdeveloped system to a mature and developed system).

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

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

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

5. ANALYSES OF THE RESULTS

The questions from the second and third part of the questionnaire were intended to determine the current degree of application of the total quality management system. The House of Quality is held by four subsystems: internal standardization, methods and techniques of quality, education and motivation, and cost-benefit analysis. Due to the scope of the research in this paper, the results are given regarding the application of the system for analysing the cost of quality. The intention was to identify whether higher-ranking hotels applied the same or different practices in the implementation of the cost-benefit analysis system, compared to lower-ranked hotels.

In general, the survey concluded that the surveyed hotels have different views regarding the investigated issues. In addition, among the surveyed hotels there are young hotels that exist only five years on the tourist market, but also well-positioned hotels with over fifteen years of work experience.

Table 6: Summary results for the questions about the system for analyzing the costs of quality in hotels

Key	Hotels with 3* %		Hotels with 4* %		Hotels with 5* %	
	yes	no	yes	no	yes	no
There are supervisors to control all operations	23	77	65	35	88	12
It uses the technique of a "blind" guest to make self-assessment of employees and operations	29	51	43	57	66	34
The prices of their products and services on the basis of costs and their own business policy	23	77	45	55	88	12
The prices of their products and services on the basis of comparison with competition	69	31	53	47	36	64
They make an analysis regarding the complaints and objections by guests	21	79	43	57	79	21
It makes financial analysis in terms of losses occurred as a result of objections and complaints	13	87	48	52	85	15
It makes internal control at the input of raw materials and intermediate goods	56	44	66	34	93	7
It makes anonymous surveys of the guests regarding their satisfaction/dissatisfaction with the services	19	81	36	64	67	33
It accepts the objections and complaints from the guests	23	77	49	51	87	13

Table 6 shows the aggregate results for issues related to the system for analyzing the cost of quality in hotels. Namely, it is noted that five-star hotels show the most significant care in terms of the cost of quality products and services, which means they are managed and optimized. These hotels, together with the majority of surveyed four-star hotels, have quality control supervisors, which is not the case with lower-rated three-star hotels. Measures that are visible to them show how their solutions are important to meeting the wishes and needs of customers / users. The same conclusion comes from the question of using the "blind" guest to make self-assessment of employees and operations, saying that it is surprising that almost 30% of three-star hotels claim to use it.

Most of the hotels with three and four stars do not make a survey of the guests regarding their satisfaction / dissatisfaction with the services (81% of three-star hotels and 64% of four-star hotels), and that they do not accept the objections and complaints by guests (77% of three-star hotels and 51% of four-star hotels).

Most of the hotels with three and four stars determine the prices of their products and services on the basis of comparison with competition rather than on the basis of costs and their own business policy (69% of three-star hotels and 53% of four-star hotels). Only 33% of three-star hotels and

45% of four-star hotels determine the prices of their products and services on the basis of an analysis of their own costs and business policies.

Complaints and objections of guests in hotels with three and four stars in terms of reasons are rarely practiced in only 21% of 3-star hotels and 43% of four-star hotels. Not even the practice of financial analysis in terms of losses occurred as a result of objections and complaints are present in 87% of three-star hotels and 52% of four-star hotels. The practice of three- and four-star hotels in Macedonia points out that they do not pay attention to the analysis of the costs of quality due to ignorance which results in their products / services being expensive and uncompetitive on the market.

The conclusions are quite different when it comes to five-star hotels. Namely, based on the data from Table 6, it is noted that more than half of the surveyed managers of five-star hotels claim that they make anonymous questioning of the guests regarding their satisfaction / dissatisfaction with the services (67%), they make an analysis regarding the complaints and objections by guests (79%), accept complaints and objections by guests (87%), make financial analysis in relation to losses

occurred as a result of objections and complaints (85%), and 88% of managers claim they have supervisors to control all operations, which means that most of them have full business process management. Five-star hotels determine prices based on costs and business policies (88%), and a small proportion of them claim to do so based on copying of competition prices (36%). The findings of the survey are that five-star hotels have supervisors for control of all operations (88%) and internal control in the input of raw materials and intermediate goods (93%) and apply methods and techniques for faultless operation resulting in raising the level of quality in all business processes, reducing all types of costs, reducing the price of products, creating trust among buyers / users, raising employee knowledge.

Table 7 presents the aggregate results obtained from the answers to the questions from the third part of the questionnaire referring to the indicators for estimating the system for analyzing the cost of quality in hotels.

Table 7: Indicators for estimating the system for analyzing the cost of quality in hotels

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

The impact factor is presented visually with color according to the following legend:

1.00-1.80 (no, they do not plan at all)	1.81-2.60 (activities are planned)	2.61-3.40 (they are at initial phase)	3.41-4.20 (they are at advanced phase)	4.21-5.00 (they have implemented)
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Overall, in Table 7, it is noted that the cost estimation indicators for the management of the system for analyzing the cost of quality are assessed with a medium and advanced impact factor, i.e. they are in the initial and advanced phase or have implemented a system for analyzing the costs of quality. Managers of all types of hotels in Macedonia assess that they have supervisors for controlling all operations (3.7 average), use "blind" guests to make self-assessment of employees and operations (3.7 mean). Hotels of all categories determine the prices of their products and services on the basis of costs and their own policy (2.96 in average), while comparing with the competition in terms of prices is the assessment with 4.0 average values. Hotels of all categories make internal control at the input of raw materials and intermediate goods (4.3 average values) which level indicates that they are in an advanced phase.

Table 7 shows that there is also a large number of indicators where the system for analyzing the cost of quality is low, and it refers to hotels with three and four stars. These indicators are related to the questions about the anonymous surveys of the guests regarding their satisfaction / dissatisfaction with the services (3.4 average value), analysis of complaints and objections of the guests (1.8 average value), acceptance of complaints and objections by the guests (4.3 average value), financial analysis in relation to losses incurred on appeals and complaints (1.9 average value), use of "blind" guest technique to make self-assessment of employees and operations (3, 4 mean value), the presence of supervisors for controlling all operations (2.9 average for three-star hotels and 3.4 average for four-star hotels). These indicators show that hotels plan activities related to the improvement of business processes. Surveyed hotels with four stars and lower ranked three-star hotels are at some advanced stage, although realistic from our experience can be freely stated that they are in some initial phase of planning activities.

Namely, it can be noted that five-star hotels show significant care in relation to issues related to the analysis of quality costs, the implementation of integral quality system control and the design and implementation of total quality management. Thus, they own a large number of supervisors for controlling all operations, use a "blind" guest technique to make self-assessment of employees and operations, anonymous questioning of guests regarding their satisfaction / dissatisfaction with the services, analyze and accept complaints and objections which means that they continuously work on the improvement of business processes. Five-star hotels determine their prices based on their own cost analysis, and very few of them determine prices by comparing themselves with competition.

What Macedonian hotels should aim for is to minimize costs, which means that for a given level of production, no more sources are used than necessary. For hotels, this will mean higher profits, as there is a greater difference in the cost of production and the selling price at minimal cost.

What the hotel industry managers need to do is to identify points for identifying and analyzing weak spots in the whole company, and to analyze the costs of complaints, errors, defects, or costs occurred because quality requirements are not met. Due to the lack of statistical approach in data processing, quality assessment and information transfer, there are many problems that Macedonian hoteliers are facing. The use of statistical process control (SPC) is present in a small number of hotels.

Guidelines on the meaning and use of the SPC and the improvement of the quality of products / services must be made available in all fields: marketing, sales, production, finance, human resources, but it requires regular training for all employees. In doing so, the conclusions indicate that the higher the hotel is, the perception of different standards in terms of quality, environment,

occupational safety, information management, energy and food safety is greater in terms of its implementation.

The technical and technological equipment of the Macedonian hotels is approximately satisfactory and to some extent meets the current requirements of the customers / users. The problems mainly come from poorly organized business processes and the inability to meet the required quality standards. With Macedonian hotels, the same technology produces lower business results.

The reasons are not only in lacking modern technology, but also in weaker managerial skills, qualifications and employee performance, as well as the quality of business process management.

There is an example of integrated control and self-control in the investigated hotels that existed on the Macedonian tourist market for more than 15 years. Their consistency on the market is the result of the integrated quality control applied, which is based on the participation of all employees in the promotion of quality. They achieved this by changing their awareness and attitude towards work, depending on their knowledge, learning, desire and motivation for such work. The application of the Total Quality Management model does not require investments in equipment, new technology, but only a different approach to work, performance of tasks, mutual communication, unity in achieving quality, as well as correctness and high responsibility for work and customers.

Our tests have shown that companies that have only formally certified a product / service quality assurance system do not meet the requirements of ISO standards and have no benefits from the formal quality system.

6. CONCLUSION

From the data obtained from the survey, three-star hotels are in the initial phase of implementation of the system for analyzing the costs of quality (3.0 average), four-star hotels are advanced (3.5 average), while five-star hotels have implemented a system for analyzing the cost of quality (4.64 average).

Five-star hotels show a clear definition of the rights, duties and responsibilities of each individual and are fully committed to the customers / users for long-term satisfaction of their desires and needs. With the definition of rights, obligations and responsibilities, employees have received greater participation, responsibility and power in identifying and solving problems, able to correct mistakes, outline quality problems, creating standards and in the efforts invested in continuous improvement.

By involving employees in problem-solving processes, their motivation is increasing in order to further enhance the processes they perform.

The experience in the world shows that many hotels have significant difficulties in implementing the TQM (Total Quality Management) system. Its principles, although in theory are well built, are in practice it is implemented with great difficulty, so it is not a rare case for numerous hotels for a variety of reasons to give up its introduction, even though they accepted it. Namely, in hotels very often, the management only declares about the introduction of this system, and then shows unwillingness to develop broad support for its implementation. Many managers are simply not ready to make the decision to implement TQM because they are not capable of upgrading the quality system. There is a large number of managers who do not have enough enthusiasm to transfer it to other employees when it comes to improving the quality system. There are also a number of managers who do not want to transfer some of their powers to a lower level. This should be added to the unwillingness of the employees to change the habits acquired over the years in the performance of their tasks. These are just some of the reasons for unsuccessful attempts to establish a quality system. It is logical to conclude that if the management of an organization is not interested or unable to continuously improve quality, it is difficult to expect employees to do it. The management before making the final decision on the introduction of the TQM system should check

for its own readiness and possible problems that may arise in the process of establishing the quality system and its implementation.

The conclusion is that the hotels in Macedonia have to measure constantly the satisfaction of the user of the services, which means using different methods and techniques that serve as the basis for continuous improvement of the quality of the hotel product and providing pleasure to tourists. Top management must build an integral quality control system aimed at monitoring the whole production-service process, indicating deviations and mistakes that may affect product quality and take timely measures if there are reasons.

Based on the results of the research, there are recommendations for the managers of the hotels in Macedonia to implement successfully and develop a system of total quality management; it is necessary for the top management to make a clear and unambiguous decision, while determining the development of the quality through practical action. If the answers to these assumptions are satisfactory, the organization can be assured that it is on a good path to success. In doing so, appropriate procedures must be used in the process of setting up a quality-oriented, market-driven quality system by the consumer, with an exceptional emphasis on the role of employees.

Hence, as a general conclusion, the need for the necessary application of the methodology of analyses of the cost of quality as a segment of the integral model of total quality management is required, which does not require investments in equipment, new technology, but only a different approach to the work, in the performance of tasks, in mutual communication, togetherness in achieving quality, as well as correctness and high responsibility for work and customers. By undertaking such type of activities, the results can be measured, which directly reduces the operating costs of the hotels operations.

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FINANCIAL LITERACY IN TERMS OF QUALITY OF LIFE

Radoica Luburić, PhD¹

Nikola Fabris, PhD²

Abstract: *This paper deals with the influence of Financial Literacy on the Quality of Life. Bearing in mind that finances and financial literacy are constant and unavoidable companions of our lives, bringing with them numerous challenges, risks and temptations, they inevitably influence all segments of the Quality of Life. When individuals, organizations and society as a whole are financially literate, the conditions for achieving a better Quality of Life become much more favorable. To a certain extent, the Financial Literacy Indicators signal the health of the financial system and the economy as a whole. Unstable finances are a key cause of financial worries for people, which can greatly affect both their health and their Quality of Life. In the times in which we live, characterized as the digital age and with the increasing acceleration of change, a key question is whether, and to what extent, people are sufficiently financially literate, and what is being done to make the situation much better than it is now. Standard macro-economic indicators, traditionally used as measures of the well-being of society, are unable to always give a real and complete picture of the level of Financial Literacy or of the Quality of Life. In this paper, the key Indicators of Financial Literacy are identified and their influence on the Quality of Life is comprehensively examined, not only when seen through the prism of economics, but also through the many other factors that give people overall satisfaction, both in material and spiritual terms.*

Keywords: *Financial Literacy, Financial Literacy Indicators, Quality of Life, Indicators of the Quality of Life, The influence of Financial Literacy on the Quality of Life*

JEL Classification: E40

1. INTRODUCTION

The Quality of Life and money are phenomena which have existed for many centuries. Throughout human history there has been almost nothing that has had more influence than money on the lives of people, their relationships and their way of life. In one way or another, these historical and economic phenomena have not only survived to this day, but their importance for the lives of people has

¹ Radoica Luburić, PhD, Central Bank of Montenegro, Podgorica, Montenegro, radoica.luburic@cbcg.me

² Nikola Fabris, PhD, Central Bank of Montenegro, Podgorica, Montenegro, nikola.fabris@cbcg.me ;
Faculty of Economics, University of Belgrade, Belgrade, Republic of Serbia, fnikola@ekof.bg.ac.rs

increased over time. This is especially true of money. As opposed to other material things which are important for people to have, money is even more important when they do not have it. In today's insecure and turbulent times, however, it is not easy to earn and save enough money for life, just as it is not easy to successfully manage it.

The question is, how is it possible that although people know less about money than they do about many other peripheral things, they almost never separated from it, either physically, or in any other way? In fact, the key question is as follows, to what extent are people sufficiently financially literate to successfully manage money in today's conditions of life and work, and what is being undertaken to improve the situation? Successful money management is not for the layman, but is a very complex challenge that requires both individuals and the whole of society to develop a conscious awareness of finances, a certain level of financial knowledge and skills, as well as to develop an appropriate financial culture and other important related activities and behavior.³

Bearing all this in mind, financial literacy is of great importance to the entire population, which is increasingly living in a more complex and turbulent economic environment. More recently, many countries have been taking significant measures to determine the existing level of financial knowledge of their citizens and to create national financial literacy programs.⁴ An inadequate level of financial literacy can have serious consequences not only for individuals and families and their Quality of Life, but also on the economic stability of the entire society. The role that financial literacy plays in the quality of people's lives is one of the key factors in achieving the success of every individual and therefore society as a whole. This paper examines the key indicators of both Financial Literacy and the Quality of Life, as well as their interactions.

1. FINANCIAL LITERACY INDICATORS

There are many definitions of financial literacy, the one that is the clearest and most comprehensive is that given by the Organization for Economic Co-operation and Development (OECD): „Financial literacy is a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial well-being“ (Atkinson & Messy, 2012, p.13).

Financial Literacy is based on three fundamental factors, these are financial knowledge, financial behaviour and attitude towards money.⁵ A financially literate person should have some basic knowledge of key financial issues and the ability to apply certain skills in financial situations. Therefore, they should be able to successfully answer questions in relation to concepts such as simple and compound interest, risk and return on invested funds and the impact of inflation on finances.

Financial behavior is a key factor in financial literacy, and in many ways the most important one. The positive outcomes of financial literacy are driven by behavior such as cost planning and the construction of a financial safety net, thoughtful investment, comprehensive understanding of risk and others. The negative outcomes of financial literacy stem from certain behaviors that are a characteristic of historical heritage and primarily a low level of financial education and culture, such as falling into over-indebtedness, lightly accepting risks, and a lack of understanding of financial products and services, which can all negatively affect financial well-being.

³ To see more about this: Luburić, R.; Fabris, N., (2014). *Umijeće upravljanja novcem*, Podgorica: Medeon, Beograd: Hesperiaedu.

⁴ For more information see: Fabris, N.; Luburić, R., (2016). *Financial Education of Children and Youth*, Journal of Central Banking Theory and Practice, 5(2), pp. 65-79; Fabris, N.; Luburić, R. (2017). *Finansijsko obrazovanje dece i omladine*, Beograd: HERAedu, Podgorica: Medeon; Luburić, R. (2018). *Financial Education and the Role of Central Banks in Creating an Effective Programme for Children and Youth*, Regional Central Banking Seminar on Communication Why Should Central Banks Care about Economic Education? Central Bank of the Republic of Turkey, September 2018, Istanbul.

⁵ To see more about this: Atkinson, A. & Messy, F.A. (2012). *Measuring Financial Literacy: Results of the OECD / International Network on Financial Education (INFE) Pilot Study*, OECD Working Papers on Finance, Insurance and Private Pensions, No. 15, Paris: OECD Publishing, pp. 2-33.

The attitude towards money is also one of the key factors of financial literacy. Basically, it's the attitude of people to what they earn and other income, and is shown by their spending habits and by their saving for their future. The attitude towards money is best seen by whether users give priority to short-term needs and preferences, or make medium-term and long-term financial plans for a safer future.

The level of financial literacy of an individual and society as a whole is best demonstrated by its indicators. As illustrated in Figure 1, for the purpose of this research, the authors have identified seven key indicators of Financial Literacy: Financial Awareness, Financial Knowledge and Skills, Attitude Towards Finance and Money, Financial Behaviour, Managing Financial Risks, Financial Culture, and the Use of E-finance.



Figure 1. Financial Literacy Indicators

These Financial Literacy Indicators show the level of financial awareness, the level of financial knowledge and skills, as well as the level of financial culture. They also show the relationship towards finances and money, as demonstrated by the financial behavior of people in various life situations. For a complete overview of financial literacy, it is necessary to include an indicator that shows the effectiveness and efficiency of financial risk management.⁶ Bearing in mind the accelerated technical and technological progress and the risks these processes carry with them, as well as the acceleration of changes in all spheres of society, and in that sense in the financial system, the Use of E-finance is an indicator that has rightly found its place right here.⁷ All of these indicators

⁶ For more about Risk Management and its influence on the Quality of Life see: Šarović, D., Perović, M. J. (2018). *Menadžment rizikom u funkciji kvaliteta življenja*, Kvalitet & izvrsnost, Broj 5-6, Beograd: FQCE, pp. 35-39.

⁷ For more about E-finance see: Chuen, D. L. K. and Deng, R. H. (editors), (2017). *Handbook of Blockchain, Digital Finance, and Inclusion, Volume 2: Chinatex, Mobile Security, and Distributed Ledger*, Academic Press.

are mutually interdependent, and only when integrated into a whole, are they able to show the real level of financial literacy.

2. INDICATORS OF THE QUALITY OF LIFE

A number of eminent international institutions previously dealing with this issue were mainly concerned with gross domestic product and some other key economic indicators. However, while these are important, the Quality of Life has to be measured through different economic and non-economic indicators as it actually involves a whole spectrum of factors that affect what people value in life, beyond its purely material aspects.⁸

The quality of a society and the Quality of Life of an individual are fully and directly connected, they relate to the overall well-being of society and are aimed at enabling each member to achieve their goals and aspirations. This means that the life of an individual is connected and interwoven not only with the system of values of the community in which they live, with its culture, customs and tradition, educational and health systems, as well as the system of values of the family in which he or she grew up and was educated.

For the purposes of this paper we have identified seven indicators of the Quality of Life which take into account the above (Luburić & Fabris, 2017, p.24).⁹



Figure 2. Indicators of the Quality of Life

In many ways it is true that the Quality of Life, with all its components, is basically limited by the individual's ability to access material and financial resources. In this sense, the economic conditions

⁸ To see more about this: Luburić, R.; Fabris, N. (2017). *Money and the Quality of Life*, Journal of Central Banking Theory and Practice, 6(3), pp. 17-34.

