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VIKTÓRIA HORVÁTH

PROJECT MANAGEMENT COMPETENCE – DEFINITIONS, MODELS, STANDARDS AND PRACTICAL IMPLICATIONS

PROJEKTMENEDZSMENT KOMPETENCIA – DEFINÍCIÓK, MODELLEK, STANDARDOK ÉS A GYAKORLATI ALKALMAZÁS LEHETŐSÉGEI

The complex nature of project management competence has resulted in different definitions for the same concept in the academic literature. By placing a greater emphasis on the improvement of their project management performance, organisations try to stay competitive and relevant in today's increasingly complex business environment, where the required project management skills set is constantly changing. In order to be able to improve project managers' performance it is essential to understand, as such, the concept of project management competence. The present paper has a multifaceted aim. It: a) Provides a comparative review of the definitions of project management competence as given in the literature and in professional standards; b) provides a comparative analysis of the project management competence models published in literature focusing on the fundamental differences; c) provides a comparative analysis of professional project management competence standards based on the identified two main dimensions of project management competence; d) introduces a two-dimensional model which contributes to the better understanding of project management competence; e) highlights the practical implications as derived from the broader concept of project management competence.
The proposed two-dimensional model contributes to the better understanding of the holistic nature of this phenomenon, which, in turn, makes possible a more focused competency development of project management professionals.

Keywords: project management competence, project management standard, competence management, project competence model, integrated approach of competence

Komplex jellege miatt az akadémiai szakirodalomban eltérő definíciókat találhatunk a projektmenedzsment-kompetenciára. A szervezetek egyre nagyobb figyelmet fordítanak a projektvezetési teljesítményük javítására, hogy ezáltal versenyben maradhassanak napjaink egyre komplexebb üzleti környezetében, amelyben az elvárt projektvezetési képességek köre folyamatosan változik. A projektvezetők teljesítményének javításához elengedhetetlen a projektvezetési kompetencia fogalmának szélesebb körű megértése. A cikk célkitűzései a következők: a) összehasonlító áttekintést ad a projektmenedzsment-kompetencia szakirodalmi és szakmai standardokban fellelhető definícióiról, b) áttekinti a szakirodalomban megjelent projektmenedzsment-kompetencia modelleket a főbb különbségeikre rávilágítva, c) összehasonlítja a szakmai szervezetek projektmenedzsment-kompetencia standardjait az azonosított, két fő elemzési dimenzió alapján, d) bemutatja a projektmenedzsment-kompetencia új, kétdimenziós megközelítését, amely a fogalom jobb megértéséhez járul hozzá e) rámutat az új megközelítés gyakorlati alkalmazhatóságának lehetőségeire is.

Kulcsszavak: projektmenedzsment-kompetencia, projektmenedzsment-standard, kompetenciamenedzsment, projektkompetencia-modell, kompetencia integrált megközelítése

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Szeretnék köszönetet mondani a 2018-ban immár 13. alkalommal megrendezésre kerülő, „Societal Impact on Knowledge and Design" címet viselő IFKAD (International Forum on Knowledge Asset Dynamics) nemzetközi konferencia résztvevőinek az előadásomat követő panelbeszélgetés során nyújtott konstruktív visszajelzéseikért, amelyek később nagyban segítették munkámat. Hálás vagyok a témavezetőmnek, aki támogató megjegyzéseivel járult hozzá a cikk folyamatos fejlesztéséhez. Végül pedig szeretnék köszönetet mondani a Stratégiai és Projektmenedzsment Tanszéken dolgozó kollégáimnak is, akik szakértő visszajelzéseikkel tovább gazdagították a cikkemet.

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Project management could be found in almost every sector of the global economy. The biggest professional project management association - the Project Management Institute -defined the so-called project-intensive industries as those *"in which occupational employment has a high level of project-oriented work* (Project Management Institute, 2013, p. 2)." These industries include manufacturing, business services, finance and insurance, oil and gas, information services, construction, utilities. Besides these sectors, project management has gained an increasing significance in other industries, as well, in the last decade e.g.: healthcare, publishing and professional services industries (Project Management Institute, 2017a). The World Bank's report of 2008 states that 22 % of the global aggregated GDP is spent on projects, and this proportion is even higher in the emerging countries: e.g. it is 39% in India and 43% in China (World Bank, 2008). The need for trained and experienced project managers is constantly increasing in the above-mentioned industries, thus companies are investing more and more to develop their project managers (Project Management Institute, 2018a). This emerging need results in creating more project roles that, of course, also have an impact on the labour market. The Job Growth and Talent Gap report predicts that organisations will need 87.7 million individuals working in project management-oriented job roles by 2027 (Project Management Institute, 2017a). Companies that wish to be champions of the global changes need to invest in project management talent. Moreover, the introduction of formal process is inevitable to develop project management competence such as the technical, leadership and business skills of project management (Project Management Institute, 2018a). Employers must place a greater emphasis on improving project management performance to be able to stay competitive and relevant in this new business environment, a constantly changing technical landscape, in which the required skill set and the way of learning will change. Researchers (e.g. Toney, 1997) pointed out the decisive role of skilled project management professionals and this was also reinforced by Crawford (2005), who not only highlighted the interrelationship between project performance of the project managers and their competence level, but also revealed the direct connection between project success and the organisational performance.

Nowadays, project management is a complex job. Having the classical project management technical skills is not sufficient anymore to achieve success on projects (Görög, 2013a). Beyond these skills there is a growing need for skills in leadership, strategic or business management.

The development of project management competence came to the forefront both in academia and in professional associations. The need for a everyday language in project management competence development first emerged approximately fifty years ago, when the Project Management Institute was established in 1969 (Project Management Institute, 2018c). International project management associations have also pointed out the need for a common project management vocabulary. Distinguishing project management competence from the general management competence accelerated the process that project management become a new profession, i.e. a *"distinctive competence territory"* (Winter et al., 2006). In order to satisfy the above-mentioned needs, the Project Management Institute published the first project management white paper called Ethics, Standards, and Accreditation Committee Final Report in 1983, with the aim to create a standardised knowledge base and framework of professional expertise (Seymour & Hussein, 2014). The first edition of the well-known Project Management Body of Knowledge or, as it is often referred to: the PMBOK Guide, was published in 1996. It was an extended version of the above-mentioned white paper. The related professional designation of Project Management Professional (PMP) was introduced in 1984. The International Project Management Association (IPMA) started the first individual certification and published the first edition of their standard "Individual Competence Baseline" in 1998. In the standards there are attempts to define "project management competence" and to create their own competence framework or competence model.

Different standards use different definitions for the term "project management competence". Unfortunately, due to the multifaceted nature of project management competence, the academic world also struggles with the problem. Even though numerous definitions can be found in the academic literature, there is no consensus in this respect. In many cases the same term is used with different meanings or the same phenomenon has different names. No comparative analysis regarding the project management competence could be found in the international academic literature. As a result of the above, the paper has a multifaceted aim. It proposes to a) provide a comparative review of the project management competence definitions given in both the literature and in professional standards; b) provide a comparative analysis of the project management competence models published in literature, focusing on the fundamental differences; and c) provide a comparative analysis of professional project management competence standards based on the two main dimensions of project management competence identified. It also intends to d) introduce a two-dimensional approach which contributes to the better understanding of project management competence; e) highlight practical implications derived from the broader concept of project management competence.

The author of this conceptual paper aims to introduce different project management competence definitions and models by means of highlighting the similarities and the differences. Further to comparing the theoretical models, the biggest project management competence standards will also be studied: e.g. the 2nd edition of the Project Manager Competency Development Framework (Project Management Institute, 2007), v4.0 of the Individual Competence Baseline for Project Programme & Portfolio Management (International Project Management Association, 2015a), APM Competence Framework (Association for Project Management, 2009) and AIPM Professional Competency Standards for Project Management (Australian Institute of Project Management, 2008; Australian Institute of Project Management, 2010). The paper is structured as follows. The next section will introduce the current literature on project management competence and the related most recognised models and the competency standards. The upcoming section provides a detailed comparative analysis of four of the most recognised project management competency standards. The paper ends with highlighting the practical implications of the introduced comparative analysis.

Literature review – Current literature on project management competence

This section first focuses on the current literature on competence. This is followed by introducing the published models of project management competence and the project management standards. A special focus on their implied theoretical approach and their critical evaluation are presented. The review of the literature aims to introduce the different elements of the competence in general at first, as these elements also form part of the project management competence. Highlighting the general concept of competence is necessary to understand the phenomenon of project management competence.

Concept of competence

Competence is considered to be one of the most controversial terms in management literature because of its several meanings (Robotham & Jubb, 1996). The different interpretations and definitions present in the current literature could result in certain level of confusion and misunderstanding (Boak et al., 1991; Senghi, 2004).

Two basic approaches are evident in the literature on professional competence. The first is "the competency model" or the attribute-based approach of the competence, while the second "the competency standard" i.e. the demonstrable performance approach of the competence. According to the competency model approach, the competency derives from personal attributes, so it focuses on the origin-aspect of the competence. On the other hand, the competency standard approach places an emphasis on the performance aspect, which is achieved in the possession of the competence, so it is a demonstrable performance approach (Crawford, 2005).

Spencer and Spencer (1993) pioneered the attribute-based approach and differentiated five main characteristics of competency. Two - knowledge and skills - are commonly referred to as surface competencies. Three - motives, traits and self-concept - are usually referred to as core personality characteristics. Unlike Spencer and Spencer (1993), Finn (1993) names knowledge and skill as input competencies. Heywood et al. (1992) defines experience as the element of the competence, while some authors consider it as a measure of competence (Lee-Kelley & Leong Loong, 2003; Dolfi & Andrews, 2006). Turner & Müller (2006) state that experience comes along with the growing confidence, which in turn results in better project performance. Pheng & Chuan (2006) underlined that the years of experience is less important in competence development than the level of complexity of the projects which were implemented by the project managers. Some researchers (Prabhakar, 2005; Lee-Kelley & Leong Loong, 2003) found a correlation between the experience of the project manager and the project success achieved. Because of this, the required level of professional project management experience is an inevitable element of the project management qualifications, as will be discussed later.

Quinn et al. (1996) introduced the model of professional intellect, distinguishing four levels of professional competence: cognitive knowledge (know what), advanced skills (know how), systems understanding (know-why), and self-motivated creativity (care-why). In line with this approach, Zack (1999) has divided competence into three knowledge related elements: declarative knowledge (knowledge about), procedural knowledge (knowledge how) and casual knowledge (knowledge why). The Table 1 provides a comparison of Quinn et al.'s and Zack's theory.

Table 1 The relationship between Quinn et al.'s, Zack's and competence model

	Zack (1999)		Quinn et al. (1996)	
	Competency components	Description	Competency components	Description
Elements (levels) of the competency	Declarative knowledge	*"Knowledge about something is called declarative knowledge. A shared, explicit understanding of concepts, categories, and descriptors. (Zack, 1999, p 46.)."*	Cognitive knowledge	*Cognitive knowledge (or know-what) is "the basic mastery of a discipline that professionals achieve through extensive training and certification. This knowledge is essential, but usually far from sufficient, for commercial success. (Quinn et al., 1996, p n.a.)*
	Procedural knowledge	*"Knowledge of how something occurs or is performed is called procedural knowledge. (Zack, 1999, p 46.)."*	Advanced skills	*Advanced skills (know-how) translate "book learning" into effective execution. The ability to apply the rules of a discipline to complex real-world problems is the most widespread value-creating professional skill level. (Quinn et al., 1996, p n.a.)*
	Casual knowledge	*"Knowledge of why something occurs is called causal knowledge (Zack, 1999, p 46.)."*	Systems understanding	*Systems understanding (know-why) is deep knowledge of the web of cause-and-effect relationships underlying a discipline. It permits professionals to move beyond the execution of tasks to solve larger and more complex problems—and to create extraordinary value. Professionals with know-why can anticipate subtle interactions and unintended consequences. The ultimate expression of systems understanding is highly trained intuition—for example, the insight of a seasoned research director who knows instinctively which projects to fund and exactly when to do so. (Quinn et al., 1996, p n.a.)*
			Self-motivated creativity	*Self-motivated creativity (care-why) consists of will, motivation, and adaptability for success. Highly motivated and creative groups often outperform groups with greater physical or financial resources. Without self-motivated creativity, intellectual leaders can lose their knowledge advantage through complacency. (Quinn et al., 1996, p n.a.)*

One of the most influential and generic competency typologies, known in the literature as Bloom's taxonomy, was developed by Bloom (1964). In the model, competency is divided into three domains: the cognitive, the affective and the psychomotor domain. The final one was added to the model later. (Simpson, 1972). The model became very famous at trainings and certifications, as well as in different fields of education. Cognitive domain refers to mental skills, and is often called the "knowledge level of the model". The affective domain includes feelings and the emotions, and is often called the "attitude level". The psychomotor focuses on manual or physical skills, often referred as skills. The model is mentioned as KSA in the everyday language (Table 2) (Winterton et al., 2006).

Dulewicz & Higgs (2003) divided competency into three groups. The first group - Intellectual (IQ) - includes the following competencies: (1) critical analysis and judgement, (2) vision and imagination, (3) strategic perspective. The Managerial (MQ) group includes the following competencies: (4) engaging communication, (5) managing resources, (6) empowering, (7) developing, (8) achieving. The Emotional (EQ) group includes the following competencies: (9) self-awareness, (10) emotional resilience, (11) motivation, (12) sensitivity, (13) influence, (14) intuitiveness, (15) consciousness. Blaskovics (2014) pointed out that while some of these competencies can be improved by training, others are congenital and innate personal characteristics.

Table 2
Bloom's taxonomy

Domain	Category
Cognitive (KNOWLEDGE) *"knowledge and the development of intellectual skills"* (Winterton et al., 2006, p. 18)	1. knowledge (recall of data); 2. comprehension (understand meaning, interpret); 3. application (use a concept in a new situation); 4. analysis (separate material into component parts); 5. synthesis (build a structure or pattern); 6. evaluation (make judgments) (Winterton et al., 2006, p. 18)
Psychomotor (SKILL) *"physical movement, coordination, and use of the motor-skill areas"* (Winterton et al., 2006, p. 18)	1. perception (using sensory cues to guide motor activity); 2. set (readiness to act); guided response (imitation, trial and error); 3. mechanism (intermediate stage in learning a complex skill); 4. complex overt response (skilful performance of motor acts that involve complex movement patterns); 5. adaptation (modify movement patterns to meet special requirements); 6. origination (developing new movement patterns to fit specific problem) (Winterton et al., 2006, p. 19)
Affective (ATTITUDE) *"the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes"* (Winterton et al., 2006, p. 18)	1. receiving phenomena (awareness and attention); 2. responding to phenomena (active participation); 3. valuing (acceptance and commitment); 4. organization (organizing values into priorities); 5. internalising values (having a value system that controls behaviour) (Winterton et al., 2006, p. 18)

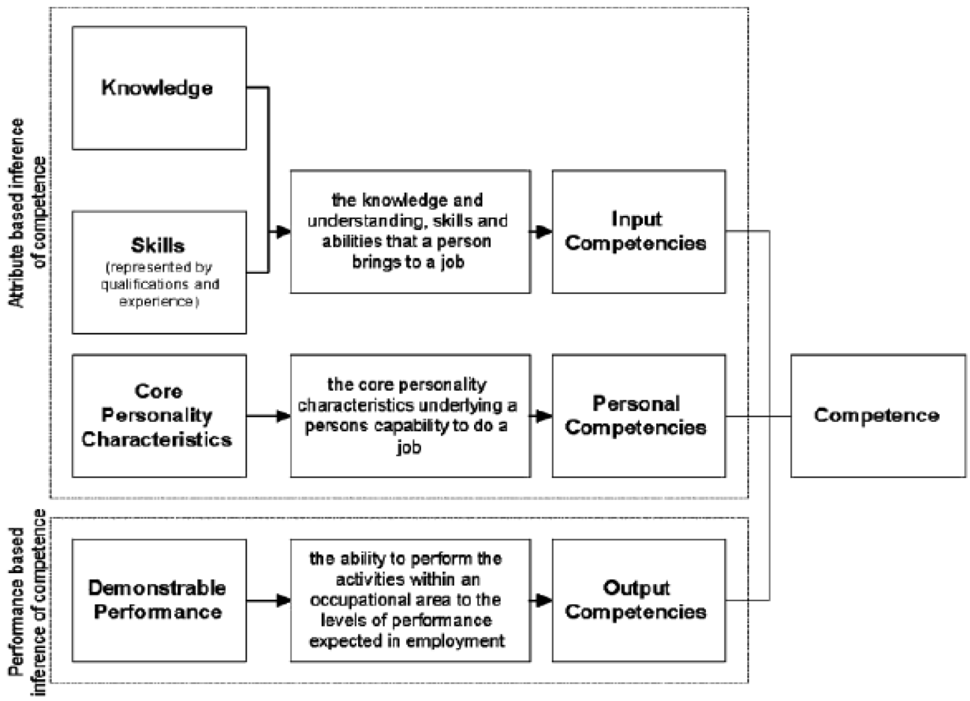
Source: Winterton et al., (2006)

Concept of project management competence

Crawford (2005) introduced the first project management competence model, merging into an integrated one the previously mentioned two approaches to competence (competency model or the attribute-based approach) are. The following figure (Figure 1.) introduces Crawford's integrated model of competence, including the three main competence components: input, personal (which derive from the attribute-based approach) and output competencies (coming from the performance-based approach).

Görög (2013b) in his project management competence model distinguishes the project management competency from the project manager's competency. In his model, based on Cleland's (1994) approach, three components of the project management competence are considered: knowledge, skill and attitude. At the same time, the project manager's competency, beyond the project management competency, includes personal characteristics, as well as, the leadership style of project manager, which also influences the actual workplace performance of the project manager. Görög

Figure 1 Crawford's integrated model of competence



Source: Crawford, (2005, p. 9)

(2013b) identified the six most important personal characteristics of the project managers: optimism, emotional intelligence, team building, building trust, motivation and improvisation.

Görög's project management competence approach is in line with Zack's theory (1999). The Table 3 compares Zack's and Quinn et al.'s competency components and Görög's project management competence elements.

Both Crawford's and Görög's models adopt a vertical approach to explain project management competence, i.e. they focus on different levels/components of it. The following table highlights the interrelationship between the different vertical elements of the project management competence models. Based on this we can conclude that Görög's approach is in line with the attribute-based inference of competence and the demonstrable performance approach

Table 3 Relationship between Quinn et al.'s, Zack's and Görög's competence model

Quinn et al. (1996)	Zack (1999)	Görög (2013a)				
Competency components	Competency components			Competency components	Description	Example in project management context
Cognitive knowledge KNOW-WHAT	Declarative knowledge KNOWLEDGE ABOUT	PROJECT MANAGEMENT COMPETENCY	PROJECT MANAGER'S COMPETENCY	Knowledge	Familiarity with project management tools and techniques.	E.g. Ability to recognise and understand Gannt chart
Advanced skills KNOW-HOW	Procedural knowledge KNOWLEDGE OF HOW			Skill	Ability to use project management tools and techniques.	E.g. Preparing the Gannt chart
Systems understanding KNOW-WHY	Casual knowledge KNOWLEDGE OF WHY			Attitude	Approach to projects and project management.	E.g. Understanding why a Gannt chart is an appropriate tool in a certain project management context.
Self-motivated creativity CARE-WHY				Personal characteristics Leadership style of the project manager		

is not presented directly, while Crawford's model includes both the attribute-based and the demonstrable performance approached. The two model shows similarities regarding the interpretations of the input competencies (knowledge and skills), but neither of the models are mention the role of experience in the project management competency development directly and it is not a component of the models. Crawford'a personal competencies of are not part of Görög's project management competence definition, but are elements of his term of the project manager's competency. Attitude is part of Görög's model, but is not included in Crawford's. It is part of the affective domain and is *"the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes"* (Winterton et al. 2006, p 18). Crawford's model mentions ability instead of attitude.

To conclude: the models show similarities in many aspects, while at the same time there are differences, such as the application of the terms: attitude and ability (Table 4).