⁹ This is based on work carried out by the General Directorate of the European Commission, more commonly known as EUROSTAT, that had earlier shaped and developed a set of eight basic indicators. EUROSTAT (2015). *Quality of life, Facts and Views*, Statistical books, 2015 Edition, Luxembourg: European Union, pp. 9-10.

and in particular the material and financial conditions of life, although they do not reflect the Quality of Life in all its dimensions, provide the necessary framework for measuring the potential of not only individuals and households, but also society as a whole. Material and financial conditions are possibly the key indicator and in practice we know very well how much money greatly impacts on them. In the continuation of the text, we will briefly look at the other indicators of the Quality of Life illustrated in Figure 2.

Employment is one of the most important indicators of Quality of Life, either in a positive or negative sense. If a person has a good job and enjoys all the benefits it provides, this primarily ensures his or her material existence, strengthens identity and integrity, refines and provides opportunities for social contacts. Employment enables a person to be creative, learn, improve and acquire skills, as well as engage in activities that give a sense of fulfillment and satisfaction. On the other hand, the Quality of Life can drastically worsen when the spectre of unemployment appears, when work is not adequately rewarded, and especially when a person is left out of work. It is certain that the only way a person can see the value of a job is when they are left without it and the benefits it provides.

The provision of education is essential to both the well-being of an individual and the society in which they live. In today's insecure and turbulent times, education is a basic condition for the survival of every individual, every organization and every culture. Education affects the Quality of Life in many ways, and its overall benefits can hardly be compensated by other means. Education is a process that is not of a short-term or temporary character, but it is a process by which both people and organizations and states have to deal with systematically, thoroughly and continuously, if they want to survive, develop, and be sustainable. Education is one of the greatest values of society, because it provides a better understanding of the world in which we live.

Health is also one of the most important indicators of Quality of Life. Healthy individuals, healthy nations and good health care are the greatest wealth of every society. There is an old saying that a healthy individual has many desires, but a sick one only wants to be healthy again. At the collective level, health contributes to economic and social development, the enrichment of the so-called "human capital" of society, and this also leads to an increase in social wealth. A long and healthy life is not only important as a personal goal, it is also an indication of the well-being and success of the entire society.

Another significant indicator is social life. People must be allowed to enjoy the balance between work and personal interests, to spend leisure time on vacation and in social activities. The social life of people is in direct relation to their satisfaction of life. People can have enough money and even be very rich, but it will not mean much if they are lonely and isolated and socially inactive. For the psychological stability of every human being, it is very important to engage in social activities and to take on social responsibility, as it is very important to build relationships of mutual trust and respect. Without mutual respect and trust, there is no lasting success for the family, at work, or anywhere else. Man is a social being and cannot sustain mental health without socializing in some form.

Personal and family safety, as an indicator of Quality of Life, have always been crucial in people's lives, and in today's uncertain and turbulent times even more so. Predicting, and the timely identification of potential risks, as well as the ability to overcome sudden troubles and threats, greatly contributes to a better Quality of Life. The rule of law and the quality of democratic institutions, as well as the elimination of all forms of discrimination, is an important indicator because without the basic human rights there is no freedom of choice for anyone to be able to live and work. People always needs more freedom, more tolerance, and more respect.

For a good Quality of Life, environmental protection is very important. Man is a part of nature and as such suffers the effects of the world surrounding him. The environment affects all the aspects of people's lives, not only with regard to their health and their personal safety, but also on their overall well-being. Environmental pollution has a direct detrimental effect on our natural resources such as

clean water or air, for example, but it also has an indirect impact on every ecosystem and biodiversity, which can easily lead to unexpected and severe natural disasters.

While indicators such as satisfaction either with employment, the financial situation in the household or living space affect certain areas of life, general satisfaction refers to an individuals evaluation of all relevant subjective aspects of their life, and therefore it is considered to be the overall measure of subjective well-being.

The Quality of Life in the times in which we live is merely a reflection of the overall situation in every individual social community, as well as around the entire world as a complete natural and physical whole. It is natural that a person of the digital age lives a life that is much more demanding than one from a tribal community or in any other period of our historical development, but it is not natural that they are more overworked and worried than ever before, with no time for life as they truly want to live it. Many people are more dissatisfied and under greater stress than just a decade earlier. The reason is not only that people expect much more from life in the digital age, but also that the demands of others towards them are much more pronounced. The employer, the family, the school, society, and who knows else, expect much more from people today and at the same time demand that this all must be completed in the best way and as soon as possible. It all makes life seem much more complicated.

3. THE INFLUENCE OF FINANCIAL LITERACY ON THE QUALITY OF LIFE

Almost all the Financial Literacy Indicators, in a direct or indirect way, significantly affect the Quality of Life. In Figure 3 we show the influence of the indicators of Financial Literacy on the indicators of the Quality of Life.

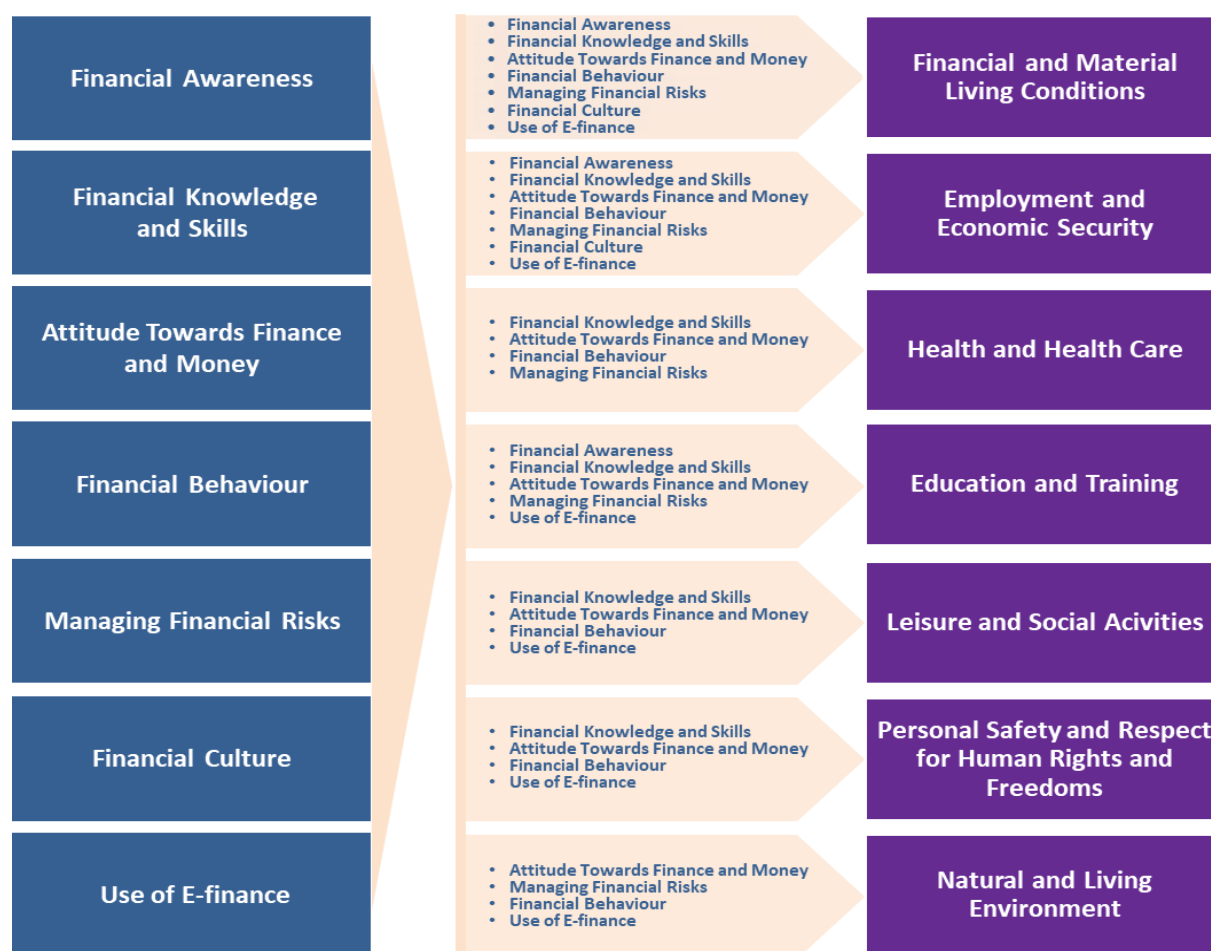


Figure 3. The influence of the Financial Literacy Indicators on the Quality of Life

In order for a person to live well, it is necessary to have adequate financial and material conditions. Therefore, this indicator of the Quality of Life is influenced by all the indicators of financial literacy, because they basically determine the individual's ability to obtain the required financial and material means through hard work to enable a better life.

A large number of studies have shown that the greatest sources of stress for an individual are illness, the loss of someone close, and the loss of a job. Without employment and accordingly adequate economic security, it is difficult to provide for a quality life. As in the previous case, all the indicators of financial literacy impact on this indicator of the Quality of Life. A person who is not sufficiently aware of finances and their importance and does not have an adequate financial culture will hardly be able to provide economic security.

One of the most important factors in the success of each individual is an adequate level of education and training. Specific and highly-skilled knowledge is a prerequisite for many employment opportunities. Today, knowledge can become quickly obsolete and, therefore, the concept of "Lifelong learning" is increasingly being promoted. This means that people need to continuously invest in their knowledge, which often requires the allocation of significant financial resources. A person with adequate financial knowledge and well-managed risks will be able to allocate the funds needed for these purposes. The basic precondition for this is an adequate level of financial awareness and a serious attitude towards money, that is, the awareness of people that investment in education and training is not a cost, but a vital investment and beneficial in the long-term (Luburić, 2016). In today's world, the application of advanced financial electronic platforms also requires adequate training for their proper use.

The indicators of Financial Literacy also affect some indicators of the Quality of Life, such as health and health care, the natural and living environment, personal security and respect for human rights and freedoms, although, perhaps, at first glance, is not easy to see a direct link.

We live in a time when quality health care is no longer entirely free and a significant number of health services require sizeable financial resources. That is why it is of great importance to have the financial knowledge and skills that can enable the acquisition of sufficient funds to meet these essential needs. This relationship between adequate financial knowledge and behavior best demonstrate whether a person is aware of the cost of his good health, and whether money is, in some respects more important than himself. Financial worries resulting from the poor management of financial risks can create such a level of stress that it can seriously endanger an individual's health.

One of the important indicators of quality of life is leisure and social activities. A person who has adequate financial knowledge and skills and who adequately manages financial risks can earn more money, reduce working hours, and thus increase their leisure time. In addition, leisure activities, such as travelling and holidays, the cinema or theatre, shopping, or hanging out with family and friends, are also largely dependent on money and how much someone is ready to set aside for these activities. This means that the relationship between finances and financial behavior often directly influences the quality of life enjoyed by an individual. In the same way, whatever our attitude to the natural and living environment, a lack of available resources for either donation or activism, could well be a determining factor in our relationship with it.

At a time when cyber-crime is becoming a widespread phenomenon, the issues of financial knowledge, financial skills and the use of electronic finance are very important. Under conditions of general uncertainty, and especially insufficient financial literacy, it is easy to become a victim of cyber-crime. This can, for example, remove the human right to privacy, cause the loss of significant funds and savings and even directly endanger personal security.

There is a very important link between the level of Financial Literacy and the Quality of Life enjoyed by individuals and society as a whole, and these two aspects form fundamental parts of our lives.

4. CONCLUSION

Throughout human history there has been almost nothing that has had more influence than money on the overall life of people, their relationships and their way of life. In today's insecure and turbulent times, however, it is not easy to earn and save enough money for life, just as it is not easy to successfully manage it. Consequently, financial literacy is of great importance to the entire population. The role that financial literacy plays in the quality of people's lives is one of the key factors in achieving the success of every individual and therefore society as a whole. The indicators of Financial Literacy and the indicators of the Quality of Life of an individual are fully and directly connected and mutually interdependent and only when integrated into a whole, are they able to show the real situation. In many ways, the Quality of Life, with all its components, is basically limited by the individual's ability to access the required material and financial resources. Almost all the Financial Literacy Indicators, in a direct or indirect way, significantly affect the Quality of Life. The reality is that without an adequate level of finances it is very difficult to enjoy a satisfying Quality of Life. At the same time, without an adequate level of Financial Literacy it is very difficult to ensure this adequate level of finances. The link between them is clear and the consequences of problems in this area lead to problems in all of society.

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QUALITY REPORTING BY APPLICATION OF THE A3 METHOD

Ana Globočnik Žunac, Ph.D.¹

Ivana Grabar, M.A.²

Matija Kovačić, bacc.oec³

Abstract: Increasing demand of interested parties, intensifying competition and market turbulence are increasing demands on organizations to produce and give services of higher quality as well as to be fully customer oriented. Accordingly, organizations need to develop their adaptation ways to continuously improve their processes. To improve business processes, organizations have a variety of tools and methods available, and the choice of optimum ways of improving depends on the organization's context. One of the generally accepted approaches to enhancement that considers the opinion and suggestions of employees as relevant is the A3 report. The A3 report requires an efficient way of communication and understanding in the project team working to improve the process and partly within the entire organizational system. During the communication process, conflicts often evolve, which can undermine created synergies, leading to the risk of improvement project to fail. The organizational imperative is to manage conflicts and to appreciate suggestions for improving processes that come from employees. Through the use of the A3 report that emphasizes employee involvement in improvement, the organization systematically approaches improving business processes. As such, the A3 report is an intuitive, simple and insightful way that leads to the organization's process maturity and to fully meet the requirements of the interested parties.

Key words: process improvement, internal communication, lean 6sigma, A3 report

JEL classification: L15

1. INTRODUCTION

A large degree of changeability in the environment in which today's organizations exist is resulting in the need to develop organizational flexibility in the context of adaptation to emerging environmental conditions and the demands that the interested parties place on the organization. Although the management of the organization invests in the development and maintenance of quality management systems, anomalies in organizational processes are inevitable.

In response to the turbulence of the environment and the increasing demands on the quality, organizations transform their structure so as to become process-oriented [1] and characterized by flexibil-

¹ Ana Globočnik Žunac, Sveučilište Sjever, Koprivnica, Hrvatska, agzunac@unin.hr

² Ivana Grabar, Sveučilište Sjever, Koprivnica, Hrvatska, igrabar@unin.hr

³ Matija Kovačić, Sveučilište Sjever, Koprivnica, matkovacic@unin.hr

ity and the ability to quickly adapt [2], i.e. meet the requirements of the interested parties. The transformation of traditional, bureaucratic organizational structures into a process-oriented structure is one of the requirements that ISO 9001 sets to organizations. With the process approach, ISO 9001 emphasizes the imperative for developing a system of continuous improvement of the process in accordance with the PDCA methodology. [3] Continuous improvement and improvement of business processes as well as quality management systems must involve employees at all organizational levels, which also correlates to the degree of maturity of organizational processes. [4] One of the tools based on the PDCA methodology is the A3 report [5], as one of tools used to improve the process in Lean 6sigma methodology. [6]

The application of the A3 report in an organization is unthinkable without the development of teams that will work on the A3 report [5]. In addition, the organization persists in business excellence and places the emphasis on the customer as the central factor whose satisfaction becomes organizational imperative. As a result, communication channels are developed and they enable feedback based on which organizational employees can propose ways to increase customer satisfaction through customer complaints [7] and by those direct organizational improvements. Furthermore, the indispensable part of any A3 report of improvement project is communication and education as well as business decision-making in the context of the choice whether or not to approve the project. [5]

2. COMMUNICATION IN THE CONTEXT OF QUALITY MANAGEMENT

Communication is the integral part of organizational functioning, whether it is about a project of process improvement or delegating tasks. In one of the first methods of process improvement, quality circles, communication was emphasized as an important and indispensable part of improving quality and organizational processes. Employees met on a regular basis and suggested improvement by meeting of the parties. [8] The need for developing an efficient communication system is growing with the increasing importance of team approach to solving problems, with increasing the implementation of projects for quality improvement and project management. In this context, project information is shared by communication. Good understanding is the basis for good communication both on the recipient side and on the side of the sender. [9]

Communication as an important component of the organizational quality management system is emphasized in point 7.4 of ISO 9001: 2015, which discusses the importance of developing and maintaining internal and external communication within the organization. When it comes to communication in the context of the ISO norms, it is not just about oral communication, but also written communication through documenting information and creating records. [3]

Written and oral communication are one of the foundations of the A3 report, which is also the foundation for improving the organizational system. [5] The A3 report is part of the eastern philosophy of quality [10], which emphasizes the mentorship assumed as the way an organization educates its employees. This approach to learning, or gathering suggestions for improvement, requires from employees to possess an ability to express and summarize communication. Concise communication is especially important because the A3 report is actually paper size A3 (297x420 mm). Through the defined fields in the report, employees must efficiently communicate the suggestion of improvement as well as all the facts that the proposal gives and underpins. [5]

However, communication is not only important for suggestions of improvements or for the normal functioning of an organization, but also for resolving the conflicts that arise in the team, which are part of the stages through which each organizational team passes. This is particularly evident in the third phase of the team's life cycle according to Tuckman (1965). [11]

Conflicts and crises within the team can arise due to the communication noise, or in cases where the sender of the message has not formatted (coded) the message clearly enough or the recipient of the message has not understood (decoded) the message in a conceivable way. Thus, improper communication is one of the starting points for conflict development. [12]

As can be seen in Figure 1, the communication model consists of sender, encoding on the sender's side, communication medium, decoding on the recipient's side and, at the end, the recipient himself and his understanding of the message. [13] The existence of noises is important but not crucial for efficient communication. Choosing an inadequate communication medium is also one of the factors of less efficient communication.

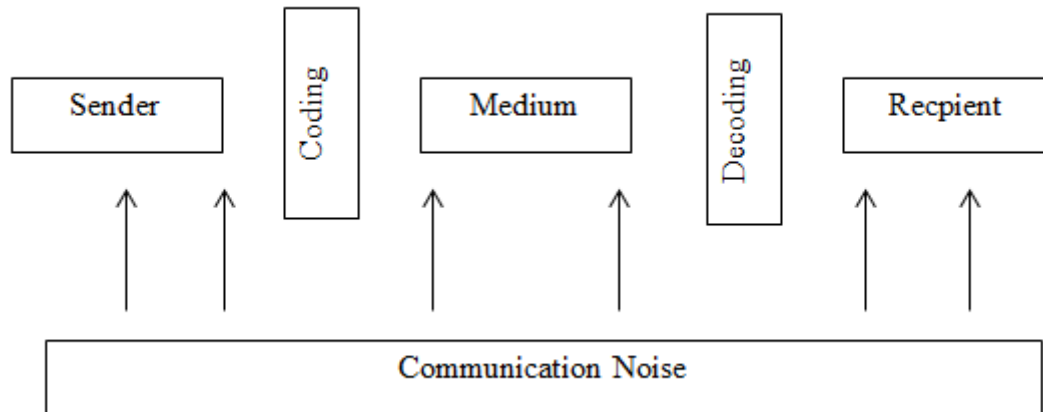


Figure 1: Communication Model

Source: Authors based on Aufermann, J., 1971, *Kommunikation und Modernisierung* (Vol. 3). BR. D.

3. THEORY OF THE A3 METHOD

The Lean 6sigma approach contains a large number of tools and methods for improvement. One of the improvement methods/tools that encourages active participation of organizational employees in the improvement projects is the A3 report. [14] According to Lean 6sigma approach to improvement, the basis for improvement is identification of process waste, or activity in the process that add value to the customer. [15] Employees directly involved in the process are familiar with all the activities in the process – those which add value, but also those which do not add value. Accordingly, they can suggest improvement projects that will eliminate or reduce process waste.

In order to be able to improve, the A3 report emphasizes the importance of collecting and presenting all the information about the existing performance that the process develops to the superiors or process owner. When presenting the improvement proposal, it is very important that the proposer adjusts the way of presenting the knowledge and competences of the recipient (superior) in order to understand the importance and the need for the proposed improvement. [5] For suggesting and presenting improvements, the A3 report requires the use of a logical sequence. Steps are shown in Figure 2.

As can be seen in Figure 2, the A3 report consists of seven specific steps through which the performance of the process and the need for improvement are analyzed and displayed. The imperative is to summarize the present state. Employees, therefore, have to select the relevant data and information they consider essential to process.

The A3 report is not only used for suggestions of the opportunities for improvement that employees identify in the process, but also for resolving non-conformities and anomalies that have resulted in non-conformities. [5]

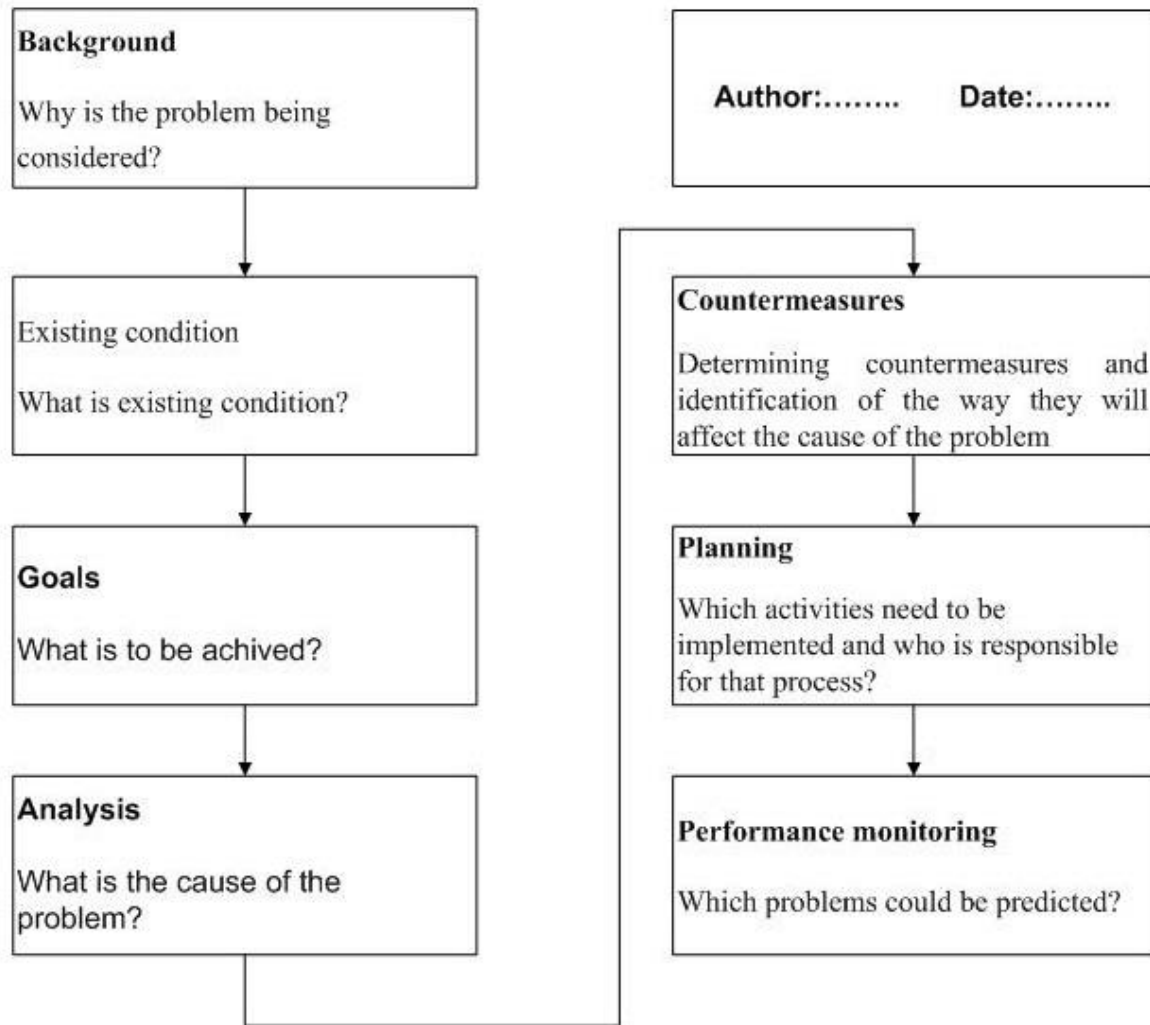


Figure 2: Steps in making the A3 report

Source: Authors according to Shook, J., 2008, *Managing to learn: using the A3 management process to solve problems, gain agreement, mentor and lead*. Lean Enterprise Institute, pp. 8-9

4. PDCA – APPROACH TO CONTINUOUS IMPROVEMENT OF THE PROCESS

The A3 report is based on the PDCA methodology of constant improvements [5] and represents the acronym for four stages of process improvement, P (planning), D (doing) C (checking), A (acting). [16] The PDCA methodology is recommended by the ISO 9001 standard as the fundamental methodology for improving processes and quality management systems. [3] However, PDCA is not the only methodology by which process of improvement can be accessed. The Lean 6sigma approach, in which the A3 report is an integral enhancement tool, emphasizes the DMAIC methodology of enhancement as essential. [17] The difference between the two methodologies is based solely on the phases through which improvements are made while both methods as their result have improvement of the processes.

The PDCA methodology was developed in Japan after World War II in the period in which postwar Japan met with the challenges of re-establishing the economy. Faced with the competition, Japanese scientists and business people developed a methodology to reach the era of the fastest growing economy in the United States of America. [18]

Figure 3 shows the PDCA access to improvement stages defined by ISO 9001: 2015. As seen in the picture, the foundation of constant improvements to the quality management system as well as organizational processes is apprehension of identification of the requirements of the interested parties.

According to the identified requirements, access is made to the planning cycle. Planning establishes and defines the goals, processes and resources needed for the process and achieving goals. In the second phase (Do), the implementation of the planned activities begins, while in the third phase (Check) measures and analyses of the process performance are performed. The last phase of the PDCA methodology implies taking steps leading to the improvement of the process, all in line with identified performance in the previous stage. [3]

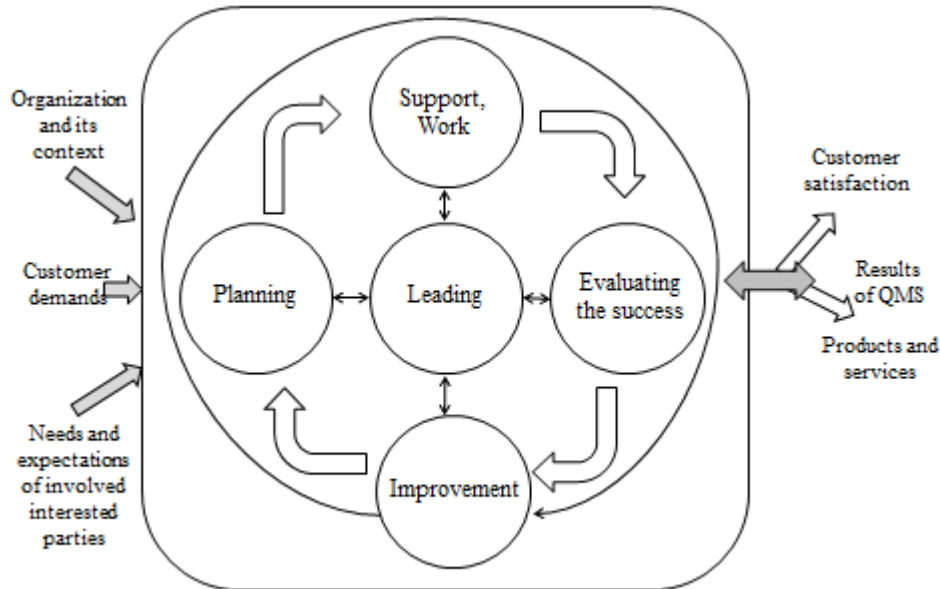


Figure 3: PDCA methodology according to ISO 9001:2015

Source: Croatian Institute for Standardization, 2015, *Hrvatska norma HRN EN ISO 9001, Systems for quality management – demands* p. 8

According to the PDCA methodology, each new process cycle results in the production of higher quality of products and services, which also leads to greater customer satisfaction of the product or service. The importance of a good understanding of the PDCA methodology is the basis for making the A3 report, which is the basis for communicating the need for improvement. The eastern philosophy of quality is one of the conditions for applying the A3 report and as an imperative implies the education and the adoption of PDCA methodology. Only after receiving education and knowledge on how to apply PDCA, employees can use the A3 report. [5]

5. METHODOLOGY OF PERFORMING THE A3 REPORT

As shown in Figure 2, where the steps defined in the production of the A3 reports are imperative, the process is to be accessed through presented phases. The A3 form report is designed to provide a logical, intuitive and clear presentation of the need for improvement, and skipping one of the steps as a result has an unprecedented approach to improvement. Steps in making the A3 reports are:

- defining the background of the problem,
- analysis of the existing situation in the process,
- defining the goals that are to be achieved,
- analysis of the cause of the problem,
- defining countermeasures,
- countermeasure impact analysis,
- performance monitoring after improvement. [5]

a. Defining the background of the problem

Within the first step of the A3 report, defining why the identified problem is actually the problem that needs to be solved is carried out. It needs to give an answer why the identified improvement is necessary to improve the quality system and the business process. [10] It is strongly recommended to display the quantified data [5], but if the nature of the process is such that the data cannot be quantified, it is recommended to graphically display it. [19] Identified problems need to be presented so that the description can explain why their elimination is important and why problems as a result have implications for customer satisfaction and the quality of products or services. [10] The decision of whether or not it is necessary to improve the process depends on the way of communicating and presenting the problem.

b. Analysis of the existing situation in the process

Analysis of the existing situation in the process is the most important step in the approach to improving or planning the improvement. Depending on the data collected through the analysis, a decision about launching the improvement project is made. It is certainly recommended to graphically display the measured performances accompanied by quantified data to show the importance of the need for improvement. [5] If the analysis of the data displayed determines the need to improve, the organization accesses defining the problem. [10]

c. Defining the goals that are to be achieved

Organizational team or the individual that makes the A3 report starts defining the goals by identification and assessment of the problem. The goals defined must be in accordance with the SMART methodology that states goals as: Specific, Measurable, Achievable, Relevant, and Time-bound. [20] Well-defined goals become the standard that serves to compare the performance once the project started. If any of the stages of the project identifies a deviation from the defined goals, corrective action is applied to the project in order to achieve the defined goals. [5]

d. Analysis of the cause of the problem

The fourth step in the A3 report is to analyze the causes of deviations from defined product or service standards. At this stage, a large number of tools and methods are available to the organization that will result in indicating possible causes of the problem. Organizations can combine the available tools; in such cases the results of a tool represent input into another tool. [10] Table 1 shows the most commonly used tools to identify the causes of non-compliance. One of the most commonly used tools at this stage is the tool 5Why. It is used when the problem is clearly and unambiguously defined. With 5Why it is possible to ascertain the direct reason for the incoherence and it is the basis for defining adequate countermeasures directly affecting the source of the problem. [21] Besides, the organization can use brainstorming as one of the starting tools to generate ideas about possible causes of the problem. [10]

Table 1: Presentation of the most commonly used tools to identify the causes of non-compliance

Tool name	Description
Control chart	Analysis of ability/process stability
Fishbone diagram (Ishikawa diagram)	Overview of all possible causes of the problem
Pereto diagram	Determining the frequency of the problem
Histogram	Determining the relative frequency of the problem
Scatter diagram	Watching pairs of numeric variables
Layered Sampling	Creating homogeneous groups that are analyzed
5Why	Determining the causes of a problem
FMEA	Determining system faults and risk analysis
Tree Diagram	Causative problems and relations
Brainstorming	Collecting collective data on cause

Source: Buntak, K., Klopota, I., Kovačić, M., (2018): *A3 metoda – rukopis*.

As can be seen from Table 1, each of the tools described is aimed at identifying and analyzing different areas and data from which it is possible to identify the underlying cause of nonconformity. Performed analysis can be presented graphically or descriptively, depending on the type of the chosen one. [5]

e. Defining countermeasures

Identified causes of nonconformity are approached with the aim of defining countermeasures. However, the final decision on defining the countermeasures to be implemented in the process is made after identifying all possible alternatives or alternatives that are considered optimal. [10] Defined countermeasures must be adequately communicated in the organization in order to make all included employees familiar with the manner in which the countermeasure will be implemented in the process. [5] By applying inadequate communication, employees responsible for countermeasures will not be familiar with needed information, which implies the risk of unsuccessful implementation.

f. Countermeasure impact analysis

The A3 report is based on the PDCA methodology [5], which implies that any improvement must be tested and controlled. [22] Analyzing the effectiveness of implemented countermeasures can be identified if the implemented countermeasures are successful or not. In case it is determined that the measures did not result in the desired effects of the organization, redefining of countermeasures is approached; in other words, corrective actions are implemented in order to increase the countermeasure efficiency. Countermeasures must, upon implementation, result in reduction and/or complete elimination of the problem. [10]

g. Performance monitoring after improvement

Final stage of the A3 report relates to monitoring the improvements implemented. The goal is that, in the future, defined improvements prevent the emergence of new problems or non-compliance and thus reduce potential expenses of (non) quality. The organization keeps track of implemented improvements as well as employees responsible of implementing each of the defined improvements. Proper communication is imperative to achieve sustainability of improvements, and timely reporting on process performance is the basis for preventing the emergence of new problems. [5]

6. CONCLUSION

Customer positioning as a central factor in organizational business requires the transformation of traditional organizational structures into process-oriented ones, where customer satisfaction is primary. Along with the development of customer demand, there is also the organizational need for a different approach to improving or developing new products and services. [23] This approach is also underlined by the ISO 9001 standard, which, in addition, places the imperative for continuous improvement of the process. [3] However, the ISO 9001 standard is not the only approach to improving the quality management system where a buyer is observed as the central factor in the business. An example of the second approach is total quality management (TQM) that emphasizes the importance of employee and customer involvement in improving the process. [24] Furthermore, employee involvement in improvement projects directly correlates with the process maturity of the organization. [4] However, the organization must also take customer requirements or complaints as the basis for access to improvement [7] for which feedback needs to be designed.

Communication is part of organizational everyday life that is marked by meetings, team approach to problem solving, conflicts, focus groups, brainstorming, etc. [25] Inclusion of employees is imperative for achieving the already mentioned process maturity of organizational processes as well as continuous improvement of the process. However, to define ongoing improvement projects, it is especially important to establish adequate communication that includes defining feedbacks on which organizational staff can propose improvement projects. One of the tools available to organizations for this improvement approach is the A3 report. [5]

The A3 report is based on the PDCA methodology. The PDCA methodology is approach to the constant improvement of the processes that are carried out through four phases. The application of PDCA is of particular importance due to the fact that ISO 9001: 2015 emphasizes it as an essential approach to improvement. [3] However, the application of PDCA methodology is not limited to organizational processes, but to environmental management and other improvement projects. [26] The relevance of applying PDCA methodology and the A3 report is increasing due to the improvement of the used ideas generated by employees which are communicated to the seniors in the organization who decide whether or not to embark on the project improvement. [5]

Once an improvement project is initiated, it is necessary to create a project team composed of organizational staff performing various functions in the organization and whose knowledge and competences can contribute to the success of the business. [10] Within each team, roles are assigned to each member [27], and the success of the improvement depends on, among other things, the success of conflict management, or the success of communication. Conflict management is the basis for successful project team functioning and organizational teams as a whole, and for establishing trust between team members. [28]

The A3 report is one of the ways to involve employees in improvement suggestions. By documenting and reporting on possible improvements to the organization, it promotes communication between team members just as well as their perception of what can be motivating. However, communication and reporting can develop conflicts that are the cause of different attitudes and personalities of employees. It is imperative to manage created conflicts so as not to break the created synergies. By communicating, reporting and documenting the organizations systematically approach the improvement of their processes leading to increasing the quality of products and services.

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INTEGRATION OF MANAGEMENT SYSTEMS – SOME ASPECTS

Velimir Komadinić¹

Jelena Lončarević²

Abstract: *The integration of management systems, based on ISO (International Organization for Standardization) standards, is becoming increasingly important in today's business environment. As there is no ISO standard for integrated management system, there are the key issues of management system integration such as: what is integration; degrees of integration; how to integrate; benefits of integration, and barriers to integration. This paper will present an analysis of these issues based on the literature and professional experience of the author.*

Keywords: *Integration, management system, standard, ISO*

JEL Classification: *L15*

1. INTRODUCTION

The notion of integrated management systems attempting to comply with more than one management system standard (MSS) is relatively new. It has first emerged in the early 1990s and gained popularity after publication of the standard for environmental management – ISO 14001 in 1996. The degree that organizations were using a single formal documented MS earlier than this, to manage multiple aspects of performance, is not known.

Many authors published articles highlighting synergistic links between the flagship standards resulting from common elements (in particular, policy, documentation, audit and management review) and similarity of structures to make a case for their integration or alignment.

Various aspects of integrated management systems (IMS) have been studied both theoretically and empirically. This paper addresses the key issues of integration, identified in literature, such as:

- What is integration;
- Degrees of integration;
- What to integrate and how;
- Benefits of integration (expected and achieved); and
- Barriers to integration.

¹ Mr Velimir Komadinić, Lola Institut, Beograd, Srbija, velimir.komadinic@li.rs

² Jelena Lončarević, AS Commerce - STAN, Beograd, Srbija, info@as-stan.com

2. WHAT IS INTEGRATION

A number of differences have been identified in the interpretation of what integration means concerning management systems (MSs) and MSSs.

Wilkinson and Dale [33] write “It is clear that integration is viewed in a number of different ways, from the implementation of a system throughout the whole organization, to the combining of two or more systems through similarities in their structure, to companywide integration of all systems with the policy and objectives of each system aligned to the overall company policy”.

For Karapetrovic and Willborn [20] two systems are integrated when they are linked “in a way that results in a loss of independence of one or both”.

Beckmerhagen et al. [6] define integration of MSs as “a process of putting together different function-specific management systems into a single and more effective integrated management system (IMS)”.

“An Integrated Management System is a single integrated system used by an organization to manage the totality of its processes, in order to meet the organization’s objectives and equitably satisfy the stakeholders.” [15].

Conti [13] and Rocha et al. [29] distinguish two meanings of integration, the first being integration of a sub-system into the overall business strategy and the second – integration of a company’s sub-systems.

Some authors also draw a line between integration of standards and integration of MSs, with the former based on the similarities of the standards [17, 6].

In the relatively short history of IMS, there has been a never-ending quest for one MS standard, which could cover some or all other metastandards.

Among the calls for one standard, Karapetrovic [17] argued that the availability of an integrated MSS is not a requirement for a successful integration of MS. Karapetrovic and Jonker [19] postulated that what standard users require is not an integrated MSS, but “a model that is able to accommodate the inclusion of any current and future MSS”. Karapetrovic [17] believes that “many standards, one system” is a better goal than “one standard, one system”. With the trend of new standards and their revisions published every year, the goal of one standard is simply not viable.

3. DEGREES OF INTEGRATION

Integration, combination, harmonization, consolidation, addition, unification, parallelism, compatibility, assimilation, amalgamation, blend, alignment, fusion, merger – these are just a few terms used in the literature to describe theoretical and practical levels of integration.