The previously discussed approaches to competence focus on the different levels and in depth components of the project management competence. Bearing in mind, however, the competency domain areas, i.e. the knowledge areas of project management competence, one can identify the horizontal aspects of project management competency, which might be referred to as content-related approach to competence. Knowledge areas of project management have always reflected the different development stages or, in other words, the evolution of the project management profession. From the 1950's to 1980's, projects were considered to be simple processes and the main task of the project managers was to implement them. At the time, project management was considered to be the application of the associated project management tools and techniques to implement a one-time, unique and complex task according to the predefined time, cost and quality constraints (Olsen, 1971). The most important capabilities of the project managers were the hard skills, or as one could call them, the technical skills (El-Sabaa, 2001).

Table 4 A comparison of the vertical components included in different project management competence model

Spencer & Spencer (1993) competency characteristics		Finn (1993)	Heywood et al. (1992) competence components	Crawford (2005) competence elements	Görög (2013a)
knowledge	input competencies	input competencies	knowledge	input competencies	knowledge
skills			skills		skills
			experience		
- motives - traits - self-concept	core personality characteristic		- attitudes - personality traits - behaviours	personal competencies	-attitudes -personal characteristics -leadership style of the project manager

Source: Horváth, (2018, p. 414.)

From the 1980's a new approach started to spread, which considered projects as temporary organisations (Lundin & Söderholm, 1995). In addition to the hard skills, human aspects of project management, i.e. soft skills or the human skills, received an ever growing attention (Kloppenborg & Petrick, 1999; Pinto, 2000). Gruden & Stare (2018) highlighted the relationship between the behavioural competencies of the project managers and the project success. Nowadays, projects are considered from a broader organisational perspective, and are defined as a building block of organizational strategy. The conceptual and organisational skills (El-Sabaa, 2001) enable project managers to understand how projects fit to the organisational strategic objectives, and how projects are embedded into the entire organisation.

El-Sabaa's project competency model (2001) focuses on the domain, i.e. knowledge areas of the project management competency. The author differentiated three competence areas, i.e. knowledge areas, which are: a) human; b) conceptual and organisational; and c) technical. These areas are further divided into 15 components in which a competent project manager should have appropriate skill (Table 5).

Görög (2013b) also identify three knowledge areas in project management, which he named as: technical, human and project capabilities. The only significant difference between the two approaches pertains to the definition of technical skills and capabilities. In Görög's typology, technical capability includes familiarity with the domain context of the project outcome, and also that of the implementation process. El-Sabaa's technical skills are in line with Görög's project capabilities which include familiarity with the project management tools and methodology.

Reich & Wee (2004) also distinguished project management knowledge and project domain knowledge. Project management knowledge is defined as the "knowledge about the project management process (e.g., roles, tasks, and time frames) in se during the project" (Reich & Wee, 2004, p. 13. referring to Reich & Wee, 2006), while project domain knowledge "the knowledge about the project domain (e.g., general business, industry, company, product, and technical knowledge) of an application area in use during the project (Reich-Wee, 2004, p. 13. referring to Reich & Wee, 2006),". In PMBOK Guide, domain knowledge is called application area-specific knowledge.

Table 5 Project manager skill areas

Human skill	Mobilizing: Project manager is able to mobilize the mental and emotional energy of his subordinate
	Communication: Project manager is able to listen, persuade, and understand what others mean by their behavior
	Coping with situations: Project manager is flexible, patient, and persistent
	Delegating Authority: Project manager is able to give people the opportunity as group members to participate in making decisions
	Political sensitivity
	High self-esteem
	Enthusiasm
Conceptual and organizational skill	Planning
	Organizing
	Strong goal orientation
	Ability to see the project as a whole
	Ability to visualize the relationship of the project to the industry and the community
	Strong problem orientation
Technical skill	Special knowledge in the use of tools and techniques
	Project knowledge
	Understanding methods, processes, and procedures
	Technology required
	Skills in the use of computer

Source: El-Sabaa (2001, p. 4)

The literature of project management competence distinguishes three main knowledge areas. The components of this triple division focus on the context, the project management tools and techniques, and the human aspect.

Literature on project management standards and their competence approach

In this section I discuss the general definition of the project management standards. The Project Management Institute, acknowledged as the biggest and most well-known project management professional association, sets the requirements of project management standard (Project Management Institute, 2018b). These requirements are as follows: a) the standard should be published by an internationally acknowledged professional association, b) the content should be based on professional consensus, c) the standard should prescribe the rules, guidelines and detailed description about the processes and tasks within project management, d) it should also aim to contribute to and ensure the optimal workplace performance in project environment. Bearing in mind their content, professional standards can be categorised as follows:

I. foundation standards – these are not industry or sector specific, applicable for all kinds of projects and introducing the most important knowledge areas, and processes belonging to a certain profession (e.g.: A Guide to the Project Management Body of Knowledge - PMBOK Guide),
II. standard extensions – tailor fitted to a special industry or sector (e.g. Construction Extension to the PMBOK Guide),
III. practice standards – introducing a certain project management tool or methodology (e. g. Practice Standard for Work Breakdown Structures),
IV. frameworks or competency standards – these focus on more competence levels than the foundation standards. The latter are more knowledge focused and less attention is given to the skills and abilities, and to the core personality competencies. Competency standards enable professionals to measure their professional competency, by serving as a base for professional certification systems (e.g. Project Manager Competency Development Framework),
V. glossaries – focusing on the vocabulary related to a certain profession (e.g. Combined Standards Glossary).

Based on their main approach of the competence, project management standards could be divided into three main categories: input, process and output approached standards (Song, 2006). Professional standards having an *input approach* mainly focus on the attributes of the individual and usually describe the necessary surface competences (knowledge, skills) and the core personality characteristics of the competence.

Standards following *process approach* emphasise the implementation process side of the project management and give a detailed description of the main functions and tasks of the project management process.

The third type is the professional standard with an *output approach,* which focuses on the measurable performance part of the tasks and on the result of the actions. Alam et al. (2008) categorized the three most widely acknowledged project management foundation standards into these competence-approach categories. They concluded that the Project Management Institute's PMBoK (Project Management Body of Knowledge) standard belongs to the input approach category. The International Project Management Association's (IPMA) Individual Competence Baseline is a process focused professional standard, while Australian Institute of Project Management's (AIPM) standard is an output approached standard.

Crawford (2005) used a different categorization. She divided the standards into knowledge-focused and performance-focused categories. The Project Management Institute's PMBoK belongs to the first group together with the International Project Management Association's IPMA ICB and the APM Body of Knowledge, while the Australian National Competency Standards for Project Management belong to the demonstrable performance-focused category (Table 6).

Criticism of the classical project management foundation standards in the literature

Project management foundation standards, primarily the Guide to the Project Management Body of Knowledge (PMBOK® Guide), the Association for Project Management - APM Body of Knowledge and the Australian Institute of Project Management (AIPM) standard serve as handbooks for the professional community and provide a knowledge base for the international project management certifications. As a result, the critical remarks will be focused on this group of foundation standards.

Table 6 Different competency approaches at project management standards

Competency approach of the standard (Song, 2006)	Crawford (2005) categorisation	Alam et al. (2008) categorisation
INPUT APPROACH	Project Management Institute PMBoK (Project Management Body of Knowledge) és International Project Management Association (IPMA) International Competence Baseline és Association for Project Management - APM Body of Knowledge	Project Management Institute PMBoK (Project Management Body of Knowledge)
PROCESS APPROACH	-	International Project Management Association (IPMA) International Competence Baseline
OUTPUT APPROACH	Australian Institute of Project Management (AIPM) standard	Australian Institute of Project Management (AIPM) standard

Source: Crawford (2005); Song (2006); Alam et al. (2008) (in Horváth, 2018, p. 416)

In comparison with the other two standards (APM and AIMPT), the PMBOK® Guide is considered to be the most globally influential foundation standard amongst project managers today. Most of the criticism associated with PMBoK can also be relevant in case of the other two project management foundation standards.

The PMBoK standard was criticised because it has a strong bias toward the explicit, i.e.: it is formally articulated, easy to codify, document and share, and favours declarative knowledge over the tacit, i.e.: it is difficult to articulate, derived from experience, difficult to share, and is casual knowledge. Overall it pays larger attention to the "know what" over the "know why" competence (Reich-Wee, 2006). The fifth edition of the PMBOK® Guide tries to overcome the shortages of the previous editions and includes a brief appendix on interpersonal skills, such as: (1) team building, (2) motivation, (3) communication, (4) influencing, (5) decision making, (6) political and cultural awareness, (7) negotiation, (8) trust building, (9) conflict management and (10) coaching (Project Management Institute, 2015a).

At the same time, the PMI Talent Triangle introduced a new triple skill set, a successful project manager should possess (Project Management Institute, 2015b): technical, leadership and strategic, and business management expertise. The implied approach of this Triangle is in line with the earlier findings of the academic literature (El-Saaba, 2001; Görög, 2013b), which also revealed the three horizontal competency knowledge areas. The Table 7 encapsulates different elements of the competence categories included in the PMI Talent Triangle.

Table 7 The PMI Talent Triangle

STRATEGIC & BUSINESS MANAGEMENT *(Business oriented skills, applies to all certifications)*	**TECHNICAL** *(Domain expertise, certification specific)*	**LEADERSHIP** *(Competency in guiding and motivating; applies to all certifications)*
1. Benefits management and realization	1. Agile practices	1. Brainstorming
2. Business acumen	2. Data gathering and modelling	2. Coaching and mentoring
3. Business models and structures	3. Earned value management	3. Conflict management
4. Competitive analysis	4. Governance (project, program, portfolio)	4. Emotional intelligence
5. Customer relationship and satisfaction	5. Lifecycle management (project, program, portfolio, product)	5. Influencing
6. Industry knowledge and standards	6. Performance management (project, program, portfolio)	6. Interpersonal skills
7. Legal and regulatory compliance	7. Requirements management and traceability	7. Listening
8. Market awareness and conditions	8. Risk management	8. Negotiation
9. Operational functions (e.g. finance, marketing)	9. Schedule management	9. Problem solving
10. Strategic planning, analysis, alignment	10. Scope management (project, program, portfolio, product)	10. Team building
	11. Time, budget and cost estimation	

Source: Project Management Institute (2015b)

Turner (2016) considers the PMI new Talent Triangle to be an updated skill set which reflects on the increasing complexity and uncertainty level of the global business environment. *Turner* (2016) also points out that focus from the technical skills, which put emphasis mainly on the iron triangle, moves to new areas, namely interpersonal skills and project context. *Turner* (2016) also highlights that leadership and generally the project- related soft skills were outlined from the previous editions of the PMBoK and limited resources are available in the academic literature on soft-skills. The Table 8 summarizes the knowledge areas of PMBOK 6th edition, which justifies Turner's critical remarks.

At the same time, the PMI Talent Triangle was built into the 6th edition of PMBoK and the following definitions were given to the three competence areas:

- *"Technical project management.* The knowledge, skills, and behaviours related to specific domains of project, program, and portfolio management. The technical aspects of performing one's role.
- *Leadership.* The knowledge, skills, and behaviours needed to guide, motivate, and direct a team, to help an organization achieve its business goals.
- *Strategic and business management.* The knowledge of and expertise in the industry and organization that

Table 8 Project management process groups and knowledge areas in PMBOK® Guide

	Phases	**Initiation**	**Planning**	**Execution**		**Close-out**
	Process Groups	**1. Project initiation**	**2. Project planning**	**3. Project execution**	**4. Monitoring & Controlling**	**5. Project closing**
PROJECT MANAGEMENT KNOWLEDGE AREAS	1. Project Integration Management	Develop Project Charter	Develop Project Management Plan	Direct and Manage Project Work --- Manage Project Knowledge	Monitor and Control Project Work --- Perform Integrated Change Control	Close project of Phase
	2. Project Scope Management		Plan Scope Management Collect Requirements Define Scope Create WBS		Validate Scope Control Scope	
	3. Project Time Management		Plan Schedule Management Define Activities Sequence Activities Estimate Activity Durations Develop Schedule		Control Schedule	
	4. Project Cost Management		Plan Cost Management Estimate Costs Determine Budget		Control Costs	
	5. Project Quality Management		Plan Quality Management	Manage Quality	Control Quality	
	6. Project Resource Management		Plan Resource Management Estimate Activity Resources	Acquire Resources Develop Team Manage Team	Control Resources	
	7. Project Communications Management		Plan Communications Management	Manage Communications	Monitor Communications	
	8. Project Risk Management		Plan Risk Management Identify Risks Perform Qualitative Risk Analysis Perform Quantitative Risk Analysis Plan Risk Responses	Implement Risk Responses	Monitor Risks	
	9. Project Procurement Management		Plan Procurement Management	Conduct Procurement	Control Procurements	
	10. Project Stakeholder Management	Identify Stakeholders	Plan Stakeholder Engagement	Manage Stakeholder Engagement	Monitor Stakeholder engagement	
Total number of processes:	**2**	**24**	**10**	**12**	**1**	
	49					

Source: Project Management Institute (2017b)

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enhanced performance and better delivers business outcomes" *(Project Management Institute, 2017b, p. 56).*

Taking into consideration the previously introduced development regarding the horizontal aspect of the project management competence, one could see that there is a certain kind of shortage as to understanding the vertical aspects of competency. Even the latest issue of PMBoK focuses mainly on the knowledge level of competency, and significantly less attention is given to the skills and attitudes, and even less to the core personality competencies.

The project management *competency* standards tried to fill this gap by focusing on wider range of competence levels than the classical foundation standards like the PMBoK, so they enable professionals to measure their professional competency in a much more detailed manner. They place a higher emphasis on the human skills, so they could serve (together with the foundation standards) as the study handbook for the different project management qualifications. The Table 9 lists the most important project management competency standards. The comparative analysis of four selected project management competency standards based on the vertical and the horizontal dimensions of the competence will be introduced later on in the paper.

Comparative analysis of the project management competency standards

Section II. of this paper provided an introduction to the four internationally acknowledged project management competency standards focusing on their origin. In this section these standards will be further analysed in a comparative manner based on the following aspects;

1) adopted competency definition and the vertical dimension of competency - *the levels (depth) of the competence and its effect on the structure of the standard,*
2) horizontal competency dimension – *the content of the competence elements and the applied certification systems and competency development methodology,*

1) The adopted competency definition and the vertical dimension of competency in the project management competency standards

This section aims to provide a comparative overview on the competency definitions and on the major components of the competency used by the four most important project management competency standards (Table 10).

Table 9 The four selected project management competency standards

PROJECT MANAGEMENT ASSOCIATION			STANDARD	
Name	**Abbreviation**	**Headquarter**	**Name**	**Abbreviation**
Project Management Institute	PMI	USA	**Project Manager Competency Development Framework**	PMCDF
International Project Management Association	IPMA	Netherlands	**Individual Competence Baseline for Project, Programme & Portfolio Management**	IPMA ICB
Association for Project Management	APM	UK	**APM Competence Framework**	APMCF
Australian Institute of Project Management	AIPM	Australia	**AIPM Professional Competency Standards for Project Management PART A – Introduction and PART C – Certified Practising Project Manager (CPPM)**	AIPM PCSPM PART C

Source: Horváth (2018, p. 416)

Table 10 Competence definitions in the project management competency standards

Standard	Competence definition in project management competency standards	Definition of the major components of the competency
PMCDF	*"A cluster of related* ***knowledge, attitudes, skills,*** *and other* ***personal characteristics*** *that affects a major part of one's job (i.e., one or more key roles or responsibilities), correlates with performance on the job, can be measured against well-accepted standards, and can be improved by means of training and development.* *Major components of competencies include:* ▪ *Abilities* ▪ *Attitudes* ▪ *Behavior* ▪ *Knowledge* ▪ *Personality* ▪ *Skills"* *(Project Management Institute, 2007, p. 73)*	**Knowledge***: "Knowing something with the familiarity gained through experience, education, observation, or investigation, it is understanding a process, practice, or technique, or how to use a tool." (Project Management Institute, 2007, p. 74)* **Attitudes***: "Relatively lasting feelings, beliefs, and behavior tendencies directed toward specific persons, groups, ideas, issues, or objects. They are often described in terms of three components: (a) an affective component, or the feelings, sentiments, moods, and emotions about some person, idea, event, or object; (b) a cognitive component or the beliefs, opinions, knowledge, or information held by the individual; and (c) a behavioural component or the intention and predisposition to act." (Project Management Institute, 2007, p. 73)* **Skills***: "Ability to use knowledge, a developed aptitude, and/or a capability to effectively and readily execute or perform an activity." (Project Management Institute, 2007, p. 75)* **Personality***: "A unique organization of a relatively stable set of characteristics, tendencies, and temperaments that define an individual and determine that person's interaction with the environment." (PMI, 2007, p. 74)* **Ability***: "The quality of being able to do something; the physical, mental, financial, or legal power to perform; a natural or acquired skill or talent." (Project Management Institute, 2007, p. 73)* **Behavior***: "The manner in which an individual acts or conducts oneself under specified circumstances." (Project Management Institute, 2007, p. 73)*
IPMA ICB	*"Individual competence is the application of* ***knowledge****,* ***skills*** *and* ***abilities*** *in order to achieve the desired results." (International Project Management Association, 2015a, p. 15)*	*"****Knowledge*** *is the collection of information and experience that an individual possesses. For example, understanding the concept of a Gantt chart might be considered knowledge." (International Project Management Association, 2015a, p. 15)* *"****Skills*** *are specific technical capabilities that enable an individual to perform a task. For example, being able to build a Gantt chart might be considered a skill." (International Project Management Association, 2015a, p. 15)* *"****Ability*** *is the effective delivery of knowledge and skills in a given context. For example, being able to devise and successfully manage a project schedule might be considered ability." (International Project Management Association, 2015a, p. 15)*
APMCF	*"A competence articulates the expected outcome or performance standard that is achieved as a result of applying a combination of knowledge, personal attitude, and skills and experience in a certain function.* *It can be understood to represent the language of performance in an organisation, articulating both the expected outcomes of an individual's efforts and the manner in which these activities are carried out." (Association for Project Management, 2009, p. 1)*	
AIPM PCSPM	*"Competency encompasses the specification of* ***knowledge*** *and* ***skill*** *and the application of that knowledge and skill to the standard of* ***performance*** *required in the workplace."* *The broad concept of professional competency concerns the ability to perform particular tasks and duties to the standard of performance expected in the workplace. Competency in this context is far more than the skills an individual is able to perform in an industry or enterprise; it is equally about the knowledge that an individual brings to the application of those skills. This approach encourages multi-skilling and the ability to transfer competency to new situations leading to improved portability of skills across the workforce. (Australian Institute of Project Management, 2008, p. 6)* *The concept of competency focuses on what is expected of an employee in the workplace rather than on the learning process; and embodies the ability to transfer and apply* ***skills*** *and* ***knowledge*** *to new situations and environments. (Australian Institute of Project Management, 2008, p. 11)*	*"****Core Competencies*** *are a group of units of competency within a competency standard that an industry has agreed are essential to be achieved if a person is to be accepted as competent at a particular level or standard. All units may be core, but in many cases competency at a level will involve core units plus optional or specialisation units of competency. Core competencies are normally those central to work in that industry." (Australian Institute of Project Management, 2008, p. 11)* ***"Knowledge (…)*** ▪ *Cognitive skills involved in processes such as judgement, thinking and understanding;* ▪ *Information, which is the base of factual and theoretical material that is accessed, manipulated and used cognitively." (Australian Institute of Project Management, 2008, p. 11)* *"****Skill****: may be intellectual, manual, motor, perceptual, or social. The nature of tasks usually requires a combination of these and usually involves the application of cognitive and psychomotor functions, together with appropriate knowledge" (Australian Institute of Project Management, 2008, p. 17)* *"****Performance****: The calculation of achievement used to measure and manage project deliverables." (Australian Institute of Project Management, 2008, p. 14)* *"****Attributes and Behaviours****: A range of attributes and behaviours that are requirements for project managers, particularly at the higher competence levels. They include wisdom, action and outcome orientation, leadership, innovation, focus, courage, and the ability to influence. (Australian Institute of Project Management, 2008, p. 10)*