Integration is perceived by many (see below) as continuum ranging from no integration (two independent systems) to partial integration to full integration with most organizations situated somewhere in between.

Dalling [15] enlists features of an IMS versus non-integrated systems:

Table 1. Features of an integrated versus non-integrated management system [15]

	Integrated	Non-Integrated
1	Single Policy Statement structure covering all relevant aspects in a generic way without unnecessary replication. This may include subordinate subsections addressing specific topics e.g. equal opportunity.	Separate policy statements for quality, health, safety, environment, security, finance, ethics and sustainability etc.

	Integrated	Non-Integrated
2	A single description (management manual) describing the formal management arrangements unless specific stakeholder requirements such as licensing and regulation prohibit it.	There are separate management manuals covering aspects such as quality, health, safety, etc. often written in different styles.
3	The totality of the control of people issues, such as organization, responsibility, authority, competency and organization/project employment life cycles, is defined in an integrated logical structure and promotes integrated processes.	Discrete arrangements for managing different aspects of organization, responsibility, authority, employment, competency and other people specific issues.
4	Process controls are developed such that opportunities and all aspects of risks are simultaneously addressed.	Separate discrete assessments are conducted for quality, health, safety, environment etc. resulting in non- integrated and potentially non-optimal controls.
5	Notwithstanding any specific stakeholder requirements such as licensing and regulation, management controls at company and project level are defined in a single coherent set of documentation such as generic plans, procedures, work instructions and forms.	Management controls are covered in multiple documents. There is a need to consult several documents to control a process.
6	Reactive Monitoring (customer feedback, accidents, etc.) managed via a single integrated process. The resulting analysis covers all issues in an integrated way. Everything contained in one database.	Discrete processes for dealing with different types of feedback related to quality, health, safety, environment, finance, security etc. Data generally in separate databases.
7	Proactive Monitoring (audits, inspections, surveys, benchmarking etc.) are managed together in a coherent way to effectively and efficiently optimize the management system and the organization's processes.	Discrete proactive monitoring processes addressing issues such as quality, health, safety, environment etc. Additionally different types of proactive monitoring such as auditing, inspection etc. do not necessarily take account of each other.
8	All types of change are managed through the same formal process.	Change is managed via multiple discrete processes.
9	The Management Review process covers all aspects of the operation of the organization and shorter-term review cycles are logically embedded into longer-term review cycle is to form an integrated hierarchy of management review processes appropriate to the size and complexity of the organization.	Discrete Management Review processes which do not review all aspects of data in a coherent and integrated way. A typical example is agreeing a company budget separately from quality, health, safety, environmental and other training for the coming year.
10	Aim to apply management tools and approaches generic way to achieve improvement e.g. integrated risk assessment	Tendency to not apply management tools generically for achieving improvement e.g. use of diverse methods of risk assessment or different risk rating scales.

Source: Dalling, 2007

However, Okrepilov [28] argues that there is no zero on the integration scale because any organization that implemented two or more management systems standards has an IMS, “as these sub-systems are a part of the company’s overall management system and, consequently, their interactions are inevitable.” He defines the term of “integration level” as the “degree of achieving unification of systems elements in the implementation of two or more management system standards” [28].

Jonker and Klaver [16] propose a framework of five different integration levels:

- policy integration – management must decide to go for integration,
- conceptual integration – choosing a model (e.g., EFQM) on which integration will be based,
- system integration – building a system based on the chosen model,
- normative integration – at the standards level, must address the differences between the standards, and
- pragmatic integration – at the documentation level to ensure clear instructions for employees.

4. WHAT TO INTEGRATE AND HOW

With no unique definition of integration, it is not surprising there is no consensus how an IMS should be achieved.

A number of different approaches and methods have been proposed and used for integrating MSs and it seems that neither offers a complete solution. Although some academics argue that IMS should be tailor-made, others try to prove that some integration strategies lead to limited or no benefits.

Karapetrovic and Jonker [19] wonder whether there really could be one best way to integrate MSs, or rather there are many ways that depend on individual circumstances and organizational needs. They state: “Just like we cannot create the best IMS model, it is not possible to develop a methodology that will work in all cases. This is partly because both the objectives (ending points) and initial conditions (starting points) on the path to an IMS are different for different companies” [19].

Seghezzi [31] argued that in designing IMS, “most important is to find a generic management concept which supports the integration of all existing partial management systems. That means companies have to look for a general management system with high integrative power”.

Almost all integration strategies found in literature use one or a combination of the following concepts: the Matrix Model, “a system of systems”, process-based approach, risk-based approach, Total Quality Management (TQM), and Business Excellence (BE) models.

Most authors highlight similarities in the structure and advocate adding ISO 14001 components to those of ISO 9001. Empirical studies also show that adding EMS and or OHSMS to existing QMS is most common, mostly because of high use of QMS and the time lag between publishing the first QMS and EMS standards [7, 10, and 18].

In an empirical study, Bernardo et al. [11] found that “organizations that had decided to implement standardized MSs simultaneously are those that have integrated their MSs at the highest level, compared to all other groups. This is possibly because MSs were implemented together, and therefore, the organizations have found it easier to exploit synergies between the different MSs” [11].

5. BENEFITS OF INTEGRATION

The subject literature offers an extensive overview of expected as well as achieved benefits of integrating Ms. These have been summarised below. It is important to note that the headlines used are merely figurative constructions as all benefits are closely interlinked.

5.1 Benefits relating to internal and external audits

By integrating MSs, organizations may save on costs of internal and external audits [6, 41]. This can be achieved through harmonizing the audit tool as well as training of internal auditors so that they carry out simultaneous audits of several MSs which should result in more efficient audit process, including reporting and corrective actions [6, 22, 41, 42].

All external audits could be carried out at one visit reducing the number of required audit days and costs of certification [41, 42].

5.2 Decreased management costs

Benefits in this category include those, which result from reduced duplication from multiple individual systems and better use of resources [6, 36, and 51].

As argued by Wright (2000), “why have three sets of records, three different policies or three systems of internal audits, when one will do? There are many financial benefits associated with operating formal management systems, but even if no other financial savings are immediately apparent, then the more efficient use of the various resources presently devoted to quality, health and safety, and the environment must indicate a considerable cost advantage.”

Streamlined and improved documentation is among the most significant benefits quoted in both theoretical and empirical studies [1, 6, 25, 30, and 52].

Other benefits include:

- clearer responsibilities [30]
- optimized training [30, 52] and
- General improvement of effectiveness and efficiency [6, 20, 51].

5.3 Improved employee awareness, communication and involvement

Integration improves understanding of systems by employees and therefore increases their motivation, engagement and ownership [25, 38, and 42]. In particular, staff may become increasingly aware of inter-dependencies between individual systems, for example how a change in quality of a component may influence environmental footprint of the final product [42].

As Zutshi and Sohal [42] found by looking at a case study in Australia, “better utilization of resources and effective training leads to more effective communication across the organization as employees across different functions and levels are using the same language. Furthermore, employees benefit from learning new skills and/or exchange of ideas and expertise across the different departments. This also contributes to creating a “team approach” atmosphere across the organization.”

5.4 Better management performance

Companies achieve better alignment with the strategic objectives with IMS compared to often-conflicting objectives of disperse systems [6, 25, and 30].

Integration allows for a more holistic approach to managing business risks [51, 42]. Dalling and Holt (2012) state “risks are more likely to be identified and treated when processes are reviewed from all angles”. This, in turn, results in improved compliance.

Unified approach to management methodologies should also improve management control, decision-making and overall management performance [25, 52, 38, and 42].

5.5 Benefits related to external stakeholders

In this category, there are gains associated with improved customer satisfaction and better image. For some managers achieving an IMS is synonymous with achieving “world-class” status [33]. Although there is usually little pressure from stakeholders to implement IMS, most businesses expect that integrated processes would give them competitive advantage and enhance their credibility among external parties [30].

It may be argued that more efficient processes and improved management will inevitable enhance competitiveness (Dalling and Holt, 2012; López-Fresno [25]) and that stakeholder- based IMS has a better chance to equitably optimize stakeholders' satisfaction.

It is important to note that the subjective and intangible nature of some of the above benefits (for example relating to communication or enhanced image) makes it extremely difficult to prove a quantifiable cause-and-effect relationship between the existence of IMS and these benefits.

6. BARRIERS TO INTEGRATION

Many challenges await organizations attempting to integrate their partial management systems. They can be broadly grouped into the two categories: internal and external. Cultural factors are among the most frequently reported in the literature [37].

Integration may be impeded by adverse culture that oppose s change due to poor communication, lack of awareness, commitment or teamwork [1, 13, 15, and 41].

Employees may also have been demotivated by past bad experience with failed improvement initiatives leading to skepticism, resistance and lack of buy-in, particularly between top and middle management [5, 32, and 37].

Rejection may as well be caused by the perception of change as threatening. Some employees may fear they would lose their job because of integrated functions, others may feel they would lose power or ownership. Finally, some staff might not be happy to perform additional roles, for example when a Quality Manager is asked to become a Quality and Environmental Manager [2, 6, 14, 15, 19, 20, 42].

Lack of financial, human and knowledge resources is another problem businesses are facing. Owing to the lack of universal integration methodology and diversity among businesses, integration efforts are often perceived as complex and requiring a lot of resource. [1]

Many authors draw attention to the scarcity of internal IMS expertise and the consequent reliance on external consultants who often lack knowledge and experience but are expensive [2, 6, 14, 42]. This may result in limited uptake of IMS initiatives (especially in SMEs, [42]) or worse, ill-conceived IMS.

Zutshi and Sohal [42] argue, “even though they (the consultants) can implement the systems, they cannot assist the organization in maintaining these, which has to be done by internal people.”

Regardless whether internal or external staff lead integration, the lack of know-how and a formal long-term strategic vision for IMS may result in delays, internal resistance, and half- baked IMS with little benefits to the organization [14, 42].

Furthermore, in an integrated system, there is a risk of not assigning the right level of importance to components of that system, for example when QMS and EMS become integrated, one of them may lose significance [30].

Wilkinson and Dale [49] highlight concerns that weaknesses in an organization's existing systems may be amplified by integration. Whitelaw (2004, p.125) also makes a point that in IMS a non-conformance raised against one system may have a negative impact on the other system. However, the author of this work thinks this would only be a problem if a major non -conformance raised externally against one standard would affect the certification against another standard.

Finally, integration initiatives face obstacles due to perceived adequacy of existing separate systems, lack of quantifiable benefits of integration or no guarantee of added value, which would justify the effort [6]. This is further amplified by absence of pressure from stakeholders to integrate [6, 15].

Among the external disadvantages reported in the literature, the most common are the lack of IMS standard, uniform terminology and integration methodology.

Another major barrier to IMS relates to certification bodies. Many authors underline the lack of support from certification bodies [30, 32, and 33]. This could be because it is not in their financial interest to reduce the number of audit days and thus their profit. Additionally, certification bodies themselves face the same problems as companies, i.e. shortage of multi-disciplined auditors.

Reported issues also include high costs of multiple audits, even if standards and systems are integrated and inadequacies of audit methodologies [17].

Often external audits are still performed separately even though the audited businesses operate IMS [6]. Kirkby (2002) reports that “often, where certification bodies are offering an integrated assessment of management systems, these provide little more than a coordinated assessment service against two or more standards at best.”

As a final note, it is useful to mention Wilkinson and Dale [49] who point out that many of the challenges are not specific to integration but would also apply “when introducing any new initiative or change in the organization and are likely to have been equally relevant when first introducing ISO 9001 and ISO 14001”.

7. CONCLUSION

Today is not disputed the need of integration of management systems based on ISO standards. The benefits of integration are significant and relate to: reducing the cost of internal and external audits; reducing management costs; enhanced awareness of employees, communication and involvement; better management performance; benefits relating to external stakeholders. However, these benefits are difficult to quantify or measure.

There are significant barriers to integration, such as the lack of a single IMS standard; culture of opposing changes; lack of financial, human and knowledge resources; weaknesses of the current state of the organization; lack of adequate support certification bodies; high costs of multiple audits.

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PLANNING A RESEARCH STUDY INTO THE RELATIONSHIPS BETWEEN THE CHARACTERISTICS OF QUALITY MANAGEMENT SYSTEMS AND THE FINANCIAL PERFORMANCE OF ORGANIZATIONS

Vinko Bogataj ¹

Gašper Škulj ²

Drago Bračun ³

Alojzij Sluga ⁴

Abstract: Quality management systems (QMS) play a crucial role in the business operations of modern-day companies. It is therefore important that their impact is systematically monitored. From the point of view of organizational management, the relationships between the organizations' QMS and their financial results are particularly worth exploring.

At the beginning of 2015 we carried out a research into the correlations between the characteristics of the QMS and the financial results of Slovenian companies for the period from 2011 to 2014. The study period was the period of the global economic recession. In general, the recession had a negative effect on the business performance of organizations and placed a considerable strain on the QMS. The revised ISO 9001:2015, which was launched in 2015, has amended several fundamental quality management rules. The revised standard places greater emphasis on risk assessments for specific processes and on the adoption of measures to mitigate the effects of risks. Furthermore, the standard has modernized the concept of organization and management of documented information. The launch of the revised standard coincided with an upturn in the international business environment, which has led to a period of economic growth that has generally had positive effects on the business performance of organizations.

Favorable economic trends and the revised ISO 9001:2015 standard motivated the team to re-examine the impact of the characteristics of the QMS on the financial results of organizations. The paper presents in detail the planning of a new study which aims to gather high-value information from targeted Slovenian organizations. The survey is based on the findings from previous studies and includes a study of the effects of specific elements of the revised ISO 9001:2015 standard on the financial performance of organizations.

Keywords: characteristics of quality management systems, financial performance, social environment, ISO 9001:2015

JEL Classification: L00

¹ Vinko Bogataj, Slovenian Association for Quality and Excellence, Slovenia, vinko.bogataj@guest.arnes.si

² Gašper Škulj, University of Ljubljana, Faculty of Mechanical Engineering, Slovenia, gasper.skulj@fs.uni-lj.si

³ Drago Bračun, University of Ljubljana, Faculty of Mechanical Engineering, Slovenia, drago.bracun@fs.uni-lj.si

⁴ Alojzij Sluga, University of Ljubljana, Faculty of Mechanical Engineering, Slovenia, alozj.sluga@fs.uni-lj.si

1. INTRODUCTION

Research shows that the impact of the quality management system (QMS) on the business performance of an organization is heavily dependent upon the characteristics of the environment in which the organization operates, and its organizational characteristics. It follows that the QMS in place in a specific organization must be compatible with the nature of the product or service, or the nature of the organization which provides this product or service. Different organizations use different QMS, but all must comply with the requirements of reference standards and the requirements of the environment in which they operate. Between April 2014 and June 2015 the authors of this paper carried out a research study into the characteristics of the QMS in various Slovenian organizations in order to determine the correlations between the characteristics of the QMS and the financial results of organizations. The study explored the following financial performance indicators:

- Revenue growth rate 2011-2014,
- Added value growth rate 2011-2014,
- Revenue growth rate 2013-2014,
- Added value growth rate 2013-2014, and
- Added value rate 2014.

The correlations between the financial results and specific characteristics of the QMS were determined by means of Pearson's correlation coefficients, hereinafter referred to as correlation coefficients. In interpreting the results it is necessary to take into account the significance threshold for correlation coefficients. For the number of respondents $N=126$ and confidence rate $1-\alpha=0.95$, the significance threshold for correlation coefficient is 0.17488. In the continuation of this paper the correlation coefficients are bolded. All other correlation coefficients are not statistically significant.

The 2014-2015 study found that all quality management principles except Process approach and Factual approach to decision making have a significant impact on the business performance of Slovenian organizations. However, Mutually beneficial supplier relationships is the only principle in which the correlation coefficients for all financial elements of business performance of organizations are statistically significant. It is therefore surprising that this principle was excluded from the revised ISO 9001:2015 standard. On the other hand, the revised ISO 9001 standard includes certain other principles of quality management under the ISO 9004:2009 standard (e.g. Process approach and Factual approach to decision making), in which no significant correlations with financial results of organizations were identified (Table 1).

The overall findings of the 2014-2015 study show that correlation coefficients between specific characteristics of QMS are relatively weak. However, it should also be noted that the correlations between specific financial results of organizations are also relatively weak (Table 2).

The analysis of correlations [1] between the characteristics of QMS and financial results of organizations in the period 2014-2015 was carried out in the time prior to the implementation of ISO 9001:2015. Furthermore, this was a period of economic recession in the studied social environment. The aim of the new study is to determine the characteristics of QMS in the period of economic upturn and identify the effects of the revised ISO 9001:2015 on the characteristics of QMS and related financial results. We wish to establish whether an overall improvement of the economic performance of organizations is reflected in higher correlation between the characteristics of the QMS and the organizations' financial results. The study will also analyze the principles of Risk assessment and Digitalization of the QMS. The study will be conducted in cooperation with researchers from other countries (presumably from Austria, Croatia, Serbia, Montenegro, Macedonia, Portugal, and Canada).

Table 1. Correlations between the fundamental principles of QMS and financial results of organizations (2014-2015 study).

Elements of QMS (9004:2009)	Descriptive statistics		Correlation coefficients				
	Average score	Standard deviation	Revenue growth rate 2013-2014	Added value growth rate 2013-2014	Revenue growth rate 2011-2014	Added value growth rate 2011-2014	Added value rate 2014
Customer focus	4.286	0.768	0.199	0.125	0.280	0.081	0.273
Leadership	3.873	0.848	0.180	0.033	0.273	0.000	0.200
Involvement of people	3.532	0.807	0.098	0.084	0.175	-0.014	0.126
Process approach	3.643	0.764	0.015	-0.052	0.119	-0.015	0.096
System approach to management	3.587	0.762	0.149	0.111	0.134	0.134	0.201
Continual improvement	3.675	0.911	0.112	0.056	0.199	0.025	0.249
Factual approach to decision making	3.889	0.718	0.087	-0.016	0.142	0.024	0.142
Mutually beneficial supplier relationships	3.778	0.747	0.182	0.197	0.280	0.257	0.288

Note: Number of respondents $N=126$, confidence rate $\alpha=0.05$, correlation coefficient significance threshold 0.17488

Table 2. Correlation coefficients for financial results of organizations (2014-2015 study).

Elements of financial performance	Revenue growth rate 2013-2014	Added value growth rate 2013-2014	Revenue growth rate 2011-2014	Added value growth rate 2011-2014	Added value rate 2014
Revenue growth rate 2013-2014	1				
Added value growth rate 2013-2014	0.4160	1			
Revenue growth rate 2011-2014	0.6800	0.3040	1		
Added value growth rate 2011-2014	0.2240	0.6360	0.4080	1	
Added value rate 2014	0.3440	0.3280	0.4120	0.4520	1

Note: Number of respondents $N=126$, confidence rate $\alpha=0.05$, correlation coefficient significance threshold 0.17488

2. THEORETICAL BACKGROUND

The new research study into the relationships between the characteristics of the quality management system and financial results is based on our previous study and the findings of other researchers, which indicate that the relationships are not clearly defined.

2.1. Literature review

Zheng et al. [2] explores the impact of knowledge management and organizational culture, structure and strategy on the business results of organizations. The authors conducted their study in 301 organizations. The results confirm direct effects of knowledge and organizational culture on the business performance of organizations and partial effects of organizational structure and organizational strategy on the business performance of organizations.

Conti [3] discusses occasionally illogical phenomena in the development of quality management theory and applies a systems approach to the results of experiments concerning the focus of quality-based and systems-based thinking in value-creating processes. The author gives utmost priority to the need for the introduction of a modern systems approach to quality management.

On the basis of the questionnaires administered to managers of companies in Gaziantep, Turkey, Yesil and Kaya [4] established that organizational results need to be taken into account when analyzing the relationships between culture and organizational effectiveness. Although the authors did not succeed in proving significance connections among various elements of organizational culture and the financial results of organizations, they concluded that organizational culture affects the business performance results through other, indirect, factors.

The results of our previous studies [1], [5], [6], [7] and [8] into the characteristics of quality management systems in Slovenian organizations confirm the links between the characteristics of QMS and the financial results of organizations, but do so under relatively low correlation coefficients.

2.2. Research hypotheses

Two hypotheses were set for the new research study. Hypothesis A is based on the current findings of low correlation factors between the characteristics of the QMS and the financial results of organizations. Therefore it not possible to infer, in advance, the existence of a significant correlation for specific characteristics of the QMS. The success of the study depends particularly upon the size of the sample, which has a direct effect on the significance of correlations. Hypothesis B links the previous and current study under an assumption that sound financial performance is also a result of efficient operation of the QMS.

Hypothesis A: “At least some of the characteristics of the QMS demonstrate a significant correlation with the organization’s financial results”.

Hypothesis B: “The correlation of the characteristics of QMS with the financial results of organizations is higher during economic upturn than during economic recession.”

The following financial results of organizations will be taken into account in the new study:

- Revenue growth rate 2015 – 2017,
- Added value growth rate 2015 – 2017,
- Revenue growth rate 2016-2017,
- Added value growth rate 2016-2017, and
- Added value rate 2017.

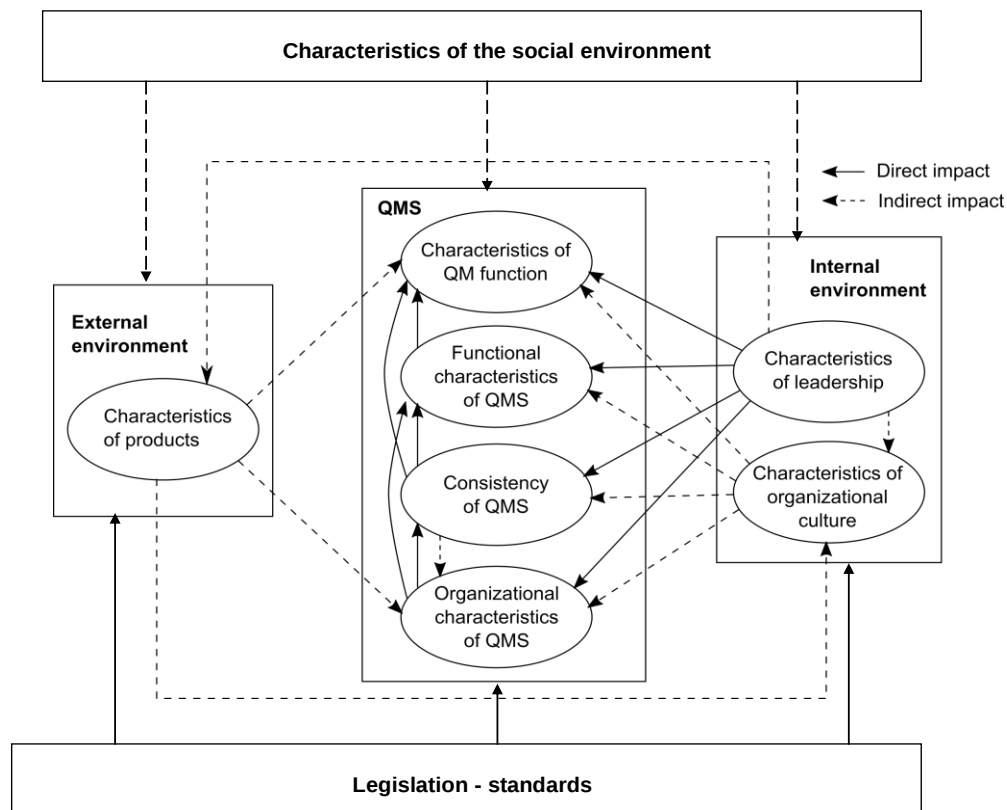
3. RESEARCH METHODS

3.1. Research model

The rate of compliance with the requirements of reference standards is also a measure of the suitability of the QMS, which is normally assessed by certification bodies at system certification and surveillance audits. Nevertheless, it is not enough that a QMS meets the requirements of reference standards; it should also be efficient and cost-effective in a given situation. Within the scope of the new study, the characteristics of QMS will be divided into identical groups as for the 2014-2015 study. This probably means that the research model will largely stay unchanged (Picture 1). It needs to be noted that the revised ISO 9001:2015 has amended its fundamental quality management principles (Table 3).

Table 3: Fundamental quality management principles under the old and revised ISO 9001 standards.

Old principles (ISO 9001:2008)	Revised principles (ISO 9001:2015)
Customer focus	Customer focus
Leadership	Leadership
Involvement of people	Engagement of people
Process approach	Process approach
System approach to management	Improvement
Continual improvement	Evidence-based decision making
Factual approach to decision making	Relationship management
Mutually beneficial supplier relationships	



Picture 1. Model of QMS characteristics and their impact on QMS.

For the purpose of the study, the characteristics of QMS will be divided into the following categories:

- Characteristics of product requirements for quality management systems (QMS):** the way to confirm the ability to meet customer requirements, the way to ensure the quality of incoming materials, the way to plan the effectiveness of processes, the way to control the effectiveness of processes, the way to confirm the compliance of products, the way to ensure the competence of contractors
- Characteristics of the Quality Manager function:** *the role of the quality manager:* handles customer claims, assesses supplier quality, consults suppliers on quality issues, tests

the quality of products and services, resolves process errors, runs in-company quality audits, teaches – introduces new methods, consults on process improvements, consults on development of new products/services and technologies, maintains the quality assurance system, upgrades the quality assurance system, acts as a consultant to the management or an influential member of the management team. *Status of the quality manager*: influence of individual process owners in the organization.

- c) **Functional characteristics of the quality management system (QMS)**: the level of achievement of QMS objectives, customer satisfaction regarding the products of the organization, flexibility – adaptability of the QMS, the degree of rationality – an ideal QMS, the level of use of contemporary quality enhancement methods and the level of maturity of using the fundamental concepts of excellence in practice, the level of digitalization within an organization, the level of system approach to risk mitigation in processes
- d) **Characteristics of the consistency of the quality management system (QMS)**: the level of inclusion of fundamental quality management principles in the organizational management principles, the level of responsibility of sales for handling customer claims, the level of inclusion of the QMS as an organizational management system, the level of harmonization of organizational changes with the QMS objectives, the level of responsibility of process owners for reporting to the management, and the level of involvement in the corrective action/process improvement cycle
- e) **Organizational characteristics of the quality management system (QMS)**: the role of contractors in quality management and confirming product conformity, the role of knowledge in quality management, the role of process owners in ensuring the achievement of objectives and process improvements and level of formalization – the scope of QMS documentation
- f) **Predominating characteristics of leadership**: personal goals of the top manager/director, the manager's ownership of the organization, the predominating management style of the recent years, the relationship between the top manager and his/her employees, knowledge of contemporary trends in quality management, the role of leaders in improving the organizational culture, the level of inclusion of fundamental TQM principles in the decisions of the management board, the level of consideration of the principles of corporate and ecological responsibility
- g) **Characteristics of organizational culture**: the role of hierarchy in the implementation of the product, the way to handle claims, the level of cooperation between departments, the level of commitment to common goals, relationships between employees in the implementation of tasks, and the attitude to the transfer of knowledge among employees

The QMS questionnaires will also examine the opinion of top managers/directors on the characteristics of QMS. The questionnaire for top managers/directors will cover the following areas:

- a) **The role of the quality management system (QMS) within the organization**: the reasons behind the implementation of the QMS, the reasons for conducting management reviews, the reasons for acting on the measures and recommendations given in audits, the usefulness of the QMS as an organizational management system, and the transparency and efficiency of the QMS, the level of digitalization of the QMS, system approach to risk assessments
- b) **The role and status of the quality manager in the organization**: the questions are the same as for the characteristics of the function of a quality manager within an organization.
- c) **The status and influence of process owners (except the director) in the organization's decision-making processes**: the questions deal with the impact and influence of individual process owners in the organization, as perceived by the director of the organization.

3.2. Execution of the survey

Organizations will be surveyed in the period between November 2018 and February 2018. The survey will be conducted via an online questionnaire. The quality managers and directors of selected organizations will receive the questionnaire in advance by electronic mail so as to be able to prepare for participation in the survey and provide more accurate information.

The answers provided in the questionnaire will be linked to the data on the business performance of organizations acquired from the AJPES database [9]. In order to enable linking information from different sources, the questionnaire cannot be anonymous in the completion or analysis phase but the data will be kept in strict confidence. The published results of the analysis will be completely anonymous and will not disclose the identity of the respondents. The aim of the analysis is to identify the overall relationships between specific characteristics of the QMS and the financial performance results of organizations operating in the Slovenian environment.

In the future identical research studies will be conducted in other social environments, i.e. states in order to determine the extent of the impact of the QMS with the business performance of a specific environment and enable comparisons to be made between these environments. The study will include experts in other social environments who will conduct an investigation into QMS characteristics and the relationship between these characteristics and the organizations' financial results in their respective environments following the same methodology.

4. DISCUSSION

The 2014-2015 study generated certain findings relating to QMS which we intend to verify through the new survey.

4.1. Correlations between the elements of functional characteristics of QMS and financial elements

The calculated correlation coefficients among the elements of functional characteristics of QMS and elements of an organization's financial performance showed that coefficient values are relatively weak but statistically significant. Table 4 shows the values of significant correlation coefficients between the elements of functional characteristics of QMS and the elements of financial performance of organizations, as determined in the course of the study.

Significantly positive correlation coefficient values for at least one financial result were observed in the following elements of QMS functional characteristics (Table 5):

Level of involvement of the quality department/service in the corrective action/process improvement cycle,

Level of achievement of quality management system objectives,

Flexibility of the quality management system, and

Degree of rationality – how ideal is the quality management system.

In the revised survey, the functional characteristics of QMS will also include the degree of digitalization of business processes and the systems approach to risk assessments in business processes.

The previous survey found a correlation between the predominating organizational culture and financial results of organizations (Table 5). Significantly positive correlation coefficient values for at least one financial result are observed in the following characteristics of organizational culture:

Mistakes are rarely punished – help to colleagues is encouraged,

Departments and processes communicate independently and work together towards common goals,

Employees are aware of the importance of accomplishing common goals, and

Employees are willing to share their knowledge freely with their colleagues.

Table 4: Statistics/correlations between the elements of functional characteristics of QMS and the organizations' financial results (2014-2015 study).

Elements of functional characteristics of QMS	Basic statistics		Correlation coefficients				
	Average score	Standard deviation	Revenue growth rate 2013-2014	Added value growth rate 2013-2014	Revenue growth rate 2011-2014	Added value growth rate 2011-2014	Added value rate 2014
Level of involvement of the quality department/service in the corrective action/process improvement cycle	3.762	0.843	0.248	0.060	0.184	0.121	0.221
Level of achievement of quality management system objectives	3.691	0.638	0.151	0.080	0.161	0.044	0.257
Level of customer satisfaction with the organization's products and/or services	3.952	0.643	0.106	0.035	0.158	0.088	0.141
Flexibility of the quality management system	3.659	0.750	0.219	-0.008	0.273	-0.023	0.158
Degree of rationality – how ideal is the quality management system	3.318	0.653	0.191	0.035	0.191	-0.026	0.234
Current level of deployment of modern quality promotion methods	2.246	1.136	-0.020	0.154	0.024	0.149	0.000
Level of maturity of integrating the fundamental concepts of excellence	3.095	0.764	-0.045	0.045	0.047	0.015	0.126

Note: Number of respondents N=126, confidence level $\alpha=0.05$, correlation coefficient significance threshold 0.17488

Significantly negative correlation coefficient values for at least one financial result are observed in the following characteristics of organizational culture:

Hierarchy plays an important role – hierarchy is always maintained, and

Every employee has to do their own work – help from colleagues is subject to instructions by the superior.

Efficient financial performance of organizations depends on the collaboration of employees and their commitment to the achievement of common goals. Excessive focus on hierarchy has a negative effect on the organization's financial results.

Table 6 only lists the elements or characteristics of organizational management which indicate significant correlation coefficient values for at least one financial result. Significantly positive correlation coefficient values for at least one financial result were observed in the following characteristics of organizational management:

- The top manager is the majority owner of the organization,
- Paternalistic leadership style – a despot with social sensitivity towards subordinates,
- Partnership-based leadership style (independent setting of objectives for the execution of tasks and partner-like involvement in setting the organization's objectives), and
- Equal treatment of all employees,
- The top manager knows the modern trends in quality and ISO 9000 standards
- Management activities aimed at improving organizational culture
- Degree of observance of social and ecological responsibility principles.

The characteristic Objectives are consistent with the interests of the determining lobby shows a significantly negative correlation coefficient value for Revenue growth rate 2011-2014 and a significantly positive correlation coefficient for Added value growth rate 2013-2014. Significantly negative correlation coefficient values for at least one financial result were observed in the following characteristics or elements of leadership:

- The organization's objective is short-term profit.
- The top manager is appointed by the owners of the organization and is not an owner.
- The top manager wants to take real ownership of the organization.

Ownership of the organization by the top manager, emphasizing the common goals of the organization, and ensuring free flow of knowledge among employees have a major impact on improving the financial performance of the organization.

Table 5. Statistics / Correlations between the elements of organizational culture and financial results of organizations (2014-2015 study).

Characteristics of organizational culture	Basic statistics		Correlation coefficients				
	Average score	Standard deviation	Revenue growth rate 2013-2014	Added value growth rate 2013-2014	Revenue growth rate 2011-2014	Added value growth rate 2011-2014	Added value rate 2014
Hierarchy plays a major role – hierarchy is always maintained	3.587	0.879	-0.142	0.013	-0.241	0.019	-0.090
Hierarchy is less important – completion of tasks is a key priority	3.333	0.980	0.208	0.081	0.227	0.069	0.167
Mistakes are rarely punished – help to colleagues is encouraged	3.492	0.927	0.110	-0.061	0.169	0.067	0.281
Departments and processes communicate independently and work together towards common goals	3.889	0.751	0.158	0.113	0.149	0.106	0.294
Employees are aware of the importance of accomplishing common goals	3.722	0.891	0.089	0.190	0.148	0.152	0.286
Every employee has to do their own work – help from colleagues is subject to instructions by the superior	2.571	0.907	-0.025	-0.037	-0.121	0.044	-0.200
Employees are willing to share their knowledge freely with their colleagues	3.714	0.857	0.172	0.040	0.254	0.033	0.324

Note: Number of respondents N=126, confidence level $\alpha=0.05$, correlation coefficient significance threshold 0.17488

Table 6. Statistics/correlations between leadership characteristics and financial results of organizations (2014-2015 study).

Characteristics of organizational leadership	Basic statistics		Correlation coefficients				
	Average score	Standard deviation	Revenue growth rate 2013-2014	Added value growth rate 2013-2014	Revenue growth rate 2011-2014	Added value growth rate 2011-2014	Added value rate 2014
The organization's objective is short-term profit	1.675	0.875	-0.116	-0.026	-0.260	-0.039	-0.155
Objectives are consistent with the interests of the determining lobby	1.627	0.969	-0.012	0.181	-0.212	0.088	-0.070
The top manager is the majority owner of the organization	2.397	1.776	0.315	0.169	0.289	0.140	0.280
The top manager is appointed by owners and is not a co-owner	2.913	1.824	-0.295	-0.152	-0.316	-0.161	-0.329
The top manager wants to take real ownership of the organization	1.373	0.901	0.006	-0.182	-0.075	-0.207	-0.050
Paternalistic leadership style – a despot with social sensitivity towards subordinates	2.667	1.239	0.251	-0.023	0.074	0.005	0.078
Partnership leadership style (independent setting of objectives for the execution of tasks and partner-like involvement in setting the organization's objectives)	3.341	1.021	0.116	0.166	0.167	0.155	0.188
Equal treatment of all employees	3.849	0.895	0.076	0.076	0.137	0.006	0.177
The top manager knows the modern trends in quality and ISO 9000 standards	3.508	0.927	0.012	0.134	0.181	0.049	0.067
Management activities aimed at improving organizational culture	3.643	0.890	0.172	0.191	0.268	0.140	0.235
Degree of observance of social and ecological responsibility principles	3.968	0.809	0.028	0.056	0.091	0.063	0.196

Note: Number of respondents N=126, confidence level $\alpha=0.05$, correlation coefficient significance threshold 0.17488

4.2. Correlations between the level of involvement of the basic TQM principles and financial results

The previous survey does not indicate any significant correlation coefficients between the level of involvement of the basic TQM principles in management decisions (see Table 7). Therefore it cannot be claimed that the level of involvement of TQM principles has a positive effect on the business performance of the organization.

A detailed study of the data in the above tables shows a positive trend in organizations with the revenue growth rate 2011-2014 up to the second interval, whereas a negative trend in the revenue growth rate is observed in organizations which stated a high level of inclusion of TQM principles in their management decisions. A possible explanation is that organizations with lower financial results need to explore all options to improve their results (including the introduction of TQM principles), whereas this is not needed in organizations with good business performance. In any

case, the correlation between the level of inclusion of TQM principles in management decisions and the organizations' financial results is of such significance that we are considering conducting a separate study in this particular area.

Table 7: Coefficients of correlation between the level of involvement of TQM principles in the organizations' management decisions and business performance results (2014-2015 study).

	Revenue growth rate 2013-2014	Added value growth rate 2013-2014	Revenue growth rate 2011-2014	Added value growth rate 2011-2014	Added value rate 2014
Inclusion of TQM principles in management decisions	-0.0792	0.0254	-0.0422	-0.0422	0.1003

Note: Number of respondents N=126, confidence level $\alpha=0.05$, correlation coefficient significance threshold 0.17488

5. CONCLUSIONS

The paper describes the approach to a new study that will investigate the characteristics of QMS in Slovenian organizations and in other similar social environments from the perspective of the effects that these characteristics have on the business performance of the organization in which they operate. Correlation analyses conducted on the basis of an earlier study that was carried out between April 2014 and June 2015 pointed out certain findings that deviate from the common belief. The aim of the new study was to verify these findings, to investigate the impact of the revised ISO 9001:2015 standard on QMS in Slovenian organizations and to identify the correlations between the characteristics of QMS and financial results of organizations during economic upturn.

As a result of these changes in the environment and the introduction of a revised ISO 9001 standard the characteristics of QMS and their impact on the business performance of organizations, the characteristics of QMS and their impact on the business performance will continue to change in the future. Quality management will become an integral part of organizational and operational leadership. Owing to a uniform approach to leadership, which is integrated in the revised editions of ISO 9001, ISO 14001 and other reference standards, QMS will affect the systems of organizational leadership and process management and will therefore have an indirect impact on the business performance of organizations. In this context sound knowledge of the characteristics of QMS will be extremely important. With our work, we wish to contribute to better understanding of the characteristics of quality management systems.

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THE “GLASS CEILING EFFECT” IN CROATIA

Vedrana Štefković¹

Igor Klopota²

Ivana Martinčević³

Abstract: Most of the managerial jobs handle men at top management level, while small amount of women can be seen in managerial positions. The importance of involving women into the world of management and top level positions speaks the fact that companies who have high-ranking woman in top management achieve better business and financial results. Looking at the global level, there are more and more companies who recognize the importance of a greater women involvement in management while there still seems to be a big gap and prejudices in Croatia. In economic terms, the "glass ceiling effect" refers to the invisible "ceiling" which represents a barrier for woman who wish to be promoted to a higher management positions but this possibility is for certain reasons disabled.