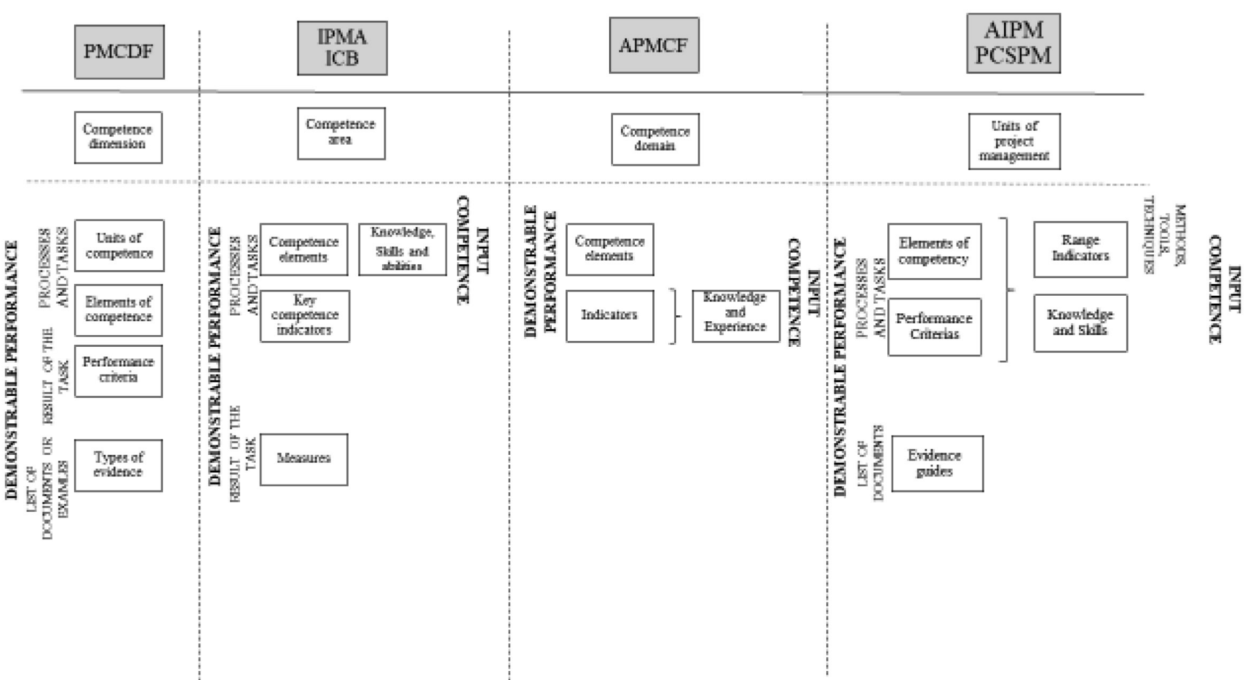
Source: Horváth (2018, p. 417-419)

The structure of the competency standards follows the classical structure in each case. Competency standards identify the (professional) project management competence in a slightly different way, but it could be seen that all of the definitions fit into Crawford's (2005) integrated model by mentioning the input competencies (knowledge and skill) and also considering the personal competencies. Standards define the different components, elements of the competence. The classical KSA – knowledge, skill, attitude or ability - division plays a very important role in each of them. The 4th version of the Individual Competence Baseline directly refers to the cognitive domain of Bloom's taxonomy: knowledge, comprehension, application analysis, synthesis and evaluation (Bloom et al., 1964; Bloom & Krathwohl, 1984; Winterton et al. 2006). The structure of the standards reflects the competency model or the demonstrable performance approach (Crawford, 2005), because they all place a bigger emphasis on the description of the demonstrable performance, than on the description of the related input competence (Figure 2).

Horizontal dimension of competence in the project management competency standards

The knowledge areas in the project management standards were checked based on the content categories of the literature. It could be seen that they follow the triple division. Although the Project Manager Competency Development Framework merged the technical and the conceptual and organizational skills into the performance category, the AIPM standard focuses only on the technical skills. In harmony with the classical triple classification, the Project Management Institute (2015b) issued the PMI's Talent Triangle which introduces the triple skill set that a successful project manager should possess: technical, leadership and strategic, and business management competency. This triple division could also be seen in the International Project Management Institute's Individual Competence Baseline for Project, Programme & Portfolio Management and in APM Competence Framework.

Figure 2 The structure of the project management standards



Source: Horváth (2018, p. 420)

The Table 11 summarizes the horizontal dimension of competence in project management competency standards focusing only on the knowledge areas and not mentioning their single competence elements. It also provides an overview on their relationship with the related horizontal competency.

A proposed project management competency model

Summarising the literature on project management competency we could see in section II that neither of the introduced models or approaches are able to represent both the vertical and the horizontal dimensions of the project management competence in an integrated model.

Based on the review of the literature the author of this paper concludes that the introduction of an integrated model could contribute to a better understanding of the holistic nature of the project management competence. This two-dimensional matrix provides a guideline to visualise project management competency in a new way. The Table 12 introduces the proposed project management competency model reflecting on the previous models, approaches and definitions of the academic literature.

The horizontal dimension (focusing on the content) of the project management competence model can be divided into the (1) technical, (2) human and (3) the conceptual and organizational competency elements (based on El-Sabaa, 2001). These elements can be broken down further. The vertical dimension (focusing on the level) of competence are broken down into four different levels (1) knowledge,

Table 11 Horizontal dimension of competence in project management competency standards

<table>
<tr><td>Talent Triangle (Project Management Institute, 2015b)</td><td>Görög (2013a)</td><td>El-Saaba (2011)</td><td>Project Manager Competency Development Framework (PMI, 2007)</td><td>Individual Competence Baseline for Project, Programme & Portfolio Management (IPMA, 2015a)</td><td>APM Competence Framework (APM, 2009)</td><td>AIPM Professional Competency Standards for Project Management PART A – Introduction (2008) and PART C – Certified Practising Project Manager (CPPM) AIPM (2010)</td></tr>
<tr><td>Strategic & business management (Business oriented skills, applies to all certifications)</td><td>Technical capabilities</td><td>Conceptual and organizational skill</td><td rowspan="2">(Knowledge - in PMBOK Guide) Performance</td><td>Perspective</td><td>Contextual</td><td rowspan="3">9 competence units mainly focusing on technical elements,</td></tr>
<tr><td>Technical (Domain expertise, certification specific)</td><td>Project management capabilities</td><td>Technical skill</td><td>Practice</td><td>Technical</td></tr>
<tr><td>Leadership (Competency in guiding and motivating; applies to all certifications)</td><td>Human capabilities</td><td>Human skill</td><td>Personal</td><td>People</td><td>Behavioural</td></tr>
</table>

(2) skill, (3) attitude and (4) personal features and leadership styles. The project manager's competence and project management competence are separated based on Görög (2013b).

The model integrates both the horizontal and vertical elements of project management competency. Unlike to the previously introduced one-dimensional models, the proposed model provides a more comprehensive approach to understanding the nature of project management competency.

In the proposed model the personal features and the leadership styles are understood to be the highest level of the vertical competency dimension, however, it serves a bridge by means of which any project management competency can be demonstrated.

Table 12 The integrated model of project management competency

<table>
<tr><td colspan="4" rowspan="2"></td><td colspan="3">HORIZONTAL DIMENSION of project management competence</td></tr>
<tr><td>Technical</td><td>Human</td><td>Conceptual and organizational</td></tr>
<tr><td rowspan="4">VERTICAL DIMENSION of project management competence</td><td rowspan="4">THE PROJECT MANAGER'S COMPETENCE</td><td rowspan="3">PROJECT MANAGEMENT COMPETENCE</td><td>Knowledge</td><td>E.g. Understand MPM network diagram</td><td>E.g. Understanding the bonus system and regulation at the company.</td><td>E.g. Being familiar with the corporate politics</td></tr>
<tr><td>Skill</td><td>E.g. Preparing the MPM network</td><td>E.g. Applying the bonus system</td><td>E.g. Utilizing the corporate politics</td></tr>
<tr><td>Attitude</td><td>E.g. Understanding why a MPM chart is an appropriate tool in a certain project management context.</td><td>E.g. Understanding the context in which bonuses are used</td><td>E.g. Excepting the importance of corporate politics</td></tr>
<tr><td colspan="4">PERSONAL FEATURES AND LEADERSHIP STYLE</td></tr>
</table>

DEMONSTRABLE COMPETENCY

Practical implications of the proposed broader and integrated approach to project management competence model

It could be seen that neither former project management competency models were complete, and consensus in the standards there could not be found, resulting in a need for an integrated approach of the project management competence. The new model introduced the vertical and the horizontal dimensions of the competence. The proposed model has a twofold outcome. One is the contribution to the current literature, the other is the actual managerial or practical implication. In the current literature there is no single one perception regarding the structure of project management competence. This article introduces a new two-dimensional model in which the vertical and the horizontal dimensions of the project management competence are integrated into a single model. Based on this, a two-dimensional analysis of the internationally used project management competency standards was conducted, providing a more comprehensive basis for a systematic comparative analysis of the project management competence standards. Comparing the standards based on the vertical dimension highlighted the similarities and the differences regarding the structural design of the standards. It showed how many competency levels, competency elements (in-depth levels within competency) they distinguish and how they adjust the whole design of the standard to this structure. The comparison made by the horizontal dimension highlighted the different content elements of the project management competency and, based on that, the overlaps and deviations could be identified.

Beyond contributing to the current literature, these findings have managerial, i.e. practical implications, as well. One of these practical implications is the potential for developing more appropriate training programs for professionals. In the course of developing such programs, based on the proposed model, it becomes possible to consider both the vertical and the horizontal aspects. Another practical implication is the potential for developing both the qualification and certification system of practitioners to be in line with the associated training programs. The improvement of training programs and qualifications and certifications might result in better prepared project managers. A more skilled project management society might contribute to achieving a higher success rate on projects in different organisations. The proposed integrated model of project management competency could embed to the rethinking of the project manager's career path by introducing a more precise competency assessment at different stages of the employment (hiring, junior and senior levels). It could also serve as a base for a more precise career planning system by determining new KPI's for the project managers.

Limitations and further research

The paper does not focus on every project management standard. Only the four most widely known, internationally used project management competency standards were used in the comparative analysis. It could be seen that the digital transformation has a major impact on the competencies of the future project managers. The new technologies are spreading, big data analysis and artificial intelligence effects our daily work. Thus, today's working environment requires a completely new mindset from managers and it significantly affects the required skill-set and the learning processes of future professional project managers. The current paper has not put this question in the forefront, although this topic could serve as the basis for a future research. Opinions are divided on whether the successful application of the digital tools could be considered as a separate managerial competency, or whether it could be seen as a simple tool. A future empirical study could analyse the impact of the skills related to the workplace performance of the project managers and its contribution to the actual project success.

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DOROTTYA SZILVIA BODNÁR

ESCAPISM OR ACTIVE INVOLVEMENT?
A DIMENSION OF MUSEUM VISITOR EXPERIENCE

ESZKÉPIZMUS VAGY AKTÍV BEVONÓDÁS?
A MÚZEUMI LÁTOGATÓI ÉLMÉNY EGY DIMENZIÓJA

Visitor experience is a highly important concept in the tourism industry, which has to be taken into consideration by museums as well, to awaken the interest of their new target groups. The functions and audience of these institutions are becoming much wider than they were earlier. Among other external and internal factors, selected exhibition topics, services, applied interpretation methods and the installation design impact the opportunity of visitors to collect memorable experiences.

The present article provides a detailed narrative literature review regarding museum visitor experience. The author presents the results of a systematic literature review on „escapism" as an experience dimension of Pine and Gilmore's 4E model (1998).

The author's aim is to provide an overview of the new museology paradigm and the significant trends affecting visitors' attitudes and finally to insert them into a refined experience model, focusing on its escapism dimension.

Keywords: new museology, museum, visitor experience, escapism, Pine and Gilmore, active involvement

A látogatói élmény fogalma a turizmus iparágában megkerülhetetlen fontosságú, amelyet a múzeumok, mint bővülő funkcióval rendelkező intézményeknek is egyre inkább figyelembe kell venni közönségük érdeklődésének felkeltése érdekében. A múzeumok által választott kiállítási témák, a kialakított szolgáltatások, az alkalmazott interpretációs módok, illetve az installációs környezet erőteljesen befolyásolja a látogatók lehetőségeit az emlékezetes élmények gyűjtésére vonatkozóan. Jelen cikk részletes narratív szakirodalmi áttekintést nyújt a múzeumi látogatói élményről, valamint a témában megvalósítandó primer kutatáshoz is előkészítésként szolgál. A szerző bemutatja az általa elvégzett szisztematikus szakirodalmi áttekintést, amely Pine és Gilmore (1998) 4E modelljének eszképizmus dimenziójára fókuszál. A cikk célja az új muzeológia paradigmájának, valamint a látogatói attitűdöt meghatározó trendek áttekintése, és ezek rendszerszintű beillesztése egy továbbfejlesztett élménymodellbe, kiemelve annak eszképizmus dimenzióját.

Kulcsszavak: új muzeológia, múzeum, látogatói élmény, eszképizmus, Pine és Gilmore, aktív bevonódás

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The experience economy influences the museum world, just as other sectors of the economy, urging professionals to focus more on visitors' changing demand, providing suitable circumstances for reaching holistic and memorable experiences. Participating, learning and experiencing the museum became much more important for visitors than simply being there and observing an exhibition (Trinh & Ryan, 2013). There was a shift in museology as well, from a cultural transmission paradigm to a visitor meaning making paradigm (Rounds, 1999), which means that instead of enjoying the passively received content of an exhibit, visitors seek for personal meanings, trying to fulfil several human needs (Rounds, 1999; Silverman, 1995). According to Masberg and Silverman (1996), a museum visitor experience is a really complex and multidimensional phenomenon, which has a much wider meaning than learning itself. Packer & Ballantyne (2016) state that however many research studies have been conducted on visitor experience, most of them focused exclusively on learning as an outcome, which, according to Silverman (1995) might have hindered the other types of contribution that museums could provide. However, some models identify other dimensions of museum visitor experience as well (Masberg & Silverman, 1996; Pine & Gilmore, 1998; Doering, 1999; Pekarik, Doering & Karns, 1999; Jarrier & Bourgeon-Renault, 2012; Packer & Ballantyne, 2016).

Understanding better museum visitor experience supports museum managers' decisions of allocating their resources, designing appropriate marketing and promotional strategies. They might gain a better overview of demanded services and exhibitions that enhance memorable experience. Measuring properly visitor experience is crucial for identifying the aspects that are important to visitors, therefore improvement of measurement tools is significant as well.

Methodology

A narrative review was conducted in the first part of the article followed by a systematic literature review in the second part. Narrative review involved the literature of new museology, museum/visitor experience and several interpretation methods (such as interactivity, multisensory devices and co-creation) that influence visitor experience. The author analyses the experience model of Pine and Gilmore (1998), focusing on its escapism dimension, which is frequently interpreted in a different way than its original meaning. The author points out that escapism itself is a general tourism motivation, which appears several times in measurement scales as well, as an experience dimension.

Use of narrative review is general in management research where "level of formality and standardisation in designing/adopting protocol is usually low" (Tranfield et al., 2003, p. 213). To identify a field/sub-fields of a study, this kind of research uses informal consultation. An implicit idiosyncratic method of data collection is applied (Tranfield et al., 2003). According to Tranfield and others (2003, p. 213) in the case of narrative reviews it is "unacceptable to 'tightly' plan a literature review, as this may inhibit the researchers' capacity to explore, discover and develop ideas". The analysis of the literature is interpretive and non-standardized. Narrative reviews are a discussion of important topics from a theoretical point of view. They also take a less formal approach as they do not require the reporting of methodology, search terms, databases used, and inclusion and exclusion criteria in such a rigorous manner as systematic reviews (Bernardo, Nobre & Jatene, 2004).

During the analysis of an important sub-field namely the appearance of escapism in the literature, the author used a systematic literature review. A systematic literature review is a transparent, and reproducible process, or "a detailed technology, that aims to minimize bias through exhaustive literature searches of published and unpublished studies and by providing an audit trail of the reviewers' decisions, procedures and conclusions" (Cook, Mulrow & Haynes, 1997, in: Tranfield et al., 2003, p. 209). which "identifies key scientific contributions to a field of question" (Tranfield et al., 2003, p. 209).

Within the frame of the present systematic literature review the author conducted an initial filtration of EBSCO database with different keywords, which did not directly fulfil the aims of the research (explained later). Following that, a second filtration was conducted, the results of which are analysed later on in the present article. The method of the second filtration was refined in order to focus on the studies which use the interpretation of escapism from the model of Pine and Gilmore, and on those studies, which examine the museum experience, considering not only the primary sections of the articles in the database (authors, topic, keywords, title, abstract) but the whole text. The basis of the second filtration, which served as the main research were studies, which were published in academic journals between 2008 and 2018 and their text included all of the following four words at least once: Experience, Escapism, Pine, Museum. The filtration resulted in 44 articles, all of which were systematically analysed.[i]

In Budapest Management Review, several studies have already been published with a similar methodology. Kremes (2018) focused on HR analytics and its moderating factors in a theoretical paper, which was completed with a systematic review of 39 articles of international literature. Ócsai (2018) studied ecological consciousness of companies starting with a detailed narrative review that continues with the short systematic review of the 5 relevant articles published in Budapest Management Review.

At the end of the present article, after systematically reviewing the literature, the author concludes the findings with a refined experience model.

Results

New museology

Museology is the critical and theoretical examination of the museal field (Mairesse & Desvallées, 2010, p.19.). McCall & Gray (2014, p. 21) defines new museology as "a specific ideology and discourse that has affected expectations around the purpose of museums", that was based on the idea that the role of museums in society needed to change. In the frame of the discourse new museology encourages different communication and styles of expression in contrast to classic, collections-centred museum models (Mairesse & Desvallées 2010). Papadimitriou et al. (2017, p. 272) described how "as we approached the new millennium, museums became more self-reflecting and socially conscious, focusing on questions of wider public participation and interaction". Following criticisms of curatorial practices which were legacies of colonialism and nationalism, new museological practices have focused on being more inclusive, participatory and democratic, especially for 'non-privileged' groups. However, this diversity has proved to be challenging for museums and many barriers still exist. Realizing the processes and adapting optimal solutions has taken a long time, and many institutes not yet completed this process. Figure 1 illustrates the shift from Old to New Museology:

Change of elitist attitudes

In the 1970s, museums in Britain were seen as the symbols of "national decline" (Hewison, 1987). In 1971, it was claimed that museums were isolated from the modern world, they were considered as elitist, obsolete institutions and a waste of public money (Hudson, 1977). Being elitist meant also that museums were 'cultural authorities' upholding and communicating the truth (Harrison, 1993), the only truth that could exist. Museums found it difficult to compete with other tourism attractions, their image of being boring and dusty places (Kirshenblatt-Gimblett, 1998) had to be changed. "Dead" displays, static exhibitions had to be revitalized to become "living" ones (Urry, 1990).

Focus on people

Museums had to change their focus, according to the interest of visitors, the needs of the contemporary society and therefore focus more on the people themselves, than on artifacts as part of collections (Simpson, 1996; Hudson, 1998). Meaning-making is the key of modern museums. Therefore, interpretation of a given object is becoming more and more important; it can be even more interesting than the object itself. People in contemporary society are users of objects and sometimes even creators of artifacts within the museums (Simpson, 1996). An important focus is that art, history and other topics should not be interpreted only in one way, there should be more discussion, more involvement of visitors, who would not just be simply observers, but active participants.

Figure 1. Way from Old to New Museology

Source: Bodnár et al. (2017)

On the other hand, professional, scientific background is very much needed for the accurate representation of these institutions, which might become overshadowed as a result of the previous changes.

Social context

As museums take into consideration a wider social group as their audience, they might overcome their previous intention of focusing on 'soft' history, and not tackling controversial or conflicting topics (Swarbrooke, 2000), so that they might initiate discussions about discrimination and inequality within society (Sandell, 2007) as well. On the other hand, emotions are just as important, considering, that during a museum visit, engagement of the visitor might be reached only if she/he is not only an observer, but also the exhibition provokes some kind of feelings.