Keywords: glass ceiling effect, management

JEL Classification: M10

1. INTRODUCTION

Scientists, researchers, have been dealing with for decades with the question whether management is a science, skill or a specific art. Therefore, there are many authors and numerous management definitions in a literature. From the first management theories that focused on organizational issues as a whole and employee's motivation, up to today's modern theories that emphasize the importance of quality in all business segments, management or managers manage organization in order to maximize organizational resources with the goal to achieve competitive advantage on the market and business goals. It is unthinkable today that a company exists without a quality management that is in charge for organizing and guiding the organization towards achieving set goals. Today's main managerial competence is that a manager must know "everything about everything". Manager has to possess extensive knowledge in almost every area. The manager has to recognize human potential on time and invest his time in development with the aim to create quality and indispensable employees as well as innovative business solutions. Managers are expected to manage and coordinate

¹ Vedrana Štefković, University North, Koprivnica, Croatia, vstefkovic@unin.hr

² Igor Klopota, University North, Koprivnica, Croatia, igor.klopota@unin.hr

³ Ivana Martinčević, University North, Koprivnica, Croatia, ivana.martincevic@unin.hr

teams, and establish successful communication within team members. Manager also has to know how to train employees for teamwork and achieving common goals. One of the key competencies that manager has to possess is the ability to prioritize and manage change. Today, women are equally good at performing managerial jobs, which is proven. But still, due to the various prejudices and discrimination against women gender, it is difficult to succeed at higher managerial positions.

2. WOMAN IN MANAGEMENT

Nowadays, managers are faced with new technology and new ways of doing business, which also changes their role in managing organization. Contemporary environment requires from managers a great deal of knowledge and skills. Manager's role in 21st century is completely changing due to globalization and information and ICT. In information age, the "age of knowledge", the most valuable thing an organization has are its employees with their ideas, knowledge and information's they possess. This dynamic and changing environment has a tremendous impact on business operations and management. It is well known that most managerial jobs, ie managerial positions (directors, board of members) are performed by men, while a small number of women can be seen in managerial positions. Gender equality has always been a sensitive topic and it is still present if we talk about equal involvement of women and men in the world of management. There is still a certain level of discrimination and unequal opportunities for women and men. Precisely when we talk about management levels and doing business, women are often involved in middle and lower level managerial jobs. Nevertheless, organizations today succeed on the base of intellectual capital they possess in their employees, based on the synergy and co-operation. But despite the fact that managerial positions have to fulfil certain characteristics and skills, those positions are often tailored on the base of gender criterion. Croatia is a state of a relatively small and less developed economy in terms of women rights on the labour market and continues to be a subject of discrimination. Although there has been a development of society and civilization, the gap between male and female managers still exists, which ultimately leads to the conclusion that women harder succeed in managerial carriers and if so and they have to abandon a certain aspect of family life to be successful. Woman involvement in management affects changes in management structure, its functioning and communication way with its associates and subordinates (Novak, 1996). Exactly in this case, male and female management style differs in organizations. Difference between male and female leadership style start from man style characteristics linked to traditional male characteristics, such as aggression, rational analysis, competitiveness and competition, and female style characteristics associated with traditional feminine qualities such as encouragement, openness, flexibility, understanding, empathy and consensus building (Pološki, 2003). Women have a different approach to management that implies easier and more flexible organization management and task problem solving. Although number of women entering the labour contingent and taking up managerial positions increase, access to lider positions for women is still limited. The latest data from the research conducted in 2017 shows that only 17.3% of women in management are included in the board of directors in leading Croatian companies. This subject analysis CROBEX Women's Index, which measures woman share in board of directors of the most significant companies listed on Zagreb Stock Exchange. The presence of women in top management level has decreased this year by 3 percentage points, while the same index was above 20% over the previous two years (in 2016 and 2015) (<http://www.poslovni.hr/domace-kompanije/top-5-hrvatskih-tvrtki-s-najvecim-udjelom-zena-u-upravama-328767>). Top five companies with the biggest share of women in management in 2017 are Ericsson Nikola Tesla d.d. (100%), AD Plastik d.d. (50%), OT-OPTIMA TELEKOM d.d. (50%), Zagreb Stock Exchange d.d. (50%), and Hrvatski Telekom d.d. (28.6%). According to the latest available data from the European Commission released in April 2016, the highest number of women in top manafement level are in France (37.1%), Sweden (36.1%), Italy (30.0%) and Finland (29.8%). These countries, together with the Netherlands (28.1%), also record the highest growth of women involvement in top management level per year (on average five percentage points) (<http://www.poslovni.hr/domace-kompanije/top-5-hrvatskih-tvrtki-s-najvecim-udjelom-zena-u-upravama-328767>).

3. THE GLASS CEILING EFFECT

The importance of involving women into the world of management and top level positions speaks the fact that companies who have high-ranking woman in top management achieve better business and financial results. At the global level, there are more and more companies who have recognized the importance of greater women involvement in management while in Croatia there are still certain prejudices. In economic terms, the "glass ceiling effect" refers to the invisible "ceiling" which represents a barrier for woman who wish to be promoted to a higher management positions but this possibility is for certain reasons disabled. This term was created in the last century (70's) precisely with the aim of describing obstacles that women encounter when trying to reach higher managerial levels in the environment caused by attitude and prejudice in companies, where women are stopped along the way. (Wirth, 1998.:3).⁴

The most common obstacles that appear within the "glass ceiling effect" include ⁵ :

- prejudices - Men are being promoted faster than women despite the same qualifications, even in traditional "female" areas such as education or nursing;
- resistance to women leaders - people experience successful women managers as selfish, violent, and aggressive as opposed to men's managers;
- the problem with leadership style - many women managers struggle to balance women qualities which people like to see on woman (compassion) with the qualities that is believed that manager has to possess to be successful (assertiveness and control);
- family demands - women are still the ones who stop their careers in order to coordinate family responsibilities; in that way they lose time for "networking" which is necessary for work promotion.

The aforementioned obstacles of "glass ceiling effect", according to the research of Prijić-Samaržija et al. (2009) can be categorized into three groups: historical and contemporary causes, causes on the level of social system, institutions or individuals, and causes in men and women's behaviour. The aim of this paper is to carry out empirical research in order to answer the question: Does a "glass ceiling effect" exists in Croatian organizations as a limit to women work promotion and if so, what are the reasons for its existence?

4. LITERATURE REVIEW

The area of management has been elaborated and described through numerous scientific books and scientific researches that broadly handle different management themes. But there are few books and scientific researches that address the field of women in management. The topic of women involvement and their representation in the field of management especially on different hierarchical levels and their role in management and official structures has recently been the subject of numerous authors trying to investigate women involvement in management field. There are numerous researches that deal with women involvement and their position in management. Based on recent research, it can be argued that existence of so called "glass ceiling" is a research topic done by many authors who have acknowledged that women have difficulties while trying to be promoted in management and reach harder their positions in management. Significant research on the phenomenon of "glass ceiling" effect and woman under-representation in managerial positions in the Republic of Croatia were done by several authors. The new research carried out in Croatia by Ružić, Perušić (2014) analysis the glass ceiling phenomenon, where they conclude that women are under-represented in managerial positions, but also shows that management model significant for women in management

⁴ Citirano prema Penava, S., Šehić, Dž.: *Žene u menadžmentu bosanskohercegovačkih kompanija*, ekonomski pregled, 58 (5-6) 305-327, 2007.

⁵ <http://www.forbes.com/sites/lisaquast/2011/11/14/is-there-really-a-glass-ceiling-forwomen>, citirano prema Ružić, V., Perušić, M.: *Položaj žena u menadžmentu – novi trendovi u fenomenu staklenog stropa*, *Praktični menadžment*, Vol. V., br. 1., str. 98-107, 2014.

is perceived as more acceptable in a turbulent business environment and that women with their management skills even outstand male managers. In order to investigate the existence of a "glass ceiling" phenomenon about woman and their managerial positions in local Virovitica Podravska government unit the authors Bedeković and Ravlić (2011) pointed out that there is still strong influence of tradition as well as the existence of prejudices on how women are still not the "right choice" for managerial positions and jobs at different hierarchical management levels, especially on top level. Research done by Prijić-Samaržija et al. (2008) also investigate and prove the existence of a "glass ceiling" effect in managerial positions in institutions of science and higher education in the Republic of Croatia. Galić and Ivanović (2006) investigate women representation in managerial positions in Croatian hotel industry, where they also claim that there is no equal relationship between men and women on those positions. Penava and Šehić (2007) conducted a research on women position in management in Bosnia and Herzegovina (BH). Research results confirm the existence of a "glass ceiling" effect in those organizations. Research results show that women managers are mostly on lower management levels, which does not allow them to engage significantly in strategic decision-making processes in companies. Research by Puhalo and Puhalo (2004) proves that women managers in Bosnia and Herzegovina show a greater need for success and are willing to invest more effort and intellectual potential in achieving business goals than male colleagues. Researches done in the world on the same matter show similar results as researches conducted in Croatia and Bosnia and Herzegovina. Research carried out by Virginia (2007) proves under-representation of women in managerial positions and "glass ceiling" effect existence. Yukongdi's research (2005) deals with women promotions in management in Thailand. He argues that a social class, alongside with education, can play an important role in explaining the advancement of Thai women in leadership positions. His research identified obstacles to women's promotion and addresses the problem of social class as another key element for women's career advancement. The research of Yukongdi and Benson (2005), conducted in Asia, deals with holistic approach to investigate whether women think if they have been more receptive to their participation in the world of management, and if there are significant barriers to their participation. Lyness and Thompson (2000) on a sample of 69 women and 69 male executives, examined barriers to work promotion and results showed that women are facing greater obstacles and rely on promotion strategies that are different from their male colleagues. All conducted researches about the "glass ceiling" phenomenon showed the same results and conclusion about the existence of glass ceiling effect and woman leaders subordinate position in the field of management.

5. METODOLOGY

Targeted population of this study are those respondents who are employed and who can evaluate and recognize manager competences. For this purpose, a research tool was created with 16 statements describing the competences of managers, which were selected based on literature review of other authors' research on the same matter. In addition, respondent's demographic data were collected, as well as control statements related to the women's problem of advancement, known as the "glass ceiling effect". The survey was conducted by an e-mail questionnaire which was sent to 500 e-mail addresses by random selection from the database.

There were 130 respondents. From further analysis where excluded responses from the respondents who had never worked because they were not considered to have sufficient experience to evaluate the statements in the research.

For the purposes of this study, 100 respondents (N = 100) were taken in account, which represent 20% of the total sample. Most of the respondents are females (69%), aged 36-45 (33%), with finished secondary school (44%), while college education has 25% of respondents.

Table 1. Research instrument description

Competences	Female manager	Male manager
Takes Initiative	3,44 (1,054)	2,95 (1,317)
Practices Self-Development	3,84 (,974)	2,95 (,887)
Displays High Integrity and Honesty	3,74 (,938)	2,80 (,834)
Drives for Results	3,45 (1,101)	2,75 (,639)
Develops Others	3,58 (,925)	2,75 (1,020)
Inspires and Motivates Other	3,59 (1,087)	2,85 (,933)
Builds Relationships	3,54 (1,018)	2,75 (1,020)
Collaboration and Teamwork	3,56 (,992)	3,00 (,918)
Establishes Stretch Goals	3,43 (1,028)	3,10 (1,021)
Champions Change	3,21 (1,052)	3,00 (1,076)
Solves Problems and Analyzes Issues	3,58 (,883)	2,95 (1,050)
Communicates clearly and accurately	3,73 (1,043)	3,10 (,968)
Connects the Group to the Outside World	3,46 (,993)	2,90 (,912)
Innovates	3,59 (1,027)	3,05 (,826)
Technical or Professional Expertise	3,18 (1,077)	3,25 (1,118)
Develops Strategic Perspective	3,30 (,986)	3,00 (1,026)

Source: author's research, 2018, Croatia

Table 1 shows 16 statements which respondents ranked regarding their opinion on the most important manager competence and relation between male and female managers. The results show that respondents rated: (1) work on personal development, (2) integrity and honesty (3) clear and accurate communication skills as the most important ones when looking female manager competences.

While male managers were rated in this order as the most important competences: 1) technical and professional experience, (2) setting achievable goals and (3) clear and accurate communication.

Table 2. Research instrument description – gender rating differences

Competences	Male	Female
Takes Initiative	2,64 (1,115)	2,76 (0,996)
Practices Self-Development	2,32 (1,004)	3,68 (1,004)
Displays High Integrity and Honesty	2,37 (,939)	3,63 (,939)
Drives for Results	2,59 (1,026)	3,41 (1,026)
Develops Others	3,41 (,996)	3,41 (,996)
Inspires and Motivates Other	2,50 (1,068)	3,50 (1,068)
Builds Relationships	2,52 (1,020)	3,48 (1,020)
Collaboration and Teamwork	2,55 (,999)	3,45 (,999)
Establishes Stretch Goals	2,68 (1,043)	3,32 (1,043)
Champions Change	2,83 (1,055)	3,17 (1,055)
Solves Problems and Analyzes Issues	2,53 (,937)	3,47 (,937)
Communicates clearly and accurately	2,44 (1,076)	3,56 (1,076)
Connects the Group to the Outside World	2,61 (,984)	3,39 (,984)
Innovates	2,54 (1,019)	3,46 (1,019)
Technical or Professional Expertise	2,91 (1,093)	3,09 (1,093)
Develops Strategic Perspective	2,76 (,996)	3,24 (,996)

Source: author's research, 2018, Croatia

Table 2 shows research results by gender differences. From the results represented it can be seen that male respondents ranked these competences as important ones: (1) supports employee development, (2) possessing technical and professional experience, and (3) champions change, while female respondents ranked further competences as the most important ones: (1) taking the initiative, (2) work on personal development, and (3) integrity and honesty.

Table 3. Research instrument description – glass ceiling effect

Statement	YES	No
I have nothing against the idea that female manager runs a company.	80%	20%
Female manager leads a company better in times of crisis.	47%	53%
Should a woman sacrifice family life for a career?	11%	89%
Are you familiar with the term "glass ceiling effect"?	41%	59%

Source: author's research, 2018, Croatia

Table 3 shows the results of statements which describe the term "glass ceiling effect" in business. The results show that more than half of the respondents (59%) is not familiar with the term "glass ceiling effect" and more than half of respondents (53%) disagrees with the statement that a female manager would lead a company better in times of crisis. However, the generally accepted social attitudes about equality appear in statements like: "I have nothing against the idea that female manager runs a company." (80%) and "Should a woman sacrifice family life for a career?" (No - 89%).

6. CONCLUSION

Although we live in a world where manager role changes very rapidly under the constant influence of technology advancement and globalization, most of the jobs in managerial positions are still performed by men. The gap between career advancement of men and women still exists, implying that women harder succeed in managerial careers. Previous research show that 17.3% of women (2017) hold managerial positions in leading Croatian companies, compared to 37.1% in France or 43% in Russia, Lithuania and Latvia. Studies show that women are more democratically managers and show more transformational style of leadership (vision, inspiration, role model, set high expectations and promoting collective identity), and value personal development of each individual and emphasize ethics in business. The barriers that appear within the glass ceiling effect, referring to the barrier that exists below top management level and blocks successful women to achieve the highest management rank, are described as: (1) prejudice, (2) resistance to women's leadership, (3) problem with the leadership style and (4) family obligations. This research shows that women managers are better rated regarding all statements then men managers, which largely concur with the research done in the world. Men managers are better rated in "having technical or professional experience". The research in US (2012) conducted on the base of 16 competencies, women are better rated in overall 12 competencies. Other research show that there are no significant differences between men and women in problem-solving skills, analytical skills, work motivation, competitiveness, the ability to learn new skills and sociability. Likewise, this research shows that problem of glass ceiling effect and the impossibility for women to be advanced to a highest management level is not enough sufficiently recognized in society, since less than half (41%) of respondents recognizes the effect.

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A3 REPORT FOR STRUCTURAL SOLVING OF PROBLEM IN BUSINESS

Associate Professor Tamara Gvozdenović¹

Vedran Furtula, MSc Civil Engineer²

Abstract: Majority of problems that arise in companies have been solved superficially, i.e. few companies and persons do search and find out main cause of a problem, and work on a systematic solving of problem. A3 method is an approach to systematic solution and continuous improvement that was used at the company Toyota for the first time. A3 concept implements lean thinking for problem solving. Problem solving practice of making A3 reports requires report writing down to one page A3 size that contains potential problem, problem analysis, required corrective activities and implementation plan.

Keywords: A3 report, improvement, problem-solving tools

JEL Classification: L10, L20, M10, M20, O30

1. INTRODUCTION

When a problem appears, majority of companies promptly start solving it, and having successfully solved the problem, they continue their standard production. Few companies deal with discovering genuine cause of a problem, what would be essential for success and continuous improvement of a process and would eliminate possibility for the same problem to appear again. If genuine cause of problem (root of problem) is not found, there is a great possibility that the same problem will continuously appear and in such conditions, it is not possible to improve process performances. A3 tool for solving problem may be used for any process and if used appropriately may bring about substantial process improvement (no phase may be omitted and every phase is completed).

A3 is an improvement process that applies lean thinking to problem solving. It is simply a way to present a report in a simply and structured way. The concept was coined by Toyota to describe the

¹ Associate Professor, Tamara Gvozdenović, Hydro Power Plants on the river Trebisnjica, Trebinje, Bosnia & Herzegovina, tgvozdenovic@henatrebisnjici.com

² Vedran Furtula, MSc Civil Engineer, Hydro Power Plants on the river Trebisnjica, Trebinje, Bosnia & Herzegovina, vfurtula@henatrebisnjici.com

process of getting report - writing down to one page. To Toyota, this was just a format for structuring a report so that it could be clearly and consistently communicated on one page of paper, reducing the waste of report writing and report reading. Because Toyota was always applying lean thinking, and A3 reports made that thinking visible, people begin to see it as a way to help others to think lean. [4]

The A3 report is so named because it is written on an A3 sized paper, one that is approximately 11 by 17 inches. The A3 reports are not formats meant to be documenting, but are primarily used as tool for stimulating thinking, learning, knowledge transfer, collaboration and problem solving under kaizen business philosophy. Toyota's insight many years ago was that every issue an organization faces can and should be captured on a single sheet of paper. This enables everyone touching the issue to see through the same lens. While the basic thinking for an A3 follows a common logic, the precise format and wording are flexible, and most organizations tweak the design to fit their unique requirements. [6]

2. A3 REPORT FOR PROBLEM SOLVING

Toyota developed more types of A3 reports: for problem solving, for reporting on project status, for changes suggestions, etc. A3 report for problem solving is most often used and it presents the best starting point for understanding A3 principle.

A3 is a structured problem solving and continuous improvement approach developed by Toyota and typically used in lean methodology of manufacturing practitioners.

A3 reports are based on PDCA (Plan, Do, Check, Act, abbreviated PDCA) method of management, which offers simple, but at the same time rigorous and systematic way for presenting basic causes of problems in organization. [7] PDCA is a system for continuously improving and managing an organization.

PDCA is a high-level problem-solving algorithm pioneered by Walter Shewhart in the 1930s and later adopted by W. Edwards Deming in the 1950s. [2]

A3 problem solving began in the 1960's as the problem-solving format called Quality Circles. It evolved at Toyota and became the standard format for problem solving, proposals, plans, and status reviews. [6] The A3 Report aims to flexibly approach and adapt to the encountered problem. An A3 lays out entire plans or reports, large or small, on one sheet of paper and tells a story, laid out from the upper left hand side to the lower right, which anyone can understand. It is visual and very concise (See Picture 1). [5]

Problem-Solving A3						
Background		Countermeasures				
P		Suspected Cause	Action Item	Responsible	Due	Finding
		1				
		2				
		3				
		4				
I		5				
		6				
		7				
		8				
		9				
Goal		Effect Confirmation				
Root Cause Analysis		Follow-Up Actions				
a n		Investigation item	Responsibility	Due	Status	
		1				
		2				
		3				
		4				
		5				
		6				
		7				
8						

Do

Check

Act

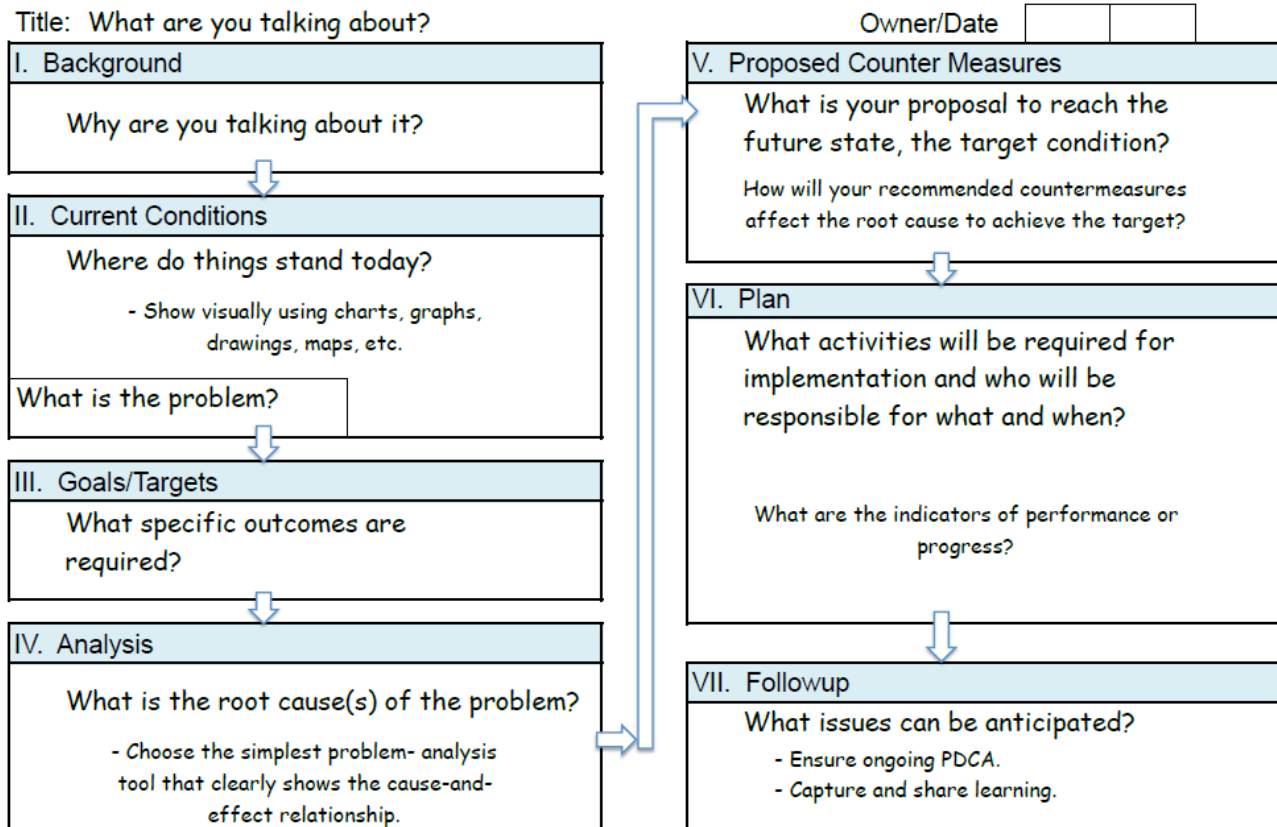
Picture 1. A3 template showing PDCA overlay

Source: Schwagerman, WC., Ulmer, JM. (2013). *The A3 Lean Management and Leadership Thought Process*

A3 report consists of defined parts that are filled in fixed order with a view to follow the logic of PDCA cycle. Upper left hand side is first to be filled, and then right side starting from upper side to the lower side. Namely, left hand side is intended to the first phase of PDCA cycle- planning. The “Plan” phase begins the PDCA process by stating the problem clearly and objectively while also giving some background and context so that everyone involved gains a common understanding of the issue and root causes identified. The “Do” phase takes the hypothesis and tests it by scientific method. If improvements are necessary, things are simply changed and adjusted. During the “Do” phase, accurate data is identified and retrieved from what the Japanese call the “Gemba,”. “Gemba” is the place the work is being done. The “Check” phase is initiated to study the effects from the “Do” phase. Facts are revealed, analysed, and discussed to determine what worked and what didn’t work. The fourth phase of PDCA is “Act” and is sometimes referred to as “analyse” because it is designed to identify what worked and what didn’t, and why. If the results were good, the group will determine how to standardize and share the success and eventually go back through the PDCA cycle to improve further. If the results were poor the group would determine how to prepare to repeat the PDCA cycle once again. [5]

By filling in A3 report, the content follows all above mentioned phases of cycle so in this way so the phases support PDCA system of controlling which is being implemented continuously and the effects of implementation are decrease of materials consumption, decrease of costs or output time with a constant or increasing level of product quality or production flexibility.

The A3 method contains not only text, but also pictures, diagrams, and charts, all of which enrich and clarify the data, thus due to all aforementioned, it is effective tool.



Picture 2. A3 Template

Source: Shook, J. (2010). *Managing to Learn - Using the A3 management process to solve problems, gain agreement, mentor, and lead*

The A3 is like a summary that can be adapted in layout, style and emphasis according to the person seeking the job and the type of job being sought. Practitioners can adapt the format to fit the requirements of each situation.

On a single page, an A3 typically includes the following elements: [8]

- Title – names the problem, theme, or issue,
- Owner/date – identifies who “owns” the problem or issue and the date of the last revision,
- Background – establish the business context and importance of the issue,
- Current conditions – describes what is currently known about the problem or issue,
- Goals/targets – Identifies the desired outcome,
- Analysis – analyses the situation and underlying causes that have created the gap between the current situation and the desired outcome,
- Proposed countermeasures – proposes some corrective actions or countermeasures to address the problem, close the gap, or reach a goal,
- Plan – prescribes an action plan of who will do what when in order to reach the goal,
- Follow-up – creates a follow-up review/learning process and anticipates remaining issues.

These A3 elements follow natural and logical sequence. The links among the problem, its root causes, goals, and the actions proposed to achieve the goal, and the means of judging success are clear and easy to understand.

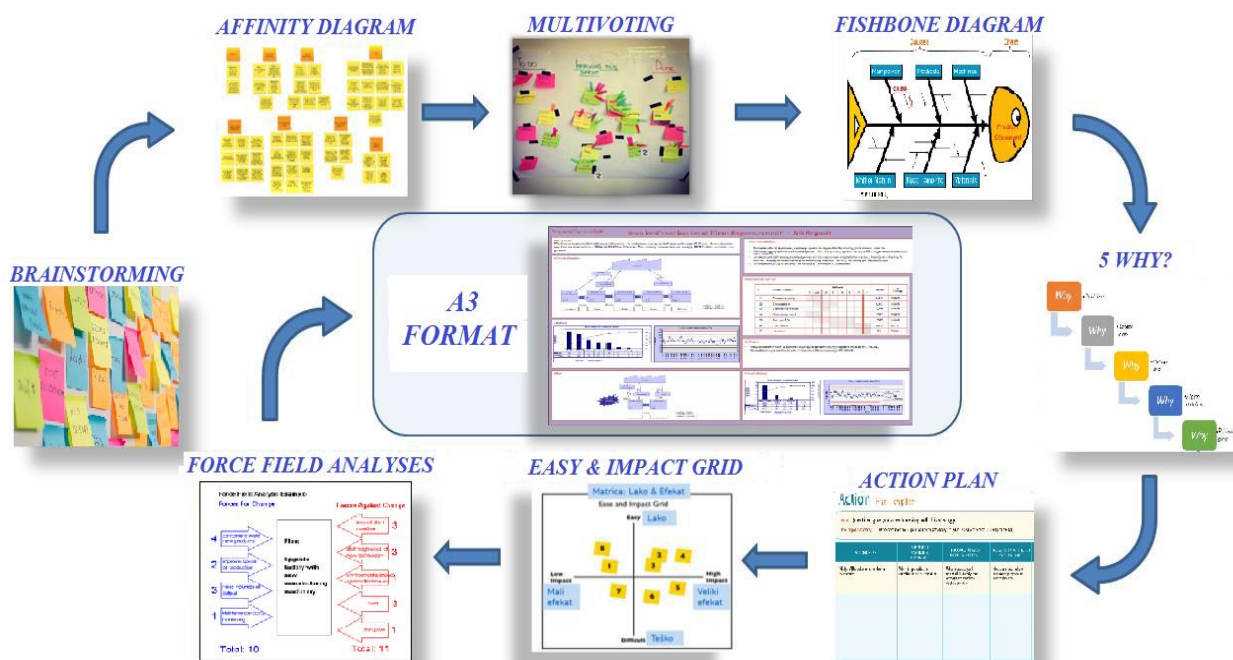
3. USAGE OF LSS TOOLS IN A3 FORMAT

LSS (Lean Six Sigma) is modern methodology for improvement that represents a combination of the best elements from particular methodologies: lean concept and Six Sigma concept so that it leads to improvement of effectiveness and process capability by reduction both wastes and variations. By combining of these methodologies, we get a powerful method for increasing speed and

effectiveness of any process within company and LSS implementation results in profit increase, costs reduction and increase of user's satisfaction. LSS approach combines tools and techniques of both approaches.

In Lean methodology, A3 refers to problem solving and fast implementation that amends organizational strategy by presenting relations between common priorities and tactful Lean endeavours. A3 is used to connect complete organizational strategy on all levels of endeavours for process improvement, to identify fields for fast improvement and to mark areas of potential prospective improvements. This method requires a team to communicate well and to describe the process in a simple way, which would result in review of present steps in a high-leveled process. The team, having improved its capacity for problem solving and having acquired more thorough understanding of the process, uses draft of the process that the team created on a paper to identify fields for improvement.

While filling in A3 format it is required to present results using Lean Six Sigma tools for problem solving. Some of LSS tools are presented in the following Picture 3.



Picture 3. Lean Six Sigma Tools

Source: Business Excellence Consulting Group, (2018). Yellow Belt Training Program

Brainstorming is applied in situation when new ideas are required promptly in order to define and solve problem. Result that should be derived after brainstorming is a filtered list of ideas for defining or solving problem.

Affinity diagram is done after finishing brainstorming, in order to group ideas in logical groups. A grouped list of ideas is derived, which may help for better definition of problem and its solution.

Having completed Affinity Diagram aiming to rank groups by importance, Multivoting is being done. By Multivoting we get ideas with most votes, i.e. ideas that should be focused first.

Fishbone/Ishikawa Diagram is to be implemented after defining problem, in order to systemize causes of its appearance by categories: Man, Method, Machine, Material, Measurement and Mother Nature. Thus, ideas (causes) with greatest number of votes are gathered. These ideas should be focused first.

5 Why method is applied after Fishbone Diagram and Multivoting, when main causes of problem are recognized with aim to find response on cause of its existence.

Having finished 5 Why method, Action plan is implemented whose result is a list of corrective actions for mitigation and removal of problem.

Ease & Impact grid is applied after action plan is being completed and thus this grid is acquired with positioned corrective actions according to how difficult it is to implement them and how great effect of their implementation is (action prioritization).

Force Field Analysis is applied after having defined Action plan and Easy and impact grid done result of this analysis is action list for minimizing stopping forces for implementation of change i.e. objective.

Finally, all gathered data of these tools are entered in A3 report and, A3 unified report is resulted.

4. CONCLUSION

It may be concluded that A3 reports are tools for implementation of PDCA system for systematic improvement. Thus broader notions are reached such as "kaizen" which just embodies idea of continuous improvement through repeating PDCA cycle until all solutions for problem are tried and new improvements introduced. It may also refer to notion "lean production" where A3 reports are used to identify losses (consumption), analysis and looking for root cause for losses and finally introduction of counter measures for reduction or elimination of such losses.

A3 reports are specific tools where all employees are included, from top managers to hierarchically lowest levels in problem solving or suggestions writing for improvement, collaboration of more organizational parts and implementation of solutions by which efficiency and effectiveness of an organization are increased.

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ANALYSIS OF THEORY AND APPROACHES TO ORGANIZATIONAL STRUCTURE FORMATION WITH THE GOAL OF PROCESS APPROACH APPLICATION

Igor Pus¹

Maja Mutavdžija²

Prof. Krešimir Buntak³

Abstract: Organizational theories are presented at the beginning of the 20th century and have no direct impact on the strategies of the organization formation today but lay the foundation for building new approaches relevant to modern organizations and their environment. Processes are one of the foundations of an organization, which is why they play a key role when it comes to change. In addition to the six sigma methodology, many authors also define other approaches to managing changes and improving business processes, such as Theeight-step model or Nadler-Tushman's stacking model. The importance of the process in modern companies has not been overlooked by numerous authors, who are focusing on the processes when designing contemporary approaches. New organization design strategies represent extended existing approaches, whichin most cases include reengineering of business processes as a starting activity. Although these approaches provide a framework for reorganization, they do not define the overall approach or innovative strategy relevant to modern companies. Therefore, a possibility is open for defining new strategies of the organization formation, especially those based on process orientation.

Keywords: Reorganization, Processes, Organizational design

JEL Classification: M - Business Administration and Business Economics; Marketing; Accounting; Personnel Economics, M0 - General

1. INTRODUCTION

With organizational resources and organizational procedures, organizational structure is one of the most important parts of the organization. Organization and its structure are created and changed as a result of development. During their lifetime, organizations need to adapt to the environment, which often results in the necessity of reorganization. When reorganizing, it is necessary to recognize the

¹ Igor Pus, dipl.ing.mech., univ.spec.oec.-MBA, Consultus d.o.o., Zagreb, Croatia, igor.pus@consultus.hr

² Maja Mutavdžija, bacc.oec., University North, Koprivnica, Croatia, maja.mutavdzija@unin.hr

³ Prof.dr.sc. Krešimir Buntak, University North, Koprivnica, Croatia, kresimir.buntak@unin.hr

impact of changes that have occurred on all parts of the organization, as well as on the interested parties. The organizational structure consists of a multitude of elements and sub-elements, such as organization of work and material factors or organization of management, and during the reorganization it is necessary to look at the overall picture of the company and to predict how could this changes affect those elements. Forming an organization is the toughest decision in the company and many theorists have suggested various ways to achieve the best result, but the conclusion of all was that the best result does not exist. Each organization is unique and requires a special approach, but there are several theoretical approaches, ie strategies to shape the organization, and these strategies are: Top Down Strategy, Basisupward Strategy, Bipolar Strategy, Wedge Strategy and Multiple nuclei strategy. These strategies can be used alone or combined.

Reorganization at the beginning of the 20th century was referred to through organization theories, which tried to explain what is happening in organizations and identify all potential changes as well as possible outcomes of these changes and an appropriate way to deal with changes. Organizations at that time differed considerably from organizations in today's environment, and the biggest reason for this is the rapid development of technology. Precisely because of the unpredictable environment, organizations are faced with quick and unpredictable changes, which can have positive or negative consequences. Changes can be caused by threats from the environment, increased competition, or progress and growth of the company, and no matter what kind of change is happening, the organization must be altered. Although theories of organization presented at the beginning of the 20th century have no direct impact on the formation of organization strategies today, they set the foundation for building new approaches relevant to contemporary organizations and their environment. New approaches are formed by individual organizations and are based on individual business practices that are considered to be influential or applicable to a large number of companies.

In the latest edition of ISO 9001: 2015, the emphasis is on the process approach. The previous revision of the ISO 9001: 2008 standard encourages the use of a process approach in developing, implementing and improving the efficiency of a quality management system, but the latest issue explicitly requires the identification of processes required for a quality management system (ISO 9001: 2015, t.4.4 - Quality Management System and its processes). Understanding and managing interconnected processes as a system, contributes to the organization's effectiveness and efficiency in achieving its planned business goals. This approach allows the organization to manage the interconnection and interdependence of processes in the system so that they can improve the organization's overall performance, ie provide a key organizational management requirement.

2. ORGANIZATIONAL THEORIES

There are different ways to systematize organizational theories. Hernaus explains that the theories are divided into pre-modern, modern and post-modern, and can also be classified in other ways, such as through four schools or orientation, but the most important and acceptable criteria of classification is the level approach of W. R. Scott and G. F. Davis. They differentiate between three levels of theory: individual level (behavior and interpersonal relationships), organizational level (relation of structure and process) and ecological level (relation of organization and environment). (Hernaus 2016:8)

Individual level includes so-called. micro-theory organizations, developed at the beginning of the 20th century, such as classical theory with Taylor, Fayol and Weber as principal representatives; neoclassical theory and theory of socio-technical design. The organization's macro-theories include organizational level and, as most important systematic theory, contingency theory and organizational economy theory are emphasized. The ecological level of the organization encompasses meta theories, and most important are population - ecological theory, non - institutional theory and resource interdependence theory. The first organizational theories were focused on the technical components of the organization, and the organization was viewed as a closed system, but in the mid 50s of the twentieth century, more precisely by the contribution of neoclassical theory, man is placed at the

center of the organization. Very soon, there is an understanding of how the organization interacts with its environment and the organization is viewed as a system that consists of a series of subsystems interacting with each other and interacting with their environment. „Such an understanding has its roots in the General System Theory set by Austrian biologist L. von Bertalanffy in 1951. " (Hernaus 2016:23) With the development of the market economy, more began to think about the organization in the economic framework, where Ronald H. Coase was the most significant. He was among the first who advocated the link between the organization and the economy. He recognized the cost policy by which managers decided and defined organizational boundaries. (Hernaus 2016:28) Organizational theories were made according to changes in the environment, and so because of the increase of the importance of certain resources, but also the scarcity of others, the theory of resource interdependence was made. While organizations are always dependent on resources, "in today's complex business conditions when the competition for many organizations is global, they need to focus on their core business and primary activities and get everything else from outside sources. That is why this theory has such importance today. " (Hernaus 2016:36)

Organizational theories have been developed to help managers solve the organization's problems by identifying the importance of the interdependence of different factors that have a significant impact on business. Theories help define the steps and identify key areas in a company that are important to pay attention to when making changes and deciding how to react and reorganize the organization in specific situations.