Archer et al. (2016) show that first time visitors to museums often feel disorientated, overwhelmed, confused and can struggle with the organization and 'habitus' of a museum (i.e. they are not sure how to behave or what to do or what not to do). They may think that 'there would be no-one like them there' (a "mismatch of habitus", pp.989) and that they would not be made to feel welcome (Dawson, 2014). There can be linguistic and educational barriers too.

Changing functions

Researchers have proved that leisure and entertainment are strong motivations to visit museums (Moore, 1997, Packer & Ballantyne, 2002), whereas learning, as a motivation turned out to be secondary (Tomiuc, 2014).

The International Council of Museums (ICOM) in 2007 defined a museum as follows "A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment". Edutainment is a central focus, as a successful method of information transmission. Museums have the responsibility of facilitating the interpretation of objects, and artifacts by visitors.

Museums function at the same time as social spaces, providing opportunities for family time and meetings between friends. These institutions play a crucial role in promoting social wellbeing (Chatterjee & Noble, 2013).

The function of entertainment is supported by many professionals, however several researchers express doubts regarding this issue, urging consideration and balance (Kotler & Kotler, 2000).

Museum visitor experience

The concept of experience economy describes a phenomenon which evolved at the end of the 20th century, the focus of which is searching and providing experiences. On the demand side the significant element in consumer behaviour is the experience, which can be gained from the consumer's decision; on the supply side the only important competitive edge derives from the intensity of experience that can be provided by a company to the consumers of its products or services (Michalkó & Rátz, 2005). According to Pine and Gilmore (1999) experience is the last stage in the economic progression of commodities, goods and services. Organizations are required to add value to their products and services which result in memorable and satisfactory experience, engaging consumers on an emotional, physical, intellectual or even on spiritual level (Pine & Gilmore, 1998). The effect of the experience economy influences all the different sectors including the tourism and museum fields as well.

Defining visitor experience

There are different approaches regarding the identification of experience itself. Based on Packer and Ballantyne (2016), approaches can be categorized into four groups whether they concern experience as a flow of consciousness, as a subjective response to an event or stimulus, as a memorable impression or as a designed or staged offering.

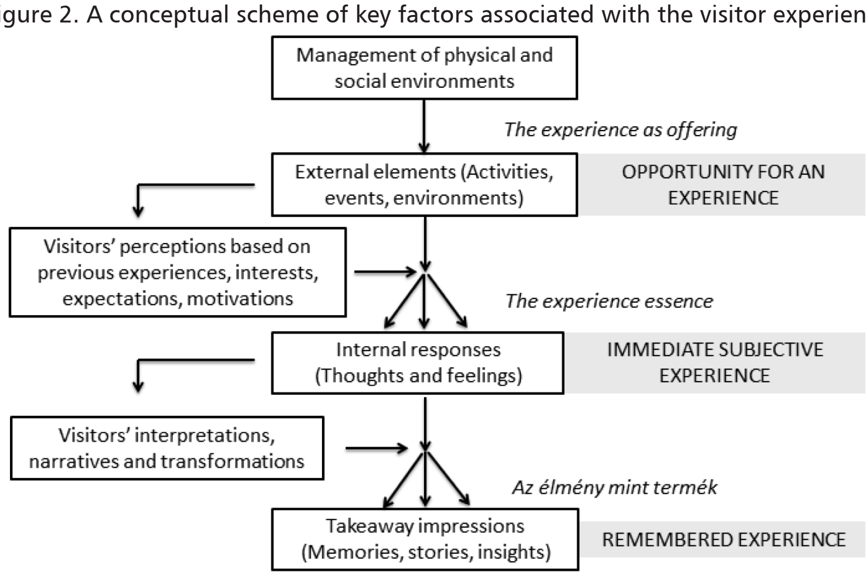
Consumer experience is influenced by many factors, it cannot be considered as a vacuum-like phenomenon, without all the potential external and internal effects, although it is unique for every person (Zátori, 2014b). Walls and others (2011) suggest that consumer experience is influenced by individual characteristics, situational factors, physical experience elements, and human interaction elements. The same factors can be detected while analysing the visitor experience at a tourism attraction or in a museum.

For the purposes of this study, the author applies the final definition of visitor experience developed by Packer and Ballantyne (2016) as the result of a work collecting and analysing 16 definitions and 18 models. The researchers suggested that experience is something subjective, which happens inside the visitor, based on the events and environment. The service provider cannot offer an artificially organized experience, but can only ensure the proper environment, providing the opportunity to live the experience (Walls, Okumus, Wang & Kwun, 2011; Schmitt, 1999), from which the visitors can chose the most important elements for themselves. This also corresponds with the concept of value co-creation by Prahalad and Ramaswamy (2004). Hennes (2010) suggests that the exhibition is not the experience itself, but provides a platform for that. Some researchers consider experience as one moment, others as a procedure. Based on the principle of continuity, Dewey (1938/1963) suggests, that every little experience changes the person, and for this reason has an impact on his/her subsequent experiences. Weaver (2007) supports the holistic view of visitor experience, from the moment of inviting (from the advertisement reaching the potential visitor or the impressions in the parking area) to the final moment (impressions taken home). Packer and Ballantyne (2016) underline therefore, that in any context the author has to clarify whether he/she defines the experience as a whole procedure (planning, participating, remembering) or just one moment or event. According to their ideas, an experience can be separated from everyday events because of its emotional intensity or its temporal and spatial uniqueness, therefore it is not a commonplace event, as Walls and others (2011) mention as one extremity. Packer and Ballantyne (2016) suggest that not all museum visits provide a transformative experience, but while the visitor recalls his/her experience, shows photos to others or appears in the social media in the museum, it becomes a memorable experience. However Mcintosh and Siggs (2005) attribute a higher level of value to the touristic experience, than to the general consumer experience.

As stated earlier, the author uses the definition of Packer and Ballantyne (2016, p. 133), completing it with the importance of the visitor experience, such as the following: "an individual's immediate or ongoing, subjective and personal response to an activity, setting, or event outside of their usual environment" which possesses a higher level of value for the visitor.

Definition of the visitor experience is illustrated in the conceptual framework of Figure 2, showing the key factors associated with the visitor experience and their relationships.

Figure 2. A conceptual scheme of key factors associated with the visitor experience



Source: Packer & Ballantyne (2016)

The size of museum audiences is endangered worldwide as the free-time of consumers decreases, and at the same time, the number of leisure opportunities continuously increases (Kelly, 2005). Several museums suffer from financial problems, which urge them to satisfy better visitors' needs, and to reach higher visitor satisfaction, moreover positive word of mouth. To reach their goals it is important to provide experiences which fulfil visitor's expectations and to create a suitable environment for them.

People consume the same product with different motivations (Holt, 1997). Thyne (2001) proved that museum visitors cannot be considered as a heterogenic target group with the same attributes. In his qualitative research, educational learning objectives appeared as well, although less significantly than in earlier studies. On the other hand, social experience, such as entertainment and the relationship with friends and relatives turned out to be much more important than before. Edutainment was proved to be significant as well. Thyne (2001) underlines that earlier research studies focused on the individual values (e.g. learning), and less on social values (e.g. time spent together), however several visitors arrive principally with this motivation to museums.

Methods of museum interpretation

In the following sections, certain methods will be presented, which help successful museum interpretation, and at the same time support fulfilling museum functions and aims. Among others, interactive devices, hands-on objects, information technology devices and interactive edutainment will be introduced. Multisensory experience, co-creation and methods enforcing different forms of authenticity can also be mentioned. The aim of museum interpretation is to help translating the messages of each exhibition, and to support its understanding with the help of suitable devices.

Interactivity

The phrase of „interactive" derives from the Latin inter + agere words and originally means activity between each other, whether it be two people, two devices or a person and a device. The same activity can be repeated, or depending on the response given to the first one, the second activity can be changed. The aim of interactive devices is not always entertainment, as in the case of edutainment (as discussed below), but attempting to create better understanding, demonstration and depth of new information.

In the last decades, visitors could encounter several dynamic instruments in museums (such as audio-video, hands-on or mechanical devices), which can supplement or replace traditional static ones (e.g. scale-models, photos, descriptions). According to Bradburne (2012) interactivity is not enough on its own, an exhibition has to possess hands-on, minds-on and hearts-on attributes, so that it has touchable objects, intellectually and emotionally engaging topics.

Falk and others (2004) undertook research in the Australian Powerhouse Museum and the Scitech Discovery Centre, in which visitors reported that interactive experiences led to effective learning such as

- they inspire dialogue, communication and co-creation,
- they provide personal feedback,
- they promote learning by doing.

Authors also suggest that if people find interactive exhibits in museums, then the attitude of people towards these institutes ("old", "dusty") can be changed significantly both in the short and long terms.

Involvement

Involvement with a leisure activity represents the perceptions that an individual has of the level of commitment to such activity (Beaton, Funk & Alexandris, 2009). Houston and Rothschild (1978) calls the process „enduring involvement" which encompasses people engaging in and paying attention to a specific situation, object or thing for a relatively long period of time. It refers to a person's constant preoccupation with an activity, which has a special meaning for him/her (McIntyre, 1989).

Forgas-Coll (2017) tested for the first time the relationship between involvement and behavioural intentions in a museum context. Research involving 1091 visitors was executed in the Picasso Museum and at the Míró Foundation in Barcelona. The author concluded that the stronger the visitor's personal involvement in art, the higher his/her satisfaction and the more positive his/her behavioural intentions are.

Hou and others (2005) have also discovered a positive relationship between enduring involvement and the appeal of the destination in the case of cultural tourism destinations. Several researchers also showed a positive relationship between tourism involvement and satisfaction (Lu, Chiu & Liu, 2015; Kim, Woo & Uysal, 2015; Lee & Chang, 2012).

Edutainment

"Learning is a natural and lifelong process, the most basic outcome of which is personal meaning" (Hooper-Greenhill, 2007, p.45). Learning according to Hooper-Greenhill (1999) is the most effective if it happens in entertaining circumstances.

Edutainment is the mix of entertainment and education, which is created to provide a successful and inspiring environment for learning (Jegers & Wiberg, 2003). In industrial society, leisure time was perceived as the remuneration for hard work and was equal to rest. Nowadays people prefer to use their free time for self-development (White, Hayward & Chartier, 2004).

White and others (2004) suggest that edutainment can be an event or a program, where aspects of entertainment are primary, and education is a secondary product. It is hard to find the balance between the two extremities, therefore several researchers are against the concept of edutainment, taking into consideration its risks. In museums, aspects of entertainment might hinder the educational goals (Goodlad & McIvor, 1998) and it can also happen that after a while, people would not be willing to learn without any kind of entertaining activity (Bloom & Hanych, 2002). This can lead to a situation where the audience would not consider learning as a goal, but as an obstacle, which keeps them away from entertainment. Principles of constructivist learning cannot be realized if the consumer does not think over the received information and does not build in his/her mind (Salomon, 1983).

At the same time, many professionals, based on the constructivist learning principles, support interactive devices as an important component of edutainment, as these tools can not only foster learning but can make the audience much more active during the visit (Falk, Scott, Dierking, Rennie & Jones, 2004). Balloffet and others (2014) as a result of qualitative interviews with museum professionals in different countries state that although respondents share worries regarding edutainment, they use the method because of its significant advantages (some of them with grudging acceptance, others with a positive attitude). They suggest ensuring harmony between the display and the artefact itself, moreover "guarding against the commodification of culture and avoiding excessive spectacularization, especially where the sole aim is to boost attendance" (Balloffet, Courvoisier & Lagier, 2014, p.13.).

Addis (2005) suggests that the effectiveness of learning depends highly on the person or museum visitor, who is reached by the message, as he/she decides whether to absorb and how to use the new information. Therefore, the visitor is responsible for what he/she can learn from a visit.

Co-creation

Economic processes are characterized by the service-dominant logic in the last decades (Vargo & Lusch, 2004). The central idea turned out to be dialogue and joint exploration of problems, demand, moreover of finding personalized solutions and co-creating experience. According to Prahalad and Ramaswamy (2004, p. 8.) "co-creation is about joint creation of value by the company and the customer." It is a co-construction of personalized experiences, which means a permanent dialogue about the service, where both the service provider and the consumer work together to co-produce a satisfying result.

Transformation of the focus above seems to be really similar to those regarding the new museology described earlier, such as people at the centre instead of objects, or joint value definition with the visitors instead of museums' privilege of defining value and heritage. Co-creation in a museum context is an important method (Prentice, 2001, Counts, 2009), which allows the involvement of visitors and value co-creation (Thyne & Hede, 2016). According to Goulding (2000) in the frame of an ideal museum visitor experience, visitors are active agents, who consciously participate in the process. Co-creation in a museum context might mean joint experience creation of two visitors or a visitor and a guide/animator. Otherwise it might attribute the collaboration of the museum and a surrounding community, which results in a temporary exhibition. Co-creation can be physical or mental depending on the result of the interaction. Co-creation proves to be an essential element of the visitor experience (Thyne & Hede, 2016), it has also a strong impact on the relationship of perceived value of experience and consumer satisfaction (Prebensen, Kim & Uysal 2015).

Authenticity

Thyne & Hede (2016, p. 1481) refer to the work of Wang (1999) and state that "in the museum sector, notions of authenticity have traditionally focused on whether the objects, or artefacts, were made within the traditions and customs of the culture from which the object originated or by the artist claimed". Museums are often judged by the objects exhibited within their walls (Trilling, 1978), however, instead of the original art pieces, they exhibit for different reasons dioramas, replicas, simulations, models or even inspirational works of other artists based on the original one (Thyne & Hede, 2016).

The new museology suggests that exhibited objects do not exclusively have an effect on museum visitor experience, nowadays people participate much more actively and physically in the visit, instead of being only observers (Hume, 2015). Based on this fact, museums cannot be appreciated only for their authenticity. Wang (1999) does not support the object-based definition of authenticity, but he extends it, focusing on perceived authenticity, which can be influenced by the active participation in different activities. Thyne and Hede (2016, p. 1488) suggest, that "both indexical authenticity and iconic authenticity have potential to be the impetus for co-productive visitor experiences in museums, regardless of the type of authenticity that is most prevalent in the museum". Leigh and others (2006) researching the re-enactment of the American civil war, found that the experience of consumption has an important role in creating perceptions of authenticity. Baron and others (2001) conducted their research in Jorvik Viking Museum, finding that the intangible elements of visitor experience, such as scenery, sounds and scents trigger the most important emotional reactions, and these turn out to be the most memorable parts of a visit. In both of the above-mentioned studies (Leigh, Peters & Shelton, 2006; Baron, Harris & Harris, 2001) the fantasy and the senses of visitors played an important role, and allowed them to participate in joint experience creation with the museum. Counts (2009) suggested that in the so-called iconic authentic exhibitions (Peirce, 1998), where replicas play a role as well, there are many possibilities to involve the visitor, to take replicas in one's hands, and provide interactive opportunities, which allows co-creation. A collection of demonstrational objects (less worthy original pieces) are also available in several museums, enhancing interpretation. Therefore, it is of high importance to design the attraction using original and replicas as well regarding objects, exhibition installation, and environment, in order to ensure visitors' active participation and to intensify visitor experience.

Infocommunication technologies

Infocommunication technologies (ICT), devices and digital content such as multimedia installation, mobile application, augmented reality, virtual reconstruction serve to fulfil a part of the demand of experience-focused visitors. They complete the hands-on attractions, but can also allow invisible or intangible attractions to become visible (such as a virtual tour in a ruined building's reconstruction).

Museums use these kinds of devices in more and more cases due to the fact that ICT strengthens attractivity, improves distinctness, availability and accessibility (Hjalager, 2010). Question is not any more whether to use these devices during museum developments or not, but rather which ones to use, in order to be the most efficient in visitor experience creation, resulting in deeper, richer understanding and stronger involvement (Tomiuc, 2014).

Keeping pace with technological developments would be really expensive for institutes that usually have a tight financial background. For this reason, in many cases, they apply serious ICT devices only in temporary exhibitions, however it would be really vital to provide a strong, attractive permanent exhibition as well, fulfilling the demands of today's visitors and their expectations.

Multisensory experience

Hands-on objects, sounds, scents, interactive attractions (such as roleplaying situations) and dynamic device supplementing exhibited objects have a significant, often flow-like (Csíkszentmihályi, 1990) impact on the museum visitor experience (Harvey, Loomis, Bell & Marino, 1998). In Jorvik Viking Museum (Vi, Ablart, Gatti, Velasco & Obrist, 2017) visitors can enjoy multisensory experiences, by touching objects from the Viking Age, tasting the traditional dried fish, smelling odours, walking around the people and animals living in the Viking centre, and listening to Viking sagas.

Multisensory design enriches the exhibition, ensures the memorability of visitor experience (Eardley, Mineiro, Neves & Ride, 2016, Dolcos & Cabeza, 2002), as in everyday life people are influenced by the same kind of impacts, and because events supported by these factors may be able to engrave better upon one's memory.

Many research studies have been undertaken in a museum context, analysing the application of multisensory devices and their effect on visitor experience (Lai, 2015; Ciolfi & Bannon, 2002; Harley et al., 2016).

Some research (Agárdi, 2019) points out, that people have different touching (haptic) preferences, such as autotelic (experience-seeking) and functional touching, which influences consumer behaviour and might have an impact on museum visiting behaviour as well, as some visitors might enjoy touching objects more, than others.

Physical and social accessibility

An exhibition enriched by multisensory elements provides an important basis for the memorable visitor experience, but also allows disabled people to have an enjoyable visit in the exhibition. The multi-level information transmission also provides a wide range of opportunities for the different visitor groups. According to Hooper-Greenhill (1999) museums and galleries may be the only institutes in the society, which have the possibility to serve the demand of visitors, willing to learn but arriving with a different level of knowledge. An exhibition may be understandable to more target groups (age groups, level of interest, tight timetable), if the institutes pay attention to the principles of "easy to read" and "easy to understand".

Several research studies have been conducted, analysing the role of the above presented interpretation methods, which are an integral part of experience. Some of them proved to have a direct impact on visitor experience, such as interactivity and edutainment on learning experience (Falk et. al, 2004), or multisensory exhibitions on experience in general (Lai, 2015) or authenticity on co-productive visitor experience (Thyne & Hede, 2016). In some cases they influence directly the visitors' behavioural intentions, such as involvement (Forgas-Coll, 2017). The author's aim is to place these concepts in the experience model of Pine and Gilmore (1998) presented below.

Measuring visitor experience

Several studies attempt to measure and define museum experience and to use empirical research to examine the validity of them. It is important to measure the visitor experience, which is a central concept of new museology, focusing on people and taking into consideration the diverse experience deriving from the different functions of the institutes.

The models examine the factors of museum visitor experience and the external elements which have an effect on it. The basis of the models' construction can be different as well, as some authors analyse the factors influencing the experience, others the temporary identities taken during the visit or the type of the experience. One can discover overlapping models, as several dimensions appear in many schemes.

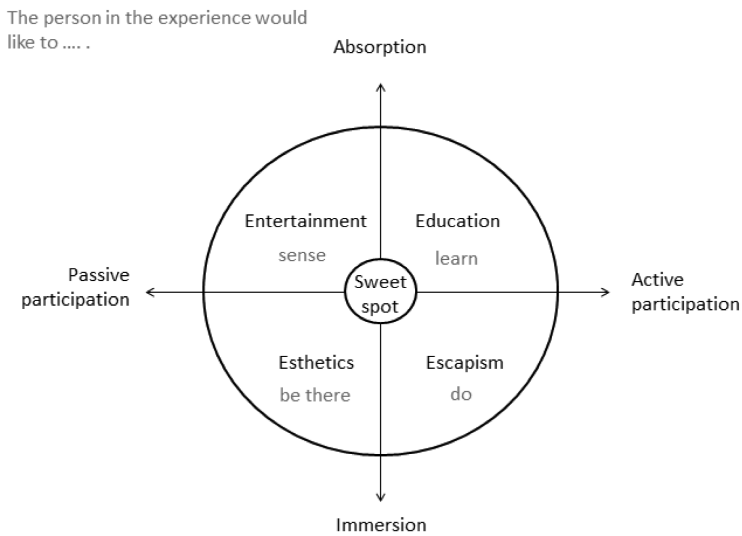
The author intended to find a place in the models for those interpretation methods, which turned out to be important regarding the perceived experience of visitors. Pine and Gilmore's (1998) experience model was used several times in the context of museums and therefore provided an opportunity for illustrating the significance of the above mentioned interpretation methods, by placing them in one of its dimensions.

The four dimension visitor experience model of Pine and Gilmore (1998)

The focus of the author's doctoral research is the refinement of the four dimension visitor experience model (4E model) introduced below. In 1998, B. Joseph Pine II and James H. Gilmore published their study, "Welcome to the experience economy" in Harvard Business Review. The study had a significant impact on the development of consumer experience literature, the pioneer role of which was examined by Ferreira and Teixeira (2013) in the frame of a bibliometric analysis.

According to the model of Pine and Gilmore, the experience should be standardized on the basis of two attributes: the type of participation (active, passive) and the type of relationship connecting the person with an event (absorption, immersion). Based on these two axes, the authors set up a four dimension model, in all realms of which one type of the experience can be found, such as entertainment, education, esthetics, escapism, as shown in Figure 3. In the middle of the 4 realms the sweet spot can be found, which is considered to be the richest experience.

Figure 3. Four dimensions of experience



Source: own compilation based on Pine and Gilmore (1998)

The abstract name of the attributes on the second axis (absorption, immersion) sometimes causes difficulties by placing the different types of experiences in the model. In order to enhance understanding the author would suggest to use the phrase "mental immersion" instead of absorption and "physical/virtual immersion" instead of immersion. These labels would not change the original intentions, but would simplify the idea of whether "the experience goes into the guest […] or the guest goes into the experience" (Pine & Gilmore, 1999, p. 31)

Entertainment

The realm of entertainment is characterized by the absorption or mental immersion, in which the experience "goes into" the person through his/her senses. The person in this case is an outsider, who cannot influence the outcome of the event. Entertainment is for example watching the 3D movie in the village of Edelény about the history of the L'Huillier-Coburg Palace and the largest rococo mural of Hungary.

An expressive train of thoughts is illustrated in Figure 3., such as what the person participating in the experience would like to do in the different realms: sense, learn, be there, do.

During entertainment experience, the person would like to sense (Pine & Gilmore, 1999), however the author would question whether during an entertaining, but passively enjoyed performance, the person would only like to listen to/look at the event and the environment. As soon as the other senses become involved (a multisensory experience is formed), then physical immersion starts to happen, therefore the person is getting closer to escapist experience. Following this logic, sensing might be already the attribute of the escapism realm.

Educational experience - Edutainment

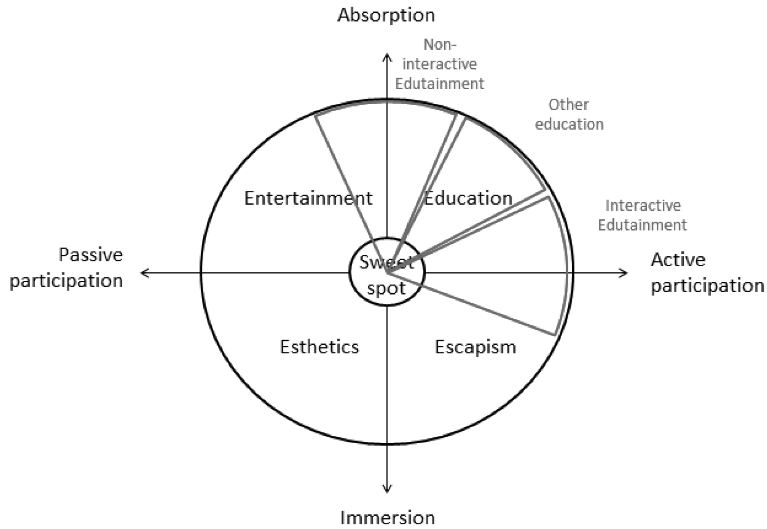
In the realm of education, an active participant is needed, so that the result is a real experience. The educational event has to engage the learner. Learning is not necessarily desired by the person, but he/she has to be open towards the new information, as knowledge or skills often absorb the person unwittingly. During this kind of experience, the learner is immersed mentally, would like to learn, and experience derives from the success and the new knowledge.

Learning is a serious procedure, though that does not mean that it cannot be entertaining, which is illustrated by the concept of edutainment, introduced above. Where would edutainment be placed within the 4E model? Radder and Han (2015) suggest, that it is the mix of the education and the entertainment realms, which can be considered as only one dimension in this case. The author would argue that, analysing the different dimensions. During educational experience the learner is immersed mentally, however during physical education, such as a sport training, the person is immersed physically, but Pine and Gilmore (1998, p. 102) suggest that "students are still more outside the event than immersed in it", maybe because it is a conscious, concentrated activity. On the other hand, many people consider training (whether it is educational or just fitness, jogging) as something like an escapist activity, when people totally forget about themselves. Therefore, it is possible that some forms of educational experience might appear in the realm of escapism. The idea is also confirmed by White and others (2004), who consider three types of edutainment:

1. interactive, participative (e.g. living history program as a participatory theatre in the Hungarian Open Air Museum of Szentendre),
2. non-interactive (e.g. watching a film about the excavations of the ruined area in Pompeii),
3. combination of the two types (e.g. reading the story about the horse which fell in one of the canals of Amsterdam in the 19th century, after which the visitors can pull the scale-model of the horse out of the water by an elevating machine, Amsterdam Museum).

Based on the previous train of thoughts the different types of educational experience can be separated as illustrated in Figure 4.

Figure 4. Representation of edutainment and education in the experience model of Pine and Gilmore



Source: own compilation based on Pine and Gilmore (1998)

Type no. 1., interactive, participative edutainment means an educational experience which is characterized by physical immersion, which can be placed in the intersection of escapism and education.

Type no. 2., non-interactive edutainment which can be placed in the intersection of entertainment and education. These experiences build on mental immersion.

Type no. 3., the combination of the two types can be achieved during a complex program, where both interactive and non-interactive elements can be enjoyed.

"Other education" category on Figure 4 is not part of edutainment, it is only learning without an entertaining attribute, which remains fully in the education realm.

Physical involvement, the above defined interactive edutainment is the same concept as the so- called learning by doing, which usually ensures better understanding than mental involvement. Pine and Gilmore (1999) also state that a laboratory experiment can already be considered as immersion, while a school seminar means only education. Difference can derive from the following: during an escapist experience people do not concentrate but release themselves, let themselves unconsciously become immersed in the event, on the other hand a learner practises self-control even while doing a physical training.

Escapist experience

Escapism is much more immersive than entertainment or education, the person can immerse him or herself totally in the experience, being an active participant in it. A good example for this dimension might be the dressing up in costumes in Blair Castle of Scotland or the experience of virtually conducting the Vienna Philharmonic Orchestra in the House of Music in Vienna, where the musicians react in real time to the good or false performance of the visitor.

Escapism derives from the word "escape", by which Pine and Gilmore allude to escaping from the real world or everyday life through the help of the experience. People, instead of sitting at home and watching how others participate in an activity, become parts or actors of the events. According to Pine and Gilmore (1998) typical spaces for an escapist experience are theme parks, chat rooms, virtual headsets, casinos, or even a forest in the neighbourhood while playing paintball. Once a huge attraction was seeing the story of a book in the cinema, with increasingly bigger screens, better sound effects or from more comfortable seats. Nowadays, 4D cinemas attract the audience where people can be part of the movie, step into another world, their seat moves together with the story, and they are surrounded by sound and other effects (e.g. water drops, cold/warm breeze). High tech cinemas were followed by motion simulator rides, which were generally based on popular adventure movies or sci-fi (such as Star Wars, The Magic Carpets of Aladdin, Back to the Future) and by other experiences in the virtual reality. In contrast with the phrase, people do not only escape from somewhere, but they also arrive in another world, where enjoyable experiences await them, however getting away from their own world is a really important part of the experience itself. Pine and Gilmore consider part of the category those who try extreme sports, who do not just lie on the beach during their holiday but also try windsurfing, climbing mountains, do rafting, etc. They consider casinos as outstanding spaces of escapism, where gamers lose their barriers and risk their money with excitement in a world far away from the everyday.

Following the logic of Pine and Gilmore (1998) in the frame of the escapist experience people would like to do something, be a physically (virtually) active part of an event.

Esthetic experience

The fourth realm of the 4E model is esthetic experience, in which the individual is a passive participant of the experience, but becomes physically (or virtually) immersed similarly to escapism. In contrast with the latter, the person is a passive outsider, who leaves the environment untouched, but not him/herself, as the spirit is engaged by the esthetic experience, therefore mental involvement can happen in some cases. As the person does not have an effect on the environment, therefore he or she does not influence the outcome of the events. Esthetic experience is walking in the beautiful botanical garden of Szarvas or visiting the renovated, amazing Roman Hall of the Museum of Fine Arts in Budapest. In the esthetic realm, the person would like to simply be there in the environment, the harmonious attribute of which creates the experience.

The visitor of an attraction can choose one of the four realms, but can also combine one after another or in parallel. The service provider has the opportunity to build up the surroundings of the experience (Walls et al., 2011) inspiring the visitors to choose the most relevant and interesting elements and create their own, unique experience. It depends on the visitors' previous experiences and motivation which elements they would select from the offer (Packer & Ballantyne, 2016) to create their immediate and subjective experience. It is up to the person what he/she chooses from the wide range of opportunities. If in a science centre people can measure the energy produced by the movement of a person, then it would depend on the individual whether he/she would get on the bicycle and operate the machine or just watch other people doing so.

The 4E model was tested in the field of tourism for the first time by Oh and others (2007), who had not found an earlier valid measurement scale regarding the model. Since then, measurement methods based on the 4E model were used several times in the different fields of tourism (Oh, Fiore & Jeoung, 2007; Jurowski, 2009; Mehmetoglu & Engen, 2011; Willard, Frost & Lade, 2012; Radder & Han, 2015; Suntikul & Jachna, 2016; Ásványi, Jászberényi & Bodnár, 2017; Ásványi, Mitev & Jászberényi, 2018).

Analysis of the escapism realm of the 4E model

Application of the model in different fields of studies might be diverse. Escapism has three main meanings in the analysed literature:

1. active immersion itself, based on the original categorization of the 4E model,
2. escaping into the virtual world,
3. escaping from the everyday problems.

Interpretation of escapism in the 4E model is much more restricted than the potential significance of this dimension regarding a tourism experience. This segment (*active immersion*) integrates the most important methodological principles which were collected in connection with museum visitor experience, such as interactivity, involvement, multisensory experience, interactive edutainment.

Based on the literature, Pine and Gilmore seem to consider *virtual experiences* the most relevant regarding consumer experience, which is misunderstood by many researchers. However the authors even stated later, in 2013 that a "mistaken interpretation: assuming that all experiences must necessarily trend toward the inauthentic or the virtual" (Pine & Gilmore, 2013, p. 32). It is even contradictory to their train of thoughts, according to which during an escapist experience the participant would like to "do" something. In this case, he/she can only do something virtually, not in the real world. In the study published in Harvard Business Review (1998) by Pine and Gilmore, the virtual world does not appear to be really relevant in contrast with the book (1999), therefore in another part of the later research studies based on Pine and Gilmore virtuality was overlooked as well.

The phrase "escapist" is really evocative, meaning *getting/running away* (originally it meant escaping to a "third world" for Pine and Gilmore), therefore it is logical, that most of the researchers who worked with the model later derived the interpretation from this meaning. However, meaning itself can be misleading in the field of tourism. Escapism as one of the basic motivations of traveling is involved in one of the segments of the experience model. Although escapism is a kind of motivation, which attributes the activity as a whole, independent from whether it has a result of esthetic, entertaining, educational or escapist experience.

Escapism as a general tourism motivation

Escapism, meaning getting/running away, stepping out of somewhere can be identified with one of the most general and cited motivations for tourism and travelling, as Oh and others (2007) also confirm it referring to the mass tourism paradigm of Prentice and others (2004). Stamboulis and Skayannis (2003) suggest that tourism is mainly about experience, which is enjoyed during cognition, visiting, observation of other, unknown forms of lives. According to Cohen (1979) one of the most vital motivations of traveling is searching for meaningful life and/or for the self-centre elsewhere away from daily life. Gross (1961) and other positive functionalist researchers consider the escape of tourists as a leisure activity, that is crucial to the healthy operation of life and society. In contrast, Boorstin (1964) and MacCannell (1973) state that people live false and alienated lives, and sometimes run away from this unhappy world to other cultures and countries to search for a more authentic and satisfying life. Tourists may want to get rid of the norms and values that restrict their everyday life when they step out of their usual environment or maybe they want to take a look at their own lives and societies from different perspectives. Kulcsár (2015) also states that every tourism activity partly involves the feeling of getting away from the regular way of life, during which the traveller wishes to participate in an intensive and positive experience, which he/she can recall later, back in the everyday.

Construct of escapism in different measurement scales

The construct of escapism or other phrases, which can be identified with it (such as playfulness, evasion) are used in several measurement scales, in which the definition of concepts are diverse (Oh et al., 2007; Mehmetoglu & Engen, 2011; Kang & Gretzel, 2012; Shih, 2015; Radder & Han, 2015; Semrad & Rivera, 2016; Suntikul & Jachna, 2016; Sipe & Testa, 2018). The construct of escapism is composed usually of the following concepts in the different scales:

- to completely escape from one's daily routine,
- to feel immersed in a different reality,
- to feel like in another world,
- to get away from it all,
- to forget all about time,
- to forget everything else,
- to feel like living in a different time or place.

The statements above also confirm that the dimension of escapism, apart from some exceptions, is usually not described by the authors with the originally defined concepts, focusing on physical/virtual active participation.

Escapism in a museum context – systematic literature review

In order to discover the different meanings of escapism, a systematic literature review was conducted examining studies published between 2008 and 2018.

Initial research (1. filtration)

During the refinement of the research process and criteria, the first filtration of the literature review was executed. Studies were filtered from EBSCO database based on the following criteria: published in academic journals, between 2008 and 2018, including phrases of Experience and Escapism in any of the primary sections[ii]. In the initial review the automatic filtration of EBSCO database resulted in 59 articles, which suited the above listed criteria. Distribution of the studies based on topics is illustrated in Figure 5.

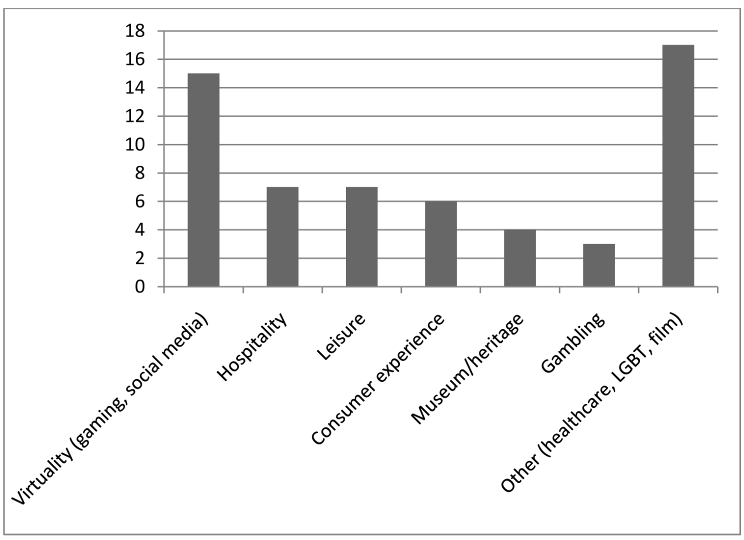
It is important to recall that in the original interpretation of escapism in Pine and Gilmore's model (1999) they focus on experiences, which can be enjoyed in casinos (gambling) and virtual worlds (computer games, social network, etc.). This also enhances the idea that in the literature the phrase of escapism is often identified with the virtual world and gambling-focused fourth dimension of Pine and Gilmore. However the filtration needed to be refined as only 4 articles related to museums and heritage, therefore the author decided to modify the search criteria.

Main research (2. filtration)

The main filtration involved academic journals, published between 2008 and 2018, including all of the following four words at least once: Experience, Escapism, Pine, Museum. The filtration resulted in 44 articles, the analysis of which is summarized below.

The articles were ranked based on their SciMago Journal Rank (SJR) values, which has become widely used in the last few years. The analysed database included 19 articles ranked Q1, 8 articles ranked Q2, and 7 articles ranked Q3, based on their SJR values of 2017. According to the country of the first author's university or institute most of the articles originate in the United States of America (10) and the United Kingdom (13), among the studies 23 articles derived from Europe. Regarding the year of publication, most of them were published in 2012-2013 (6-6), in 2010 only one, but in total their distribution between 2008 and 2018 was balanced. The topic of the articles was diverse, 7 of them were about museum and heritage tourism however, all of the studies in the database included the word museum. 11 other articles concerned the tourism industry (consumer experience, tourism attraction, other

Figure 5. Distribution of topics based on the initial systematic literature review



Source: own compilation

tourism destinations). 14 articles were art-related (visual art, theatre, literature, film, etc.), 11 articles tackled other topics, such as history or health-care, and 1 piece was written about virtuality. 24 studies involved theoretical research, 17 pieces empirical research, of which 10 were quantitative, 8 qualitative and 1 piece was conducted with mixed research methods.

The aim of the review was to discover in what kind of context escapism as an experience dimension was used in the last 10 years, in what kind of models was it applied and how many researchers focused on it. Results show that the interpretation of the author (active involvement) does not appear at all in the studies, in opposition with the meanings of "getting away", "escaping from the everyday", "running away from problems".

At the same time, it is confirmed that the phrase escapism is usually used for the above listed meanings, whether it is part of an experience dimension or an element of it or a totally independent context from that. In several cases, escapism is not even defined, therefore its general meaning can be applied, deriving from the Oxford English Dictionary *„The tendency to seek distraction and relief from unpleasant realities, especially by seeking entertainment or engaging in fantasy."*

5 articles applied in the frame of their research the measurement of perceived experience based on the 4E model. 8 other articles considered important the measurement of experience, but applied different experience models, out of which 5 studies attempted development of measurement scales or intended to improve an existing model in a specific field of research.

19 articles used the word escapism according to the same interpretation as in Pine and Gilmore's 4E model (1998), all the other articles used a different meaning, several times identifying with its general meaning (i.e. as defined by the dictionary).

Out of the 44 examined papers, 10 articles turned out to be directly relevant to the present research focusing on the 4E model, adding important information to the general literature review above. These 10 articles either used the 4E model to measure the experience in the context of tourism, applied a different experience model while referring to Pine & Gilmore as well or added important information about the concept of escapism but without measuring experience. As a summary, Figure 6. includes the 10 articles which were directly relevant to the main focus of the research, as well as 6 of those that were not directly relevant, but helped to clarify the concept of escapism.

Figure 6. Summary of articles focusing on measuring experience in the systematic literature review

	Reference	Field	Relevance of article to the main focus of the study	Research topic	Research type: Empirical (Qualitative, Quantitative, Mixed) or Theoretical	Experience measurement using 4E model or another model	The paper used the phenomenon of escapism according to its meaning in the 4E model (4E) or different (other).	Research result
1.	Jászberényi, Ásványi & Bodnár, 2018	museum/heritage	Relevant	to study what types of consumer experiences foreign tourists gain in a museum based on tripadvisor feedbacks	qualitative	Measuring using 4E model	4E	In the Hungarian National Gallery the consumer experience is mostly characterized by educational and aesthetic experience, which is complemented by the entertainment experience, but the escapist one is completely absent.
2.	Haiyan & Jasper, 2018	consumer experience	Not relevant	scale development to measure mallshopping experience	mixed	Scale development based on various models	4E	The authors established reliability and validity of the scale and found support for the effects of shopping experience on mall patronage.
3.	Forgas- Coll, Palau- Saumell, Matute & Tárrega, 2017	museum/heritage	Relevant	to develop an integrated model that examines how service quality, perceived experiences and enduring involvement determine tourists' behaviour	quantitative	Model development using Kang & Gretzel (2012): learning, enjoyment, escape (evasion)	4E	The results suggest that visit experience, service quality and involvement are drivers of satisfaction. Visitors' level of art involvement negatively moderates the influence of perceived quality and experience on tourists' satisfaction.
4.	Shih, 2015	museum/heritage	Relevant	to perform the comparative analysis of the consumer perceptions on experiential marketing, experience values and attribute design toward three targeted branding experience museums in Taiwan	quantitative	Integration of 4E and Mathwick, C., Malhotra, N. K. & Rigdon, E. (2001, 2002). - Playfulness (escapism, enjoyment)	4E	The results proved that action experiential marketing, consumer return on investment, service excellence and location convenience of branding experience museums are helpful for consumer loyalty intention.
5.	Suntikul & Jachna, 2016	museum/heritage	Relevant	to study the experience profile of visitors in individual attractions and complex historic centre	quantitative	Measuring using 4E model	4E	Reveals distinctions between the experience values of members of a subset of the tourism amenities of a destination (in this case, the heritage properties of Macao's Historic Center) and provides insights into personal attitudes towards the place.
6.	Derbaix & Gombault, 2016	museum/heritage	Not relevant	to study how visiting a particular heritage-based attraction becomes an authentic experience through consumer's imaginative processes	qualitative	Model development based on literature and deep interviews	other: aesthetic consumers search for authenticity by escapism through imaginative daydreaming	Results show that material dimensions (e.g. the studio setting, familiar objects, and guides) mixed with immaterial dimensions (e.g. Cézanne's aura, stories, and atmosphere) facilitate consumers' imagination through immersion, embodiment, and narrative transportation, creating an authentic experience.
7.	Mehmetoglu & Engen, 2011	museum/heritage	Relevant	to empirically examine the applicability of the 4E model in two tourism contexts (museum, festival)	quantitative	Measuring using 4E model	4E	The findings show that different experiential dimensions influence the visitors' overall satisfaction in different contexts.
8.	Taheri, Gori, O'Gorman, Hogg & Farrington, 2016	other tourism destination	Not relevant	to develop and empirically test a conceptual model that investigates the process of experiential consumption (creating an Experiential Liminoid Consumption (ELC))	quantitative	Use of Experiential Liminoid Consumption (ELC) model	4E and other	The creation of a space by nightclub managers and marketers that encourages an experience characterised by aspects of the liminoid, such as feelings of social subversion, the spark and energy of spontaneous communitas, and the feeling of freedom of choice (optionality), will lead to heightened pleasure and arousal, and to repeat business.
9.	Capitello, Agnoli, Charters & Begalli, 2017	other tourism destination	Relevant	to analyse the city image as perceived by tourists by exploring the sources of experienced or expected utility.	quantitative	Measuring using 4E model	4E	German visitors' favourite experiences mainly include the most attractive tourist sites of Verona and its typical food and wine production. However, current and potential visitors attached different importance to these experiences and showed a varying willingness to pay. The study discusses the role of tangible and intangible components acting as pull factors for new visitors and those favouring visitor loyalty.
10.	Manthiou, Kang, Sumarjan & Tang, 2016	other tourism destination	Not relevant	to investigate the relationship between hotel guests' brand experience, knowledge and loyalty to name-brand hotels	quantitative	Model development based on Brakus, Schmitt & Zarantonell (2009)	4E	Brand experience was represented as a holistic concept with sensory, affective, behavioral and intellectual aspects. While brand experience influences brand loyalty, its impact is partially mediated by brand knowledge.
11.	Walmsley, 2011	art	Not relevant	to explore the fundamental drivers behind theatregoing and to fill a gap in the literature on audience motivation	qualitative	Model development based on Morris Hargreaves McIntyre (2007)	4E	The research finds that the key motivating factor for participants was the pursuit of emotional experiences and impact.
12.	Chauhan & Manhas, 2014	consumer experience	Not relevant	to examine the nature and extent of customer experience in civil aviation sector.	quantitative	Model development based on various models	other, but 4E is important part of analysis	Customer experience is a multidimensional construct. It further suggests that there is a significant impact of experiential dimensions on overall customer experience and there exists a significant difference on the basis of airlines regarding customer experience.
13.	Hawkins & Davis, 2012	consumer experience	Relevant	to discuss how the concept of experience goods could be integrated conceptually into innovation studies.	theoretical	Did not measure experience	4E	Drawing on the literature of marketing, consumer research, and cultural economics, various dimensions of experience as a factor in innovation are mapped onto Schumpeter's innovation typology.
14.	Ritchie & Hudson, 2009	consumer experience	Relevant	to provide a framework fot better understanding and identifying the major challenges we face in consumer/tourist experience research	theoretical	Did not measure experience	4E	The paper categorised extant knowledge into six main streams of theoretical thinking and empirical research.
15.	Huang, Scott, Ding & Cheng, 2012	art	Relevant	to examine the effect of mood on satisfaction derived from experiencing an iconic and immersive cultural performance	quantitative	Measuring using 4E model	4E	Mood, together with visitor expectations and performance evaluations, was found to be significantly related to satisfaction and future intentions to recommend the show to others.
16.	Leask, Fyall & Barron, 2014	visitor attraction	Relevant	to analyse the profile and patterns of consumption of Generation Y, their consumption experiences and the role of information communication technologies and social media in determining their emerging patterns of behaviour at visitor attractions	theoretical	Did not measure experience	other	Paper identifies core generational traits, patterns of consumption, attributes of consumer experience, ICT and social media use of Generation Y. it suggests to revitalize research in the broader domain of attractions and the means by which different generational cohorts generally, and Gen Y in particular, are likely to shape and influence their modus operandi in the future.

34 articles from other fields of studies were irrelevant from the point of view of the present research, mentioning escapism only in its general meaning, containing the words "Pine" and "museum" only in reference or as an example.

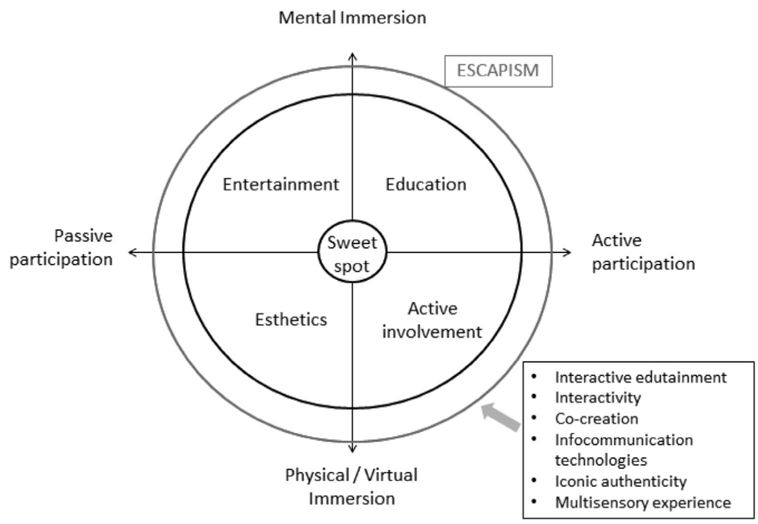
Refined concept of the 4E model

In the frame of the present work, the author suggests the refinement of Pine and Gilmore's 4E model, therefore escapism is considered as a factor that encompasses all the four dimensions and the fourth dimension is suggested to be renamed, using the phrase, "Active involvement" instead of escapism. As suggested earlier, instead of the phrases absorption and immersion the author would use mental immersion and physical/virtual immersion. The conceptual scheme is illustrated by Figure 7.

The author states that active involvement might be both physical and virtual, considering the opportunities crucial for physical involvement, mainly in a museum context, in contrast with the virtual-focused aspect of the original model. The author also suggests that this dimension is enhanced by the different methods of interpretation introduced above:

- Interactive edutainment (Learning by doing),
- Interactivity,
- Co-creation,
- Infocommunication technologies,
- Iconic authenticity – replicas,
- Multisensory experience.

Figure 7. Refined conceptual scheme of Pine and Gilmore 4E model



Source: own compilation based on Pine and Gilmore (1998)

Escapism is used in the refined model as one of the most significant tourism motivations (Oh et al., 2007), such as getting away from the hustle and bustle of everyday life. It is an encompassing factor, not limited to one dimension, which relates to all the realms, therefore can be detected in the visitor enjoying any kind of experience. As Oh and others (2007) mentioned, it does not matter where the tourist goes or what he/she does, getting away from everyday problems is part of his/her motivation, therefore the experience itself is not significant at all. In conclusion, it would not be appropriate to build on this factor while measuring experiences.

Conclusion

From the 1970s until nowadays in the field of museum studies a change of paradigm could be observed, which led to the new museology. Professionals have faced financial problems of sustainability, therefore focused on enlargement of the audience, new functions of leisure and entertainment, moreover the possibilities of increasing visitor numbers. These processes urged them to develop an experience design, which fulfils the demand of visitors.

The author concentrates on the model of Pine and Gilmore (1998), based on which several measurement scales were developed to measure experience. The concept of edutainment is placed in the model, which may appear in three experience realms depending on its attributes. The literature was analysed about the dimension of escapism and its three different meanings (active involvement, escaping into the virtual world, escaping from everyday problems), concluding that in a museum context the most significant meaning is active involvement. This is enhanced by the different methods of interpretation, such as interactive edutainment, multisensory experiences, co-creation, etc., which have a strong impact on perceived visitor experience and the behavioural intentions. The systematic literature review also confirms that the other two meanings of escapism (escaping into the virtual world, escaping from the everyday problems) appear the most in the literature. The author refined the 4E model by replacing escapism (as a general tourism motivation) to be an encompassing factor, not limited to one dimension, relating to all the realms. The fourth dimension of the model would be labelled by the phrase active involvement (physical and virtual as well).

The theoretical contribution to the literature of museum visitor experience is that escapism appears in all the dimensions of experience as a general tourism motivation. A better understanding of visitor experience might be reached through identification of an active involvement dimension. However, there was some measurement of the impact of the interpretation methods onto experience (Falk et al., 2004; Forgas-Coll, 2017; Prebensen et al., 2015; Thyne & Hede, 2016; Leigh et al., 2006; Hjalager, 2010), but they were not included in the complex visitor experience model. Locating precisely edutainment in the 4E model also improves the measurement of visitor experience in a museum context. Managerial contribution of the research might be that using suitable interpretation methods and by that providing ideal circumstances for the desired experiences, serve better the needs of the museum visitors. This might broaden the audience base, optimize the use of resources and therefore enhance museums' competitiveness.

The limitations of the study create opportunities for further research. The validity of the refined 4E model of Pine and Gilmore will be empirically tested.

A more detailed analysis of the other three dimensions of the 4E model might confirm their current place in the model and therefore support better the refinement of the model. A similar structured review of the literature as it was done for escapism might reveal better how the concept of active involvement appears in the literature. Systematic analysis of visitor experience models focusing on active involvement might reveal in which dimensions and concepts the phenomenon appears.

Pine and Gilmore (1998) placed the sweet spot as the richest experience in the intersection of the four dimensions of their model. The author suggested that it is true from the supply side, but probably regarding the demand side, the place of the sweet spot is always depending on the consumer. This is also pointed out by Zátori (2014a), who suggested, that not all the four dimensions are needed for the output of the experience, which was also concluded in a qualitative empirical research with guided tour service-providers in Budapest (Zátori, 2014c). It is also worth considering whether there is a hierarchy among the dimensions, or maybe one could also develop a kind of Maslow-pyramid of the experience. For example, is the esthetic dimension a basic requirement, as a disharmonic environment might destroy the whole experience? Would it be followed by the entertainment dimension (with friends/relatives or alone), which also seems to be a vital expectation of visitors? Is the learning experience the next step, which results in a satisfying outcome of the visit, whether it is new information, skills of better self-recognition? Is active involvement, physical/ virtual participation the highest level of experience? A potential future research study is suggested to investigate these questions.

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Endnotes

i The research was expanded to the time period of 2000-2018 as well, in order to control the results, and only one additional relevant article was found regarding the topic of the article.

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MÁRIA M. WITTINGER

FEATURES OF SUPPLIER MANAGEMENT AND ITS MECHANISMS –
INSIGHTS IN HUNGARIAN PRACTICE: HOW TO ENHANCE THE EFFECTIVENESS OF PROCUREMENT PROCEDURES?

A SZÁLLÍTÓ MENEDZSMENT JELLEMZŐI ÉS MECHANIZMUSAI –
BETEKINTÉS A MAGYAR GYAKORLATBA HOGYAN LEHET JAVÍTANI A BESZERZÉSI ELJÁRÁSOK HATÉKONYSÁGÁT?

Considering the risk how serious consequences could occur in case of supply problems, the increasing importance of suppliers in supply chains is indisputable; therefore, management of relationships and selection and evaluation of suppliers are seen as crucial strategic issues (Araz & Ozkarahan, 2007). The practice/activity – and theory – how to handle the suppliers is the so-called Supplier Management (SM).
The article presents the findings of research investigating the actual practice of SM in the inquired procurement organizations. The theoretical contribution of the paper is to compare the practice of these particular organizations with the literature in order to state the coincidences with it or the discrepancies between them, in other words, to reveal the status of purchasing work. The managerial implication – on this basis – is to be a compass for practitioners where to find the deficiencies (if any) and how to strengthen the effectiveness of procurement by a better understanding of the problems; also, the paper formulates suggestions for a more efficient SM practice. The author argue that the procurement processes in terms of SM have deficiencies which can be originated from its component parts: i) supplier evaluation; ii) cooperation; and iii) IT platforms.
She applied survey research while the answers of the survey were analyzed applying comparison to the literature and using Cross-table analysis to reveal the connection among the stated SM factors.

Keywords: Supplier Management, supplier evaluation, supplier selection, cooperation, IT platforms

Figyelembe véve annak kockázatát, hogy milyen súlyos következmények léphetnek fel ellátási problémák esetén, a szállítók növekvő fontossága az ellátási láncokban vitathatatlan; ezért a szállítói kapcsolatok kezelése, a szállítók kiválasztása és értékelése stratégiai kulcskérdéseknek tekintendők (Araz & Ozkarahan, 2007). A tevékenység/eljárás – és elmélet – , amellyel a szállítókat kezeljük az úgynevezett szállító menedzsment (SM).
Jelen cikk annak a kutatásnak az eredményeit mutatja be, amellyel megvizsgáltuk az SM tényleges gyakorlatát a megkérdezett beszerzési szervezetekben. A tanulmány elméleti hozzájárulása az, hogy összehasonlítja a kiválasztott szervezeteknek a konkrét gyakorlatát az irodalommal, hogy megállapíthatók legyenek a közöttük lévő egybeesések vagy éppen különbözőségek, annak érdekében, hogy felfedjük a beszerzési tevékenység valós állapotát. Előbbiek alapján a tanulmány gyakorlati vonatkozása, hogy iránymutatásként szolgáljon a szakemberek számára, a hiányosságok (ha vannak ilyenek) hol találhatók és hogyan lehet a beszerzés hatékonyságát növelni a problémák jobb megértése által, illetve a cikk javaslatokat is megfogalmaz egy hatékonyabb SM-gyakorlatra vonatkozóan. A mellett érvelünk, hogy a beszerzési folyamatoknak vannak hiányosságai az SM szempontjából, amelyek ennek alkotóelemeiből származtathatók: i) szállítók értékelése, ii) együttműködés és iii) informatikai platformok.
A felmérés kérdőíves kutatással készült, amelynek eredményeit egyrészt összehasonlítva a szakirodalommal, másrészt kereszttáblás analízist használva elemeztük, annak érdekében, hogy lehetőség adódjon a meghatározott SM-tényezők közötti kapcsolatok feltárására.

Kulcsszavak: szállító menedzsment, szállítók értékelése, szállítók kiválasztása, együttműködés, IT-platformok

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In today's turbulent environment, the necessity to sustain and to further enhance the competitive ability of a company is unquestionable (Trkman & McCormack, 2004). Therefore, there is a continuous competition among companies to gather benefits from this race in order to increase competitiveness as much as possible; in Hungary – the same as elsewhere – the companies should choose how to do this: on their own possibilities/assets, in alliances with other companies (as corporations, joint ventures or subsidiaries), or even by becoming a destination of the foreign direct investments in Central and Eastern European region (Lőrincz, 2018).

The work of the procurement organization affects strongly the competitiveness since the purchasing area has the role to manage corporate costs efficiently, to perform these purchases in a cost- and time-effective manner. Also, procurement managers cannot disregard the continuously and rapidly changing environment and the phenomenon that the supply patterns can fall overnight (Kraljic, 1983), therefore the most complex and maybe the most critical part of the purchasing work is the management of supplier relationships (Handfield et al., 2009).

Due to the market changes *"in organizations of the future, world-class operations will require world-class supply management and suppliers"* (Carter et al., 2000, p. 22). Therefore, *"without a foundation of effective supply chain organizational relationships, any effort to manage the flow of information or materials across the supply chain is likely to be unsuccessful"* (Croom et al., 2000, p. 73). As a consequence, the role of the purchasing function in the business has significantly increased in importance due to the emphasis on building and maintaining long-term relationships with external partners (Cousins, 2002; Bendixen & Abratt, 2007; Handfield et al., 2009).

Considering the depicted responsibilities of procurement, the paper seeks to compare the actual practice – in terms of SM – of purchasing professionals to the recommended features of literature, in order to confirm the coincidences or to depict the discrepancies; the endeavor of this article is to be a support both for practitioners and for scholars; for practitioners in that sense how to avoid the improper routines or how to follow the suggested behaviours; for scholars to see the actual processes in practice.

To enlist the undertaken tasks, the article is organized as follows: the first chapter is to give a general description about the topic and its importance, while Chapter II. introduces the concept and the notions of Supplier Management in the literature. In Chapter III. we depict shortly the characteristics of the survey and the research methodology, then, in Chapter IV. we draw up the research hypotheses, and the fifth chapter depicts the findings of the survey. In Chapter VI. we summarize the research findings and we offer some concluding remarks, while the last one shows insights in terms of theoretical contribution and practical implications, furthermore to the limitation of the research.

Concept and literature of Supplier Management

Purchasing decisions will affect core activities of the company such as production planning and control, inventory management and logistics (Govindan et al., 2010), therefore will have a significant influence on the whole competitiveness of the company.

The main goals of supplier relationship management processes are to reduce purchase/supply risk, to maximize value to customer, to give importance to strategic sourcing, to build long-term strategic relationships between buyers and suppliers and to improve delivery, quality and cost performance of the product (Kraljic, 1983; Ganesan, 1994; Snehota & Håkansson, 1995; Dyer & Singh, 1998; Bensaou, 1999).

To achieve all the above goals, we argue that in terms of Supplier Management – as the essential and main part of the purchasing work – we can distinguish different activities and/or aptness as follows:

1. Supplier selection and evaluation: as the crucial parts of Supplier Management strategies (Lee et al., 2001; Choi & Kim, 2008) means the internal activities of purchasing organization to properly handle suppliers;
2. Cooperation: as the other main part of Supplier Management strategies (Bensaou, 1999; Chen et al., 2006) means the external activity of the organization in connection with suppliers;
3. IT platform: is the aptness of the company in terms of IT systems and applications, on which basis the internal and external processes and workflows take place.

Supplier selection and evaluation

Since suppliers are parts of the supply chain, the relationship between supplier and customer company will have a determinative effect on the whole supply chain, so on the competitiveness of company as well, therefore, the supplier selection problem becomes one of the most crucial issues to implement a successful and effective supply chain system (Chen et al., 2006; Araz & Ozkarahan, 2007; Amindoust et al., 2012). Thus, we can treat supplier selection and evaluation as an optimization opportunity of the processes; in this case, this problem-solving (i.e. selection and evaluation of suppliers) requires the formulation of an objective measurement (Huang & Keskar, 2007).

To possess that objective measurement a proper Supplier Management system has to be set up; its role will be to monitor suppliers' performance, to identify strengths and weaknesses of suppliers and to provide relevant information about them to procurement (and to other divisions), to state distinctions in performance among supplies, also to give feedback to suppliers about their performance or even to support suppliers by providing knowledge, skills and experience via various supplier development programs (Araz & Ozkarahan, 2007).

The decisions of supplier selection and evaluation are based on multiple criteria. The number of decision makers, the nature and number of criteria and the degree of uncertainty, all have to be taken into consideration while solving them. Therefore, one of the crucial challenges confronted by procurement managers is the selection and evaluation of suppliers by the usage of a properly configurated method, built on right kinds of attributes/factors/criteria by a system compatible to company's other decision-making platforms (Chen et al., 2006).

The techniques used in supplier selection vary widely. Researches carried out in this field apply several models which can be grouped (almost all of them) into four main conglomerates: MP (mathematical programming), MA (mathematical analytical), AI (Artificial Intelligence) and other models (e.g. combined methods or industrial/company's specific ones). Even if there is a large body of literature on different methodologies, most of them are basically variations of MA methods (e.g. DEA-Data Envelopment Analysis: Liang et al., 2006; Chen, 2011 and AHP-Analytic Hierarchy Process: Bruno et al., 2012; Rouyendegh & Erkan, 2012; De Felice et al., 2015 and MCDM-Multi-criteria Decision-Making: Araz & Ozkarahan, 2007; Chen et al., 2006).

Also, we often find AI methods (e.g. Fuzzy logic: Chen et al., 2006; Amindoust et al., 2012), hybrid methods or other methods such as SCOR-Supply Chain Operations Reference (Lima-Junior & Carpinetti, 2016) or ISM-Interpretive Structural Modeling (Huang & Keskar, 2007; Mohd et al., 2006).

As described above, in the literature various decision-making techniques are proposed to deal with the process of supplier selection and evaluation. But supplier selection differs significantly from supplier evaluation. The main goal of supplier evaluation is to classify each supplier based on the gaps existing between their real performance and desired one. Also, supplier evaluation includes determination of the evaluation criteria to be used and the weights of each criterion; therefore supplier evaluation seeks to categorize suppliers (along the predefined criteria), while supplier selection aims to define an order of preference among evaluated suppliers (Keskin et al., 2010; Omurca, 2013); in other words, we can evaluate all suppliers, but it could happen that we will select only a part of them (to conclude a contract or to continue an already started cooperation).

The most of studies and papers found in the literature propose techniques for supplier evaluation which are more appropriate just for ranking suppliers based on comparison among them (e.g. Olsen & Ellram, 1997; Chen et al., 2006; Sarkar & Mohapatra; 2006; Araz & Ozkarahan, 2007; Lee et al., 2009; Park et al., 2010; Chen, 2011; Zeydan et al., 2011; Rezaei & Ortt, 2013).

Also, numerous decision models consider only quantity criteria for supplier selection (Chen et al., 2006). In addition, several researchers have concerns regarding the existing methods: about mathematical rigor of AHP (Dyer, 1998), while Liang et al. (in spite of application of DEA) consider that *"it cannot be employed directly to measure the performance of supply chain and its members, because of the existence of the intermediate measures connecting the supply chain members"* (Liang et al., 2006, p. 35); also while applying fuzzy system in case of large number of suppliers and criteria *"this method is quite time consuming and the final results of ranking are very close to each other, therefore, the ranking results from this method may not be accurate"* (Amindoust et al., 2012, p. 1665).

However, even scholars emphasize the need of quantitative researches, they do not apply them or overlook the importance of integration with business strategic thinking and apply them *"without a clear rationale for choosing an appropriate objective function to be optimized"* (Huang & Keskar, 2007, p. 522).

In practice, there are also several ways and methods on how to evaluate the performance and efficiency of suppliers and how to select them. Therefore, the methodologies and the complexity of evaluations/selections cannot be discussed that easy; or – because of business confidentiality – the indeed applied methods cannot be disclosed at all. Furthermore, the mode of evaluation and its relevant aspects – we mean the aspects and items of a particular model – cannot be generalized, as we could see in this chapter as well. Therefore, there was no purpose to put questions in the survey regarding the applied methodologies for supplier selection. Instead, we inquired respondents about the supplier selection schemes during the bidding phase and their popularity.

In terms of proposed criteria, based on literature their number and types also vary significantly. Several models propose to evaluate/segment suppliers based on the evaluation of factors such as cost/price and delivery issues, product quality and technical aspects (e.g. Olsen & Ellram, 1997; Sarkar & Mohapatra, 2006; Araz & Ozkarahan, 2007; Omurca, 2013; Rezaei & Ortt, 2013).

Undisputable, cost and quality, furthermore on-time delivery and flexibility are the most dominant factors. In the late 1970s' and early 1980s' literature, there was a heavy emphasis on cost; in the early 1990s, cycle time and delivery aspects emerge, while in the late 1990s, researchers realized the importance of flexibility. Later, environmental and safety issues became the key criteria (Huang & Keskar, 2007; Dobos & Vörösmarty, 2014).

Recently, evaluation of supplier follows methodologies which identify factors such as supplier financial (still prominent criterion) and operational performance, human resource quality and compliance with processes and IT systems, as the main supplier characteristics which affect the likelihood of a supplier-connected disruption or a decrease in its performance; a supplier with a good evaluation in these categories is less likely to underperform in the chain (Trkman & McCormack, 2009). In addition, a significant part of the cited articles groups further the evaluation criteria into two (sometimes one) dimensions of supplier classification/evaluation.

Rezaei and Ortt (2013) propose a two-dimensional model to evaluate and classify suppliers based on the dimensions of capability and willingness. They consider the dimension of capability including price, quality, delivery, etc., while the dimension of willingness contains – among others – criteria such as relationship, communication openness, commitment to quality, etc.

Sarkar and Mohapatra (2006) also propose a two-dimensional model in which suppliers are segmented into motivated and de-motivated categories based on evaluating long-term capability and short-term performance.

Criteria of the long-term capability are – among others – financial capability, technological capability, quality system, production facilities, management and organization, and reputation; while short-term performance criteria are price, quality, delivery, lead time and attitude.

Olsen and Ellram (1997) propose a two-dimensional model as well: strength (intensity) of a relationship and supplier attractiveness. They argue that strength of relationship depends on economic factors, characteristics of the exchange relationship cooperation and proximity, while supplier attractiveness depends on financial, technological and organizational factors, production performance, culture, and strategy.

Omurca (2013) and Araz and Ozkarahan (2007) both propose a uni-dimensional model to group suppliers; Omurca organizes them in clusters based on 11 criteria (such as cost reduction, quality, price, delivery, quality management practices and systems, development capabilities, etc.), while Araz and Ozkarahan propose in their model – based on a set of 10 criteria (such as technology level, quality, cost reduction, delivery, ease of communication, etc.) – to evaluate and classify suppliers according to their ability and performance.

As we can see, apart from the evaluation and selection methods applied, the first step is to state the criteria to be used for evaluation, segmentation, and selection. To have a general view about of the set of criteria, we compared the ones found in the literature to the criteria we used in our survey. Based on the comparison (Figure 1), even if there is a variety of quantitative and qualitative criteria used to evaluate supplier performance, criteria such as financial terms (cost/price/payment), quality and delivery still are the most commonly used. High technological capabilities and long-term partnership, participation in common product development and supplier evaluation belong to the second group of the most commonly used criteria. It is interesting to see cost reduction (as endeavor and action) is not anymore among the most frequently used criteria.

We seek to emphasize again, indifferent from the methods along which the evaluations are made, the first and general step is to identify and select criteria for evaluation – as measurements factors – which will be applied equally to all suppliers.

Cooperation

Nowadays there is no mode to avoid supply risks and to enhance competitiveness without an efficient supply chain system. The purchased materials generally form a considerable part of the manufactured products, since *"the typical industrial firm spends more than one half of every sales dollar on purchased products"* (Dyer et al., 1998, p. 57); thus, building stable and long-term relationships between buyers and suppliers is a critical success factor of such a system (Chen et al., 2006).

Good cooperation among Procurement and Supplier can contribute significantly to produce value. Procurement should purchase goods and services using the most efficient supply chains of suppliers who can provide them the purchased materials not only at the lowest cost, best quality, and highest flexibility but also in a socially and environmentally responsible manner (Seuring & Müller, 2008; Zimmer, 2015).

Therefore, the cooperation within a given supply chain must start with the identification of supplier relationship types; all the suppliers and their "value" must be measured. Hence, companies need to optimize the classification of suppliers, to apply as effective systems as possible. The company's ability to strategically segment suppliers in such a way as to realize the benefits of the cooperation model secures the key to future competitive advantage in supply chain management (Dyer et al., 1998).

Several supplier- and supplier relationship classifications can be found in the literature; we show a few of them to give an insight into the wealth of cases:

The traditional view of suppliers is to keep them at "arm's-length" and to avoid any form of commitment, to minimize dependence on suppliers and to maximize bargaining power. Formerly this arm's-length model was widely accepted as the most effective way to manage supplier relationships. Later, based on the success of Japanese companies, the partner-type model emerged, and there was a need to consider this new type of cooperation, the partner-type model as well. However, while Japanese-style partnerships have economic benefits, some researches found that these types of relationships are costly to set them up and to maintain that cooperation since they could result in a reduced customer ability to switch away from a less efficient supplier to another one (Dyer et al., 1998).

Kraljic's (1983) in the frame of his portfolio matrix categorized the products/goods/services as non-critical, leverage, bottleneck and strategic items. Following this way of thought, we can extend these four item categories even to supplier categories, to broaden items to supply sources, consequently, to measure each supplier on the weight of supplied items.

Das and Teng (2000) group alliances (the cooperation/relationship types) into four major categories as follows: equity joint ventures, minority equity alliances, bilateral contract-based alliances, and unilateral contract-based alliances.

Baker et al. (2002) argue that relationships depend on the integration degree (e.g. vertical integration) between companies since it affects parties and determines their behavior. They distinguish two groups of relationships: transaction integrated (when the downstream party owns the asset) and transaction non-integrated (when the upstream party is an independent contractor, working with its own asset).

Araz and Ozkarahan (2007) suggest selecting and sorting suppliers based on their relations to the customer company as follows: strategic partners (''perfect'' suppliers), candidates for supplier development programs (''good'' suppliers), competitive suppliers (''moderate'' suppliers) and pruning suppliers (''bad'' suppliers).

Bensaou (1999) applies also four types of relationships: strategic partnership and market exchange, captive supplier and captive buyer. According to him, the level of investment made by either party in every type of relationship correlates significantly with the practices commonly associated with strategic partnerships and notions such as long-term relationship, cooperation, and mutual trust.

Figure 1. Frequency of used evaluation criteria (*Author's construction*)

APPEARANCE IN LITERATURE OF THE SET OF EVALUATION CRITERIA SELECTED FOR THIS PARTICULAR SURVEY		Good company reputation	Favourable payment terms	Reasonable price	Low shipping cost	Stability of the supply	Precise delivery	Short delivery time	Flexibility in schedule changes	High technological level	High product/service quality	Favourable connected services	Geographical proximity of the Supplier	Quality management system (e.g. ISO)	Participation in product development	Cost reduction	Finding the right Suppliers	Long-term partnership with Suppliers	Reducing the number of Suppliers	Evaluation of Suppliers	Management of Suppliers' relationship
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Amindoust et al. (2012)	1		■	■		■	■		■	■	■	■	■								■
Araz-Ozkarahan (2007)	2		■				■			■	■			■	■	■				■	
Bensaou (1999)	3		■	■			■			■	■				■			■			■
Chen (2011)	4			■			■		■		■	■				■					■
Chen et al. (2006)	5													■	■			■		■	■
Chin et al. (2006)	6										■				■			■		■	
Day et al. (2010)	7																■		■		■
Dyer et al. (1998)	8		■	■			■			■	■		■		■	■		■			■
García et al. (2013)	9			■			■				■										
Govindan et al. (2010)	10			■			■		■		■					■				■	
Huang-Keskar (2007)	11		■	■		■	■	■	■								■				
Jain et al. (2004)	12						■				■										
Keskin et al. (2010)	13		■										■							■	
Kraljic (1983)	14			■			■				■						■	■			■
Lee et al. (2009)	15		■	■			■			■	■					■		■		■	
Lee-Drake (2010)	16			■			■		■		■										
Liang et al. (2006)	17				■															■	
Luzzini et al. (2012)	18			■			■				■				■	■					
Mohd et al. (2006)	19														■			■			■
Ohdar-Ray (2004)	20			■			■				■	■									
Olsen-Ellram (1997)	21		■	■		■	■		■	■	■				■			■			
Omurca (2013)	22	■	■	■			■		■	■	■	■									
Pagell et al. (2010)	23		■	■			■			■	■							■			
Park et al. (2010)	24	■	■	■		■	■			■	■		■		■			■			■
Prajogo et al. (2012)	25			■			■		■		■					■		■		■	
Rezaei-Ortt (2013)	26			■			■				■					■					
Sarkar-Mohapatra (2006)	27	■	■	■		■	■			■	■	■	■							■	
Shih et al. (2009)	28			■			■		■		■	■									
Toni-Nassimbeni (2001)	29									■					■						
Zeydan et al. (2011)	30						■				■	■								■	
No. of references		3	12	20	1	5	23	1	9	11	23	7	5	2	10	8	3	11	1	10	9

Although Cousins is on the opinion that *"partnership relationships do not exist"* (Cousins, 2002, p. 71), it is worth to consider the force of close and strategic cooperation among companies because cooperation delivers superior value (Contractor & Lorange, 2002). Cousins also acknowledged that collaborative relationships (instead of partnership relationships) exist, but these are still competitive because the parties do not trust each other. They will judge the risk on the basis of the particular business case and will decide the appropriate relationship based on the outcome (Cousins, 2002, p. 71).

Ganesan suggests that a successful long-term relationship between a buyer and supplier is the condition of mutual dependence (Ganesan, 1994).

At one point all perceptions are the same: companies should think more strategically about Supplier Management; should avoid both under-designing and over-designing of supplier relationships (Bensaou, 1999).

But a "one-size-fits-all" strategy for supplier relationship management will not be feasible; instead, each supplier should be analyzed strategically to have opportunity to determine the extent to which its product contributes to the core competence and competitive advantage of the company (Dyer et al., 1998).

Further concordant opinions in the literature are the power of (strategic) cooperation and of the governance mechanism such as trust, fairness, commitment, and reliability.

The importance of cooperation and building mutual trust still remains utmost in the digitized world, since *"trust ... lead to improved satisfaction and performance"* (Nyaga et al., 2010, p. 101). Trust means the dimension to which extent parties of the given relationship perceive one another to be credible and benevolent partner (Ganesan, 1994). Therefore, trust is undoubtedly an important variable in governing the interactional dynamics (Andersen & Kumar, 2006; Gelei & Dobos, 2016).

Literature confirms the idea that one part of a cooperation can use knowledge about another one (as levels of the same organization or in case of supplier-customer relation), to improve its own performance or the mutual performance of the members (Snehota & Håkansson, 1995; Dyer & Singh, 1998; Liang et al., 2006). The supply risks can be managed in an effective manner if all partners of that supply chain share information frequently with each other through a collaborative relationship and the members trust each other (Mohd et al., 2006).

The success of Japanese-style partnerships can be originated from the above phenomenon as well since they apply a close supplier relationship and follow a partner model behavior. They result in superior performance because partner companies i) share more information with each other, ii) invest in dedicated or relation-specific assets which lower costs, improve quality and speed product development, and iii) rely on trust to govern the relationship, a highly efficient governance mechanism that minimizes transaction costs (Dyer & Singh, 1998).

As we can see in the above parts of this chapter, there is no agreement on how to segment the suppliers; but there is a consensus on the importance of suppliers and on the necessity to classify them for a better cooperation and lower risk level; consequently, the segmentation of supplier relationships and how to name these segmentations are required activities.

Due to the fact that in practice these activities will also vary significantly from company to company, therefore, we did not aim in our survey to classify/catalog these relationships probably segmented in as many types as companies exist; nor the questionnaire and its questions were built in this sense. But we inquired our respondents about how they handle their partners, and also about the effectiveness of cooperation and its features such as trust, fairness and so on.

IT platform

Given the globalization of markets and sourcing processes, the necessity to focus on core business and the need to exchange information inside and outside companies made IT vital for companies and the entire global economy (Chae et al., 2005; Ronchi et al., 2010); therefore, information technology becomes one of the key drivers in the formation of cooperation and alliances in supply chains (Contractor & Lorange, 2002). No one, nor the professionals and managers can disregard that the EDP (Electronic Data Processing) is a must for decades in business processes (Krajlic, 1983); especially in such an area as procurement, where everything is data, information consists of figures and databases.

IT platforms as various digitized systems, applications, and tools are to provide relevant information to management to help decision making, including performance evaluation of a given activity (Szukits, 2017). Therefore, several digital solutions are available for procurement as well: transaction on the network, different platforms or cloud solutions, mobile applications, Big Data analysis and so on (Centobelli, 2013). Even Artificial Intelligence (AI), which – for instance – would be able to pull out the necessary content from thousands of contracts; in addition, by monitoring economic and/or social background, companies will be able to make forecasts, to predict whether those events could affect the relationship and cooperation with the strategic suppliers. Because all these factors finally will have an impact (positive or negative) on suppliers' performance.

Application of other technological solutions such as EDI (Electronic Data Interchange: capabilities and infrastructure regarding electronic data transfer in the supply chain for effective communication) initiates changes both in organizational architecture and processes (Centobelli, 2013), by a necessity to partly/totally reorganize them. But based on these IT investments, they will launch an undeniable positive effect on the procurement function and processes and as a consequence, e-procurement will allow increased efficiency in the organizational structure as well (Rodriguez-Escobar, 2015; Ronchi et al., 2010). Thus, Procurement should run its activity by digitized workflows (by digitized applications/tools on digitized platforms) to operate procedures at the most effective level, with secured outputs in the most transparent way.

As we can see in the literature, and since several times it happens that there is an urgent need of data (figures which can be obtained or extracted from the digitized systems and applications only), the digitized workflows and processes are must; without them it is not possible to make the purchasing procedures faster and well-monitored, to have reporting possibilities, where the status, lead times and spending can be viewed accurately and instantly.

Considering the importance of the IT platform, in order to have the opportunity to see the status and the degree of digitized systems and solutions applied by the companies, we also put concerning questions in our survey.

General thoughts about the literature

In the literature there is no clear connection between the theory of Supplier Management and its applicability in the practice; especial regarding the procurement area as a segment only of the supply chain. We argue that the presented literature is – generally – too scientific (in their original form) to be applicable/viable in the practice; on the other side, the practice will be much more complex than to discuss it – for instance – on the evaluation criteria basis only.

Furthermore, we did not find in the literature researches which process the practice (analyze and show the results), especial in comparison with the theory.

Research methodology and characteristics of survey

We decided to apply the survey research and as its tool for data collection the survey; we consider the survey to be an appropriate method for the present research since it is a means for gathering information about the characteristics, actions or opinions of people (Pinsonneault & Kraemer, 1993). The survey research has the features which we were looking for: it is used to quantitatively describe specific aspects, several variables can be originated from it, which allow examining the relationships among these variables.

The research was carried out between 2017 Q4 and 2018 Q1-Q2 time interval. The mode of inquiry was an online survey, where the questionnaire was available on Hungarian online platforms of professionals and via direct emails. Some parts of the questionnaire (partial questions) were adapted from International Purchasing Survey (IPS - Rotterdam School of Management, Erasmus University, The Netherlands) and others from Competitiveness Survey of Corvinus University (Competitiveness Research Centre, Institute of Business Economics, Corvinus University of Budapest).

The number of respondents was 57, 80% of them procurement directors or managers. Regarding the corporate structure, the respondents' companies in more than 60% of cases belonged to the manufacturing industry and in more than 70% they were multinational and large companies.

The mode of examination of the answers was on one hand, the comparison of our examination factors (i.e. evaluation criteria) to the literature to see whether there is overlap among them, on the other hand we apply Cross-table Analysis – by SPSS – to analyse whether relationships exist among variables (answers and/or criteria) and if so, to reveal the strength of connections.

Research hypothesis and questions

Despite the increasing importance of SM, our hypothesis is that there are several deficiencies in the procurement processes.

We argue that the factors which improper handling could weaken and jeopardize – or contrarily strengthen – the procurement processes can be originated from the segments of Supplier Management:

i) supplier evaluation and selection: application of improper evaluation criteria and/or tools in practice, ii) cooperation: there are deficiencies in relationships, iii) IT platforms: there are lack of proper IT systems.

Therefore, we aimed to examine – through the questionnaire – the status of procurement practice in terms of the three discussed areas to see whether the features of the literature could be identified in the practice.

Nevertheless, we extended the survey from the simple inquiry about the evaluation criteria, cooperation type with the suppliers and mode of application of the IT systems (i.e. from the theoretically reviewed parts), to a broader pool of questions, putting more (others) of them in connection with the various aspects of practice; following this approach we had the opportunity to interpret widely the professional status of organizations.

We seek answers – among others – of the following questions:

1. Supplier selection and evaluation:
   Whether the applied evaluation criteria are in line with the ones recommended by literature?
   How serious accent do the companies put on supplier evaluation?
   What kind of supplier selection schemes do they apply?

It was expected that supplier evaluation and selection are not in line with the literature and the applied criteria still have too much emphasis on financial aspects.

2. Cooperation:
   How do the companies handle their suppliers?
   How effective do they consider the cooperation to be?

Our hypothesis was there are several deficiencies in terms of cooperation, on one hand in the mode of how to handle the suppliers, on the other hand in the effectiveness of cooperation.

3. IT platform:
   What is the degree of digitized solutions?
   Whether the applied IT platforms are in line with the actual requirements?

We supposed that the penetration of digitized applications and systems is too poor and too many processes still are conducted without IT support.

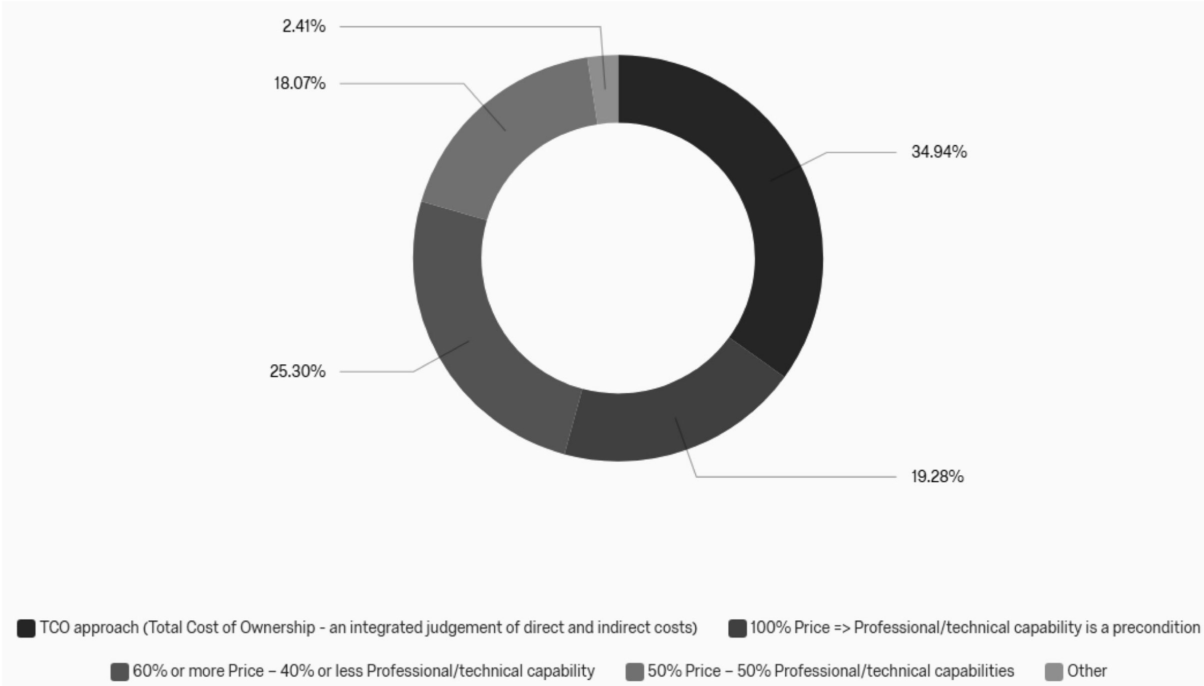
Findings of research

In this chapter we enlist the findings of research in that manner to follow the stated segments of Supplier Management.

Supplier selection and evaluation

Instead to put questions in the survey regarding the applied methodologies for supplier selection (because it cannot be disclosed and/or generalized at all, as we see in Chapter II), we inquired, and Figure 2. shows some selection schemes during the bidding phase and their popularity.

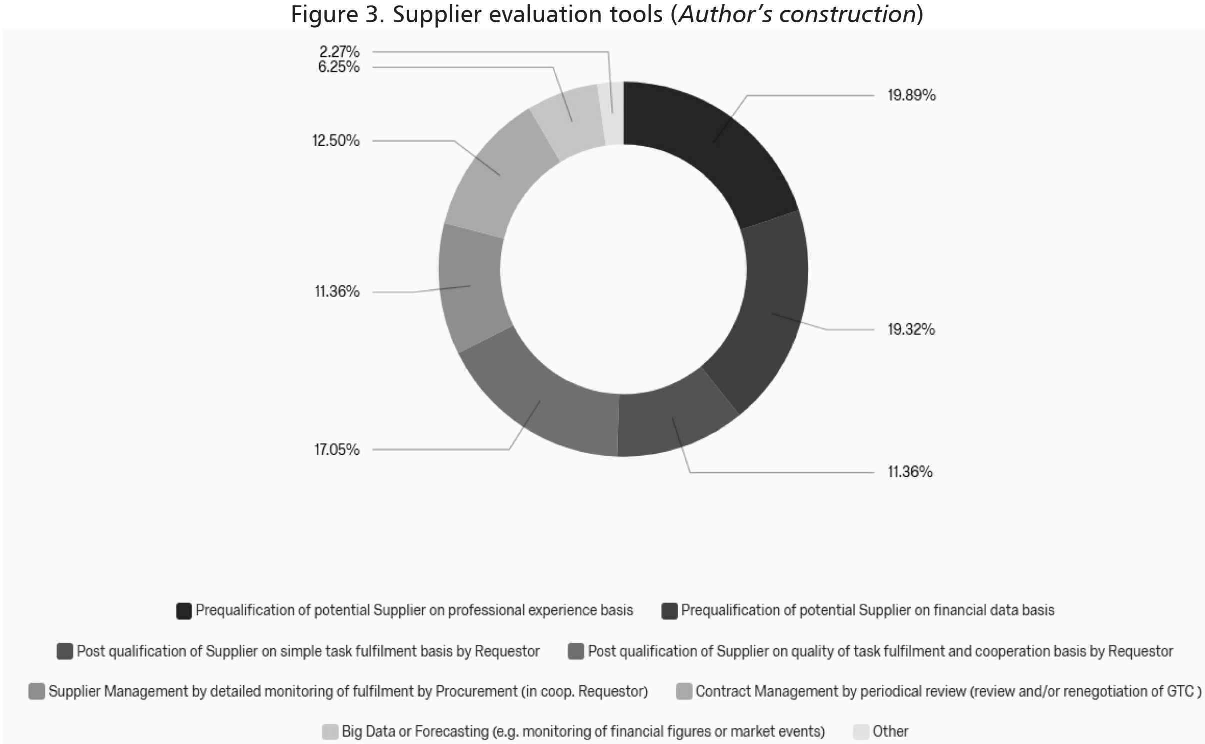
Figure 2. Popularity of supplier selection schemes during bidding (*Author's construction*)



As the results depict, a heavy emphasis still is on the price aspects; nevertheless, fortunately – and as a step towards systems thinking – the TCO (Total Cost of Ownership) is the most popular (34,94%) selection scheme.

Figure 3. describes the results of the survey in connection with the evaluation tools used in practice by the respondents; besides their types, we can see their popularity/frequency in the application. There is a possibility to

Figure 3. Supplier evaluation tools (*Author's construction*)



state some ascending order among the tools based on their complexity from the simplest prequalification to a more complex tool such as Big Data.

As we can see there is a quite equal spread of tools among the most popular/used ones, it seems that none of them precede the others significantly.

In Figure 4. we show how important respondents consider evaluation criteria in their Supplier Management practice. Based on respondents' answers criteria with the highest importance level (above 50%) are price, delivery, the stability of supply and high quality. The findings are in line with the frequency/popularity of criteria experienced in the literature and depicted in Chapter II.

Figure 4. Importance of evaluation criteria in Supplier Management (*Author's construction*)

IMPORTANCE OF EVALUATION CRITERIA IN SUPPLIER MANAGEMENT		Not at all		Slightly important		Neutral		Very important		Completely	
Good company reputation	1	3.51%	2	3.51%	2	28.07%	16	54.39%	31	10.53%	6
Favourable payment terms	2	5.26%	3	1.75%	1	14.04%	8	49.12%	28	29.82%	17
Reasonable price	3	0.00%	0	0.00%	0	5.26%	3	36.84%	21	57.89%	33
Low shipping cost	4	0.00%	0	5.26%	3	31.58%	18	38.60%	22	24.56%	14
Stability of the supply	5	1.75%	1	0.00%	0	7.02%	4	29.82%	17	61.40%	35
Precise delivery	6	0.00%	0	1.75%	1	7.02%	4	29.82%	17	61.40%	35
Short delivery time	7	0.00%	0	3.51%	2	24.56%	14	50.88%	29	21.05%	12
Flexibility in schedule changes	8	1.75%	1	3.51%	2	15.79%	9	45.61%	26	33.33%	19
High technological level	9	0.00%	0	3.51%	2	21.05%	12	47.37%	27	28.07%	16
High product/service quality	10	0.00%	0	0.00%	0	7.14%	4	39.29%	22	53.57%	30
Favourable connected services	11	7.27%	4	9.09%	5	40.00%	22	32.73%	18	10.91%	6
Geographical proximity of the Supplier	12	3.51%	2	15.79%	9	45.61%	26	29.82%	17	5.26%	3
Quality management system (e.g. ISO)	13	0.00%	0	5.26%	3	31.58%	18	33.33%	19	29.82%	17
Participation in product development	14	10.53%	6	8.77%	5	40.35%	23	35.09%	20	5.26%	3
Cost reduction	15	1.75%	1	8.77%	5	10.53%	6	36.84%	21	42.11%	24
Finding the right Suppliers	16	0.00%	0	1.79%	1	8.93%	5	42.86%	24	46.43%	26
Long-term partnership with Suppliers	17	5.26%	3	3.51%	2	15.79%	9	45.61%	26	29.82%	17
Reducing the number of Suppliers	18	8.93%	5	10.71%	6	42.86%	24	35.71%	20	1.79%	1
Evaluation of Suppliers	19	5.26%	3	1.75%	1	19.30%	11	47.37%	27	26.32%	15
Management of Suppliers' relationship	20	5.36%	3	3.57%	2	23.21%	13	48.21%	27	19.64%	11

Due to the continuously changing environment, respondents evaluated both the importance of stability in supply (61,40%) and the precise delivery (61,40%) at the highest ('completely') level, while the reasonable price is also ranked (still considered) at one of the most important criteria (57,89%). The next one best-ranked criterion is high quality (53,57%).

The short delivery time is considered very important (50,88%), while the geographical proximity of the Supplier is placed to a lower position with a distinctive neutral (45,61%) or slightly important (15,79%) ranking.

The reputation of the company ('good company reputation') is becoming increasingly important (54,39%) which phenomenon also confirms the importance of the relational capital.

Conversely, there is not enough emphasis – despite the relevant literature and expertise – on the common product development in Hungary, since the participation in product development is positioned at neutral (40,35%) or 'Not at all' (10,53%) importance level.

The criterion reduction the number of suppliers seems to be the least important, since it was selected neutral (42,86%), or slightly important (10,71%) or not at all (8,93%). This judgment of this criterion is also in line with the literature.

As we have already had the set of criteria, in addition, we strived to reveal whether there are relevant connections among them, and if so, to see their strength; therefore, Figure 5. is to show the results of the Cross-table analysis on a 5% significance level, where the pairwise relationship-significance is stated on p-value basis.

Figure 5. Strength of connections of evaluation criteria (*Author's construction*)

STRENGTH OF CONNECTIONS: SUPPLIER EVALUATION CRITERIA IN SUPPLIER MANAGEMENT

by

Chi-Square tests results on a 5% significance level

>	0,05	
≤	0,05	
≤	0,01	

		Good company reputation	Favourable payment terms	Reasonable price	Low shipping cost	Stability of the supply	Precise delivery	Short delivery time	Flexibility in schedule changes	High technological level	High product/service quality	Favourable connected services	Geographical proximity of the Supplier	Quality management system (e.g. ISO)	Participation in product development	Cost reduction	Finding the right Suppliers	Long-term partnership with Suppliers	Reducing the number of Suppliers	Evaluation of Suppliers	Management of Suppliers' relationship
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Good company reputation	1		0,000	0,673	0,000	0,000	0,000	0,001	0,000	0,000	0,159	0,003	0,001	0,513	0,005	0,003	0,000	0,000	0,004	0,153	0,000
Favourable payment terms	2	0,000		0,381	0,012	0,956	0,939	0,406	0,459	0,376	0,849	0,338	0,190	0,384	0,343	0,001	0,929	0,140	0,674	0,264	0,014
Reasonable price	3	0,673	0,381		0,091	0,100	0,677	0,025	0,279	0,803	0,121	0,427	0,465	0,176	0,934	0,003	0,650	0,560	0,699	0,592	0,468
Low shipping cost	4	0,000	0,012	0,091		0,000	0,005	0,082	0,000	0,000	0,151	0,005	0,108	0,224	0,002	0,003	0,933	0,150	0,147	0,726	0,004
Stability of the supply	5	0,000	0,956	0,100	0,000		0,000	0,000	0,000	0,000	0,000	0,000	0,775	0,316	0,280	0,695	0,049	0,000	0,002	0,013	0,000
Precise delivery	6	0,000	0,939	0,677	0,005	0,000		0,000	0,000	0,000	0,000	0,000	0,870	0,221	0,206	0,945	0,259	0,000	0,001	0,022	0,000
Short delivery time	7	0,001	0,406	0,025	0,082	0,000	0,000		0,000	0,001	0,179	0,038	0,050	0,295	0,557	0,314	0,088	0,080	0,079	0,854	0,042
Flexibility in schedule changes	8	0,000	0,459	0,279	0,000	0,000	0,000	0,000		0,000	0,000	0,000	0,028	0,632	0,002	0,002	0,244	0,000	0,001	0,325	0,000
High technological level	9	0,000	0,376	0,803	0,000	0,000	0,000	0,001	0,000		0,000	0,074	0,062	0,162	0,001	0,001	0,768	0,000	0,004	0,243	0,000
High product/service quality	10	0,159	0,849	0,121	0,151	0,000	0,000	0,179	0,000	0,000		0,000	0,247	0,007	0,158	0,818	0,366	0,001	0,022	0,003	0,001
Favourable connected services	11	0,003	0,338	0,427	0,005	0,000	0,000	0,038	0,000	0,074	0,000		0,075	0,389	0,100	0,201	0,058	0,000	0,032	0,080	0,011
Geographical proximity of the Supplier	12	0,001	0,190	0,465	0,108	0,775	0,870	0,050	0,028	0,062	0,247	0,075		0,255	0,342	0,003	0,265	0,208	0,578	0,923	0,314
Quality management system (e.g. ISO)	13	0,513	0,384	0,176	0,224	0,316	0,221	0,295	0,632	0,162	0,007	0,389	0,255		0,024	0,124	0,107	0,703	0,628	0,215	0,383
Participation in product development	14	0,005	0,343	0,934	0,002	0,280	0,206	0,557	0,002	0,001	0,158	0,100	0,342	0,024		0,254	0,165	0,011	0,087	0,116	0,000
Cost reduction	15	0,003	0,001	0,003	0,003	0,695	0,945	0,314	0,002	0,001	0,818	0,201	0,003	0,124	0,254		0,196	0,000	0,081	0,299	0,019
Finding the right Suppliers	16	0,000	0,929	0,650	0,933	0,049	0,259	0,088	0,244	0,768	0,366	0,058	0,265	0,107	0,165	0,196		0,000	0,067	0,239	0,020
Long-term partnership with Suppliers	17	0,000	0,140	0,560	0,150	0,000	0,000	0,080	0,000	0,000	0,001	0,000	0,208	0,703	0,011	0,000	0,000		0,020	0,193	0,000
Reducing the number of Suppliers	18	0,004	0,674	0,699	0,147	0,002	0,001	0,079	0,001	0,004	0,022	0,032	0,578	0,628	0,087	0,081	0,067	0,020		0,116	0,001
Evaluation of Suppliers	19	0,153	0,264	0,592	0,726	0,013	0,022	0,854	0,325	0,243	0,003	0,080	0,923	0,215	0,116	0,299	0,239	0,193	0,116		0,003
Management of Suppliers' relationship	20	0,000	0,014	0,468	0,004	0,000	0,000	0,042	0,000	0,000	0,001	0,011	0,314	0,383	0,000	0,019	0,020	0,000	0,001	0,003	

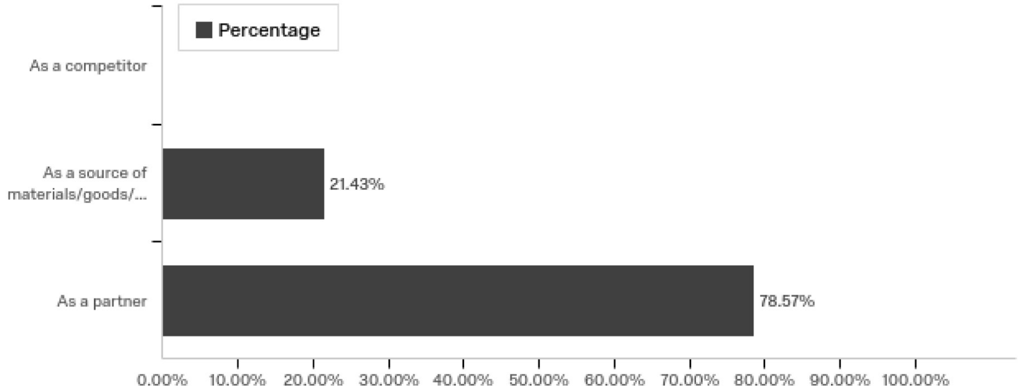
- There is a "nodule point" which consists of a group of factors – from 4 to 11 – where we can see significant connections; these factors have a quite strong connection to each other, and they are connected (mainly) to supply, delivery and technological level. This phenomenon is in line with the importance of the factors decided by respondents, and also in line with the popularity suggested by literature.
- There are no significant connections among factor 2 (Favourable payment terms) and factor 3 (Reasonable price) and other factors; except for the factor 15 (Cost reduction).
- Factor 1 (Good company reputation) has the biggest number of significant connections to other factors which confirms the emerging importance of this criterion.
- Factor 20 (Management of Suppliers' relationship) has the second rank in the number of significant connections to other factors, such as price, delivery, technological and quality level; this also emphasizes the importance of Supplier Management.
- There are also significant connections among factor 20 (Management of Suppliers' relationship) and other factors (such as Long-term partnership with Suppliers and Evaluation of Suppliers), also related to a conscious Supplier Management.

Cooperation

Considering that our intention was to avoid the classification of suppliers in a not uniform manner (by different approaches of companies), thus we applied three simple categories to group them (Figure 6): partners, competitors and sources of materials/goods/services.

To the question "How do you consider and handle your Supplier?" we got answers as follows: no one considers its supplier to be a competitor of the company, while almost 80% of respondents consider and handle their suppliers as partners; a considerable percentage of respondents (more than 20%) still classify their suppliers as a simple material source. The question is – and further research should confirm – whether this category is equal to "arm's-length" category and viewpoint, in order to keep suppliers at that distance where it is possible for the buyer to preserve its independence from any commitment.

Figure 6. Classification of suppliers (*Author's construction*)



We also analyzed the relation between criteria Supplier Management effectiveness (as an existing system) and importance of management of Suppliers' relationship (as an activity), in other words as a part of procurement work. We find a connection between variables because the result of the analysis showed that if the company consider more important the suppliers' relationship management, also the effectiveness of SM will be better. The relationship (on a 5% significance level) between variables was significant (Pearson Chi-Square: 23,621, p-value: 0,023 and Exact sig: 0,024).

Due to IT solutions and according to the professional practice, the proportion of personal contacts decreases day by day. Even though there is an increasing emphasis on digital solutions