3. ORGANIZATIONAL THEORIES

In 1979 Henry Mintzberg in *The Structuring of the Organizations* defines the division of the organizational structure into five parts: the operational core, the strategic top, the middle level, tech structure and the support staff. Mintzberg's division of structure into 5 structural units requires appropriate coordination in the work. (Jaškoetal 2014:461)Mintzberg mentions 5 basic coordination mechanisms, ie organizational forms: simple structure, machine bureaucracy, professional bureaucracy, divisional structure and matrix structure (Adhocracy). The way in which the organizational form will be designed according to Mintzberg depends on the choice of flow system information (formal authority, information flow regulation, input and output specification, ...) and 9 basic parameters for organization design (standardization of jobs, standardization of performance, training and indoctrination, grouping of organizational units, organizational units size, planning and control system, coordination mechanism and decision making - vertical decentralization and horizontal decentralization).A few years later, more precisely in 1982, Robert H. Waterman Jr., Tom Peters in *In Search of Excellence* define the famous 7S model. The 7S model is named after its main components, ie elements(strategy, structure, systems, style, staff, skills, sharedvalue). His author's thesis is that productive organizational changes are not and can not be just a matter of structure. It is also not enough to consider the interaction of strategy and structure. Effective organizational changes concern the relationship between structure, strategy, system, style, skills, people and superior goals. (Fabac 2017:206-207) In 1992, based on the 7S model, Burke - Litwin 's model emerges, focusing on the mission and vision of the organization, and defining two types of changes that affect certain parts of the organization."Transformational changes occur in response to challenges from the organization's environment and affect the most important determinants (mission, vision, leadership, culture), while transactional changes affect organizational and psychological variables in relation to prediction and control of organizational performance." (Fabac 2017:207) Contemporary approach to designing the organization was proposed by Cichock and Irwin in 2011, and the approach was called OPTIMAL. This approach is defined through 7 design stages."In the first phase of the model, design sponsorship, strategic intentions regarding change and the required abilities are established. In the second phase, the team is gathered, program infrastructure is defined: leadership, management system, plans etc. In the third stage decisions are made on the most important aspects of the change so that effort can be directed toward the goals and re-seeking authorization for the direction. In the fourth phase based on the principles and design criteria, an evaluation scheme is formed that will serve to

select the optimal design options. In the fifth stage, ideas are being elaborated, and a number of alternatives are developing. In the sixth phase, an evaluation of existing design options is carried out in accordance with previously defined criteria, and in the final stage an optimal design option is chosen. " (Fabac 2017:210) OPTIMAL approach focuses on the main components of an organization, defining all the required abilities and goals that they want to keep or achieve after a certain change occurs. Optimal organization design results from detailed analysis and collection of relevant data, allowing the company to better understand the upcoming situation.

3.1. Models and Methodologies of Business Process Improvements

Designing an organization focuses on business processes. Business processes encompass all business activities that the company conducts to a specific goal. By improving business processes, the whole organization is improved. Processes are one of the foundations of an organization, which is why they play a key role when it comes to change. The methodology accepted for improving business processes, which has its roots in 1986, is the so-called " Six sigma. "The term itself comes from the use of standard error, deviation (sigma) concepts, where for normal or Gauss distribution, the rule of the fixed and known percentage of cases in the interval (mean value $\pm$ sigma) is valid. These cases can be the results of measurements of a product's dimension, performance, duration of a process, costs of certain activities, and so on." (Fabac 2017:176) In addition to six sigma methodology, many authors also define other approaches to managing change and improving business processes. One of these authors is Lewin, which defines three steps to manage change, and those steps are: defrosting the existing state, changing behavior, ie directing the existing system to a new level and re-freezing. "Bullock and Batten defined the phases of the planned changes and modeled on the discipline of project management. Steps are: exploration, planning, action and integration. " (Fabac 2017:52) In 1995, Kotter formulated the so-called " The eight-step model, Beckhard and Harris, developed a formula for change, in 1997, Nadler-Tushman's arrangement model was developed, while Stacey and Show emphasized the importance of an individual in the organizational system. When designing a process and thus designing the organization, the redesign of the existing processes plays a very important role. Association of Business Process Management International (ABPMP) in 2008 through the Guide to the Business Process Management (BPM CBOK) mentions activities within the organizational design process, and these activities are: "defining data collection standards, defining project scope, disclosing data and AS-IS modeling (identifying the current state), work flow analysis and change recommendations, workflow design and process design and simulation." (Fabac 2017:152) Processes are the main component of the organization and by focusing on redesigning the process, it is possible to affect the reorganization of the entire business.

4. CONTEMPORARY APPROACHES IN COMPANY REORGANIZATION

When it comes to the reorganization or transformation of a company, one of two approaches is most often used. The first approach sees the whole company, its internal relations and external relations. This kind of approach with analyzes wants to find a specific area that is the source of the problem and affect that area to solve the problem. The second approach is focused on processes. In this case, it is most often focused on operations within companies that ultimately carry out the entire reorganization process. Most contemporary approaches to company reorganization are guided by these two approaches and are based on one of the previously defined theories. But despite the differences between these two approaches, Drljača thinks the biggest mistake is "the view that the restructuring process can be carried out in the correct way without changing the structure of business processes. What kind of business process improvements will be chosen depends on the current state of affairs and reliability of business processes and also on the goals." (Drljača 2007:74) When restructuring, it is necessary to look at the organization's processes and to find weak areas within the individual processes that lead the organization in the wrong direction. Precisely because of the large role of business processes in operating the company itself, most authors put emphasis on processes when designing contemporary approaches. Business process reengineering is the foundation of new approaches and many modern organizations base their approach on reengineering. There is a big dif-

ference between reengineering and business process improvement. Reengineering is performed once and the existing processes within the organization are checked. Reengineering can redesign or replace existing processes. "Its purpose is to improve productivity by 95% and it mostly leads to changes in organizational structure and in the business culture itself." (Vukšićetal 2008:94) Business process improvement is constantly and is not seen as a one-off project, which is the case for business processreengineering. Business process improvement does not involve redesigning or replacing the process, but carrying out the existing processes through continuous improvement and enhancement of the efficiency of the process. "Such an approach largely leads to a 5-20% reduction in costs and time, or improvements in the quality of business processes." (Vukšićetal 2008:94)As a result of changes, organizations often need to completely change individual processes, which is why BPR (Business process reengineering or reengineering of business processes) is often chosen. As a BPR critic, many authors point out insufficient focus on employees and their relationships, which is an important factor for the company. Precisely for these and similar reasons, many authors are upgrading the BPR approach and as one of the contemporary approaches BPR2 is emerging.

Authors Sangjae Lee and Hyunchul Ahn in their work Assessment of process improvement from organizational change defined the so-called four analysis model, which emphasizes the implementation of four different analyzes before the redesign itself, which will allow a better assessment of the overall performance of the process. The authors proposed a feasible model for evaluating change process improvements.Four analyzes were carried out by structuring the spreadsheets filled in with the requested data and aligned with the research framework. "Each analysis highlighted its own set of considerations and importance, enabling a broader view of process improvement as well as enriched understanding of why, where and how to apply organizational change." (Sangjae i Ahn 2008:280) The authors consider that "the selection and development measures should be carefully implemented to identify specific output requirements and a detailed model for their generation, enabling a reliable analysis of predicted process performances." (Sangjae i Ahn 2008:271) Process performance is important because by their analysis an alternative process that has the greatest impact on the overall organization is gotten. Four analyzes, mentioned by authors, are associated with four major factors - cycle time, bottleneck process, cost cycle, and resource utilization. "When defining the goals of each analysis, specific variables should be given as the input or output of each analysis. Some variables are estimated by polling staff members or by observing the process; others are derived from the estimated variables by means of defined relationships between the variables. " (Sangjae i Ahn 2008:271)

4.1. Four analysis model

The purpose of improving business process performance is to satisfy the user's wishes. Four analyzes provide an overview of business processes and enable the choice of the right solution. Through the spreadsheets of organizations, they have a better insight into certain key research data. The spreadsheet is considered a very simple tool of collecting and reporting on the data. Such a table can help predict the performance of alternative processes composed of multiple interrelated tasks in terms of cycle time, bottleneck process, cycle costs, and resource utilization. "Measuring and evaluating the overall performance of the process before redesigning business could contribute to better understanding of the process, lower implementation costs, lower organizational resistance, and faster implementation with less complications during organizational change." (Sangjae i Ahn 2008:280) The defined alternative process is used to determine whether the existing design will be implemented or redesigned, and to make this process having the largest organizational impact, four analyzes need to be conducted. Through the Four Analysis Model, the focus is on organization processes and their redesign to the desired outcome. The goal of this model is to identify the area within which appropriate changes are required that will be aligned with the changes that take place in the organization's environment.

4.2. „I-deal“ concept

The "I-deal" concept is somewhat different from the usual approaches to reorganization. Most approaches are focused on processes and finding a specific part of an organization that needs to make the right change, while this concept puts employees at the center of observation. As one of the approaches or strategies of designing the organization, top-down approach is emphasized, which is inherent in traditional companies in which hierarchy is governed. By studying top down and basis upward strategies, authors Hornung, Rousseau, Glaser, Angerer, and Weigl believe that the authority in the organization is multifaceted and that, apart from acting downwards and upwards, it also acts sideways. The authors emphasize the existence of informal authority in the organization. Unlike the informal authority in the organization, formal authority deals with solving the problem. Employees in the organization are subject to the influence of both formal and informal authorities, and there are a number of tasks, ie the actions they must do, before them. "A series of decisions or actions accepted as part of a deal is the acceptance zone. The acceptance zone is subject to limited rationality and incomplete information." (Hornungetal 2010:188) In many cases, employees have enough knowledge to make decisions about their own field of action, but they are limited by formal authority, which sometimes does not take full advantage of employees. "The traditional top-down redesign restricts individualization, emphasizing the demands of the average job user instead of optimizing the configuration of the duty." (Hornungetal 2010:188)

"I-deal" is a redesign of jobs. Although redesigning jobs often means investing large amounts of resources, it sets certain standards that can differentiate the entire organization. This concept emphasizes the needs and abilities of individuals as the resources needed for better quality and well-placed work. The main idea of this concept is to allow employees to create or transform their own workplace. Transforming the workplace involves activities such as adjusting work schedules, developing special opportunities for advancement and acquisition of skills, adapting work content, and so on. "I-deal offers represent the middle ground between top down decision making and the private efforts of a particular worker to do business. Workers are limited to the extent that they can substantially change their duties without permission. Employees need to influence their employer if they need approval for additional changes." (Hornungetal 2010:190) In this way, jobs will be adjusted to an employee at one level in which he has the ability to make his or her decision. After that level, it is necessary to consult with decision-making superiors. This approach allows employees and superiors to communicate and enables superiors to better understand and access individual wishes and employees' needs, which can then be included in their employee rewarding and motivating system.

4.3. BPR2 methodology

Many business failures stem from neglecting people's relationships and affect that redesign has on people. Business reengineering is focused on business processes, but what is lacking is a human factor. Ignoring employee worries and employee resistance to radical change can result in a failure of the organization, which is why BPR2 is created and it is based on BPR. The BPR2 methodology is defined through 7 steps to achieve organization redesign without destroying the existing structure. Those 7 steps are:

1. Aiming for excellence;
2. Definition of internal and external customer values;
3. Rearrangement to ensure customer values;
4. Creating new customer values;
5. Renaming to promote customer values;
6. Automation to facilitate customer values; and
7. Measurement of customer values. (Khosravi 2015:8)

The first step is targeting excellence, which would mean that BPR2 is implemented within a project aimed at achieving business excellence. BPR is a one-off project and therefore should be done within a project aimed at reducing costs or increasing profitability. „BE models such as the Malcolm

Baldrige Model or the model presented by the European Foundation for Quality Management (EFQM) recommend many strategies for a sustainable improvement including the process orientation. Thus, training the employees on the BE principles can help them to understand the benefits of process orientation, and reduce their resistance.“ (Khosravi 2015:9) BE (Business Excellence) enables to achieve the desired level of quality and achievement of projected results. The second step of BPR2 methodology focuses on clients and their desires and needs. The organization must know its internal and external customers and clearly identify their expectations. The third step involves redefining the responsibilities of individual parts of the organization. „BPR2 changes the departmental boundaries, but does not consider people as components that can be easily moved or removed from the organization. In contrast to BPR that holds little concern for the organization's existing human resources, BPR2 does not separate people from their current teams. After a BPR2, the organizational structure will remain unchanged with new roles for departments to play.“ (Khosravi 2015:10) Changing certain departments is a problem, because then some departments do not have their own product or service because they are integrated within other processes and teams. In this case, there is a fourth step and that is creating a new value or a new product or service for which this department will be responsible. „It is advisable that in this situation the leaders think creatively and consider that it is an opportunity to create new products / services instead of removing additional departments from their organization.“ (Khosravi 2015:13) By reorganizing and creating other departments, it is necessary to rename the processes, which is the 5th step of the BPR2 methodology. „Some of the proposed names may look too long, and not comfortable to use. For these long names, abbreviation of the names is more recommended than a kind of shortening that destroys the meaning and motivating character of the name.“ (Khosravi 2015:16) This increases the value of an organization, especially if departments reflect customer expectations. The foregoing step involves the use of the Internet and information technology to create software support departments. „Information technology enabled us to better control data, information and knowledge and reduce barriers of time, place and language.“ (Khosravi 2015:18) Since investment in information technology also means a significant cost, it is important to justify this type of technology. The last step of the BPR2 methodology is to measure customer value. This step means defining process measures and goals that will be continuously monitored and whose effectiveness will be measured.

4.4. Software reorganization framework

Structuring an organization is an important step in which employees rank in organizational parts and gain roles. Information technology has enabled the development of software solutions that allow the analysis of the data needed to make the process of reorganization faster and easier. In order to determine the optimal way of reorganization, it is necessary to define the existing processes and to look at the links between all the existing processes. Based on these processes, the desired state is defined, ie the process models that come with the redesigning organizational structure. The key to this software solution is to define and enable the method of determining the bottlenecks and the degree of alignment with real business processes by structural quantities and indicators, which takes several steps, namely:

1. Capturing the enterprise world
2. Business process & relationships information extraction
3. Topological structure and social network analysis
4. Reporting & visualization
5. Organizational re-design
6. The new organizational structure (Besria i Boulmakoulb 2017:167-168)

The first step in creating a software is to capture a world of companies, or to create a database that will contain all the basic information about the company itself. „In particular, the data is produced referring the results from the investigation conducted on: the organizational structure, the data set of the company's business processes (ERP, ECM, BPM, CRM, transactional system ...) resulting from the process mining“ (Besria i Boulmakoulb 2017:167) The next step is to redesign business pro-

cesses that have bottlenecks and assessment of these processes. Once all business processes in the organization have been defined, it is necessary „to extract a set of processes. These processes may be particularly responsible for the ineffectiveness and congestion on the company organization.“ (Besria i Boulmakoulb 2017:167) The distinct processes are classified into a separate matrix that is analyzed in the next step, and it is the analysis of the social network and the topological structure. „This step involves using two analytical approaches to check and test non-compliances with the real organization adopted by the company. The first structural approach is based on the algebraic topology.“ (Besria i Boulmakoulb 2017:168) This approach to the organization allows to view links between individual parts. The second approach uses social network analysis techniques and allows computing social network metrics such as centrality, similarity, etc. The fourth step is reporting and visualization, or giving a diagnostic map. „This diagnostic map represents an analytical view of the company organization and are presented synthetically. It also includes indicators of measurements at two levels of analysis. The first level is the structural analysis by simplicial complexes and the second level is the analysis of social networks. This step also includes the proposed actions and recommendations of the organizational redesign process.“ (Besria i Boulmakoulb 2017:168) Due to the impact of redesigning on strategic management decisions, it is very important that managers have their own contribution to system development and redesign. For this reason, during organizational transformation, managers must show a certain engagement. The new structure must be aligned with strategic decisions, which is why constant compliance analysis is carried out by management. As a last step, the new organizational structure is emphasized. After establishing the structure, the program continues with analyzes and further alignments until the structure becomes completely stable.

Despite the software gathering of all data and numerous analyzes, "the limitations of this research include the inclusion of financial indicators and other diagnoses. The results are consistent but can be supplemented by a specific analysis to estimate financial costs. " (Besria i Boulmakoulb 2017:173) The aim of the software solution is to present a comprehensive program, which will include all elements of the organization, and this model needs more work in the future.

4.5. MahindraSatyam model

Mahindra Satyam (formerly Satyam Computer Services Limited, merged with Tech Mahindra on 24th June 2013.) was a leading global business and information technology services company based in Hyderabad, India; that leverages deep industry and functional expertise, leading technology practices, and an advanced, global delivery model to help clients transform their highest-value business processes and improve their business performance. The model highlights three stages, which would be subject to company during BPR programs. These stages are:

1. Long-term Business Strategy: helping the company identify suitable business opportunities and craft strategies to capitalize on them, enabling it to achieve its business objectives, despite mounting competition.
2. Process-Centric Enterprise (PCE) Phase I – Preparation: creation of a plan for the client to migrate into a Process-Centric Organization.
3. Process-Centric Enterprise (PCE) Phase II – Transformation: helping the client become a PCE by redesigning key business processes. (Bhaskar 2018:80)

The next step is to evaluate the company's business functions and transform them into basic business processes. For each business process, gap analysis is developed and the strengths and weaknesses of each process are defined. This enables teams to identify problem source when performing and gives a better understanding of how to redesign the process, structure, and performance. This analysis helps identify core business processes, which is the basis for further operational improvements. Core are identified as:

- Business planning – Responsible for creating business strategies, setting policy and outlining guidelines for operations and monitoring performance.

- Product management – Responsible for conceptualizing, designing, and developing new and upgraded vehicles, as well as setting up manufacturing facilities for their production.
- Order management – Responsible for converting orders for vehicles and spares into finished products. Also oversees purchasing, manufacturing, assembling and dispatching of finished goods.
- Customer management – Responsible for generating demand for vehicles and spares, resolving customer complaints and maintaining relationships with customers, and monitoring dealers and other intermediaries.
- Vendor management – Responsible for identifying and selecting vendors, monitoring their performance and helping them upgrade as necessary. (Bhaskar 2018:81)

Identifying these core processes allow companies to focus its BPR during this company-wide transformation and get a significant advantage over its competition.

5. CONCLUSION

Reorganization is a long-term process that takes into account a variety of elements and parts of the organization directly affected by this process. Despite the numerous organization theories that began in the early 20th century, it is difficult to apply one of these theories to modern companies. Theories have changed, and the organization's environment has changed, so modern organizations are influenced by new technologies, trying to find their answer through various software solutions. It is important to take advantage of the possibilities of information technology, but there are numerous disadvantages to this model.

Since the beginning of organizational theories, organizations have been seen as machines and even political systems, while in the modern world the organizations are seen as networks, which has influenced the development of network and virtual organizations. Even in such types of organizations, communication and interpersonal relationships are a major problem. As a major criticism, numerous models and redesigning concepts emphasize the neglect of the human factor. Aside from the reorganization of almost all organizational components, it is very important to emphasize the adjustment of employees to the stated change. For this reason, it is very important to involve employees in change and communicate. Changes directly affect each individual element and it is crucial to systematically look at the entire process. Since the reorganization process is important, it is important to identify which are the key elements of this process, what are the links between these elements, what is the relationship of these elements to the environment, and how these elements function as a whole. Although there are various organization design strategies and most are defined through the distribution of responsibility or authority, a large number of successful contemporary organizations work according to the process approach. Modern approaches emphasize reengineering of business processes as a relevant methodology, but it represents a one-off project to improve or replace existing processes rather than a strategy of design.

Global companies bring their own contemporary approaches based on process orientation. But in spite of the functioning of certain approaches to individual organizations, the question arises are those approaches universally applicable. Each organization is different and the reorganization has to be approached in a different way, depending on its own existing structures and the state itself. New organization design strategies represent extended existing approaches, which in most cases include reengineering of business processes as a starting activity. Although these approaches provide a framework for reorganization and show appropriate steps to analyze all parts of an organization and model the desired state of affairs, they do not define the overall approach or innovative strategy relevant to contemporary companies.

Accordingly, there is a need to find a new form of organization strategy primarily based on the process approach. Based on business process requirements and their decomposition to business activities, it is crucial to define operational and formal activities at workplaces and associate them with appropriate people for their execution within the organizational units. It is crucial to take into ac-

count Mintzberg's principles of organizational design, elements of organizational competence (human capital, technological competence, technical competence and structural competence) and the overall context of the enterprise (internal environment, business environment and external environment). In this way, the form of organization would enable future rapid and operational, as well as formal adaptation of the organizational structure to continuous, highly dynamic changes in the overall context of the organization. In order for the organization's strategy to operationalize an organization, it must be adequately implemented within the organization. Therefore, implementation should be implemented as a project, according to the principles of contemporary organization design methodology. It is important to note that such projects have a significant impact on employees, therefore it is crucial to apply contemporary knowledge in the field of change management.

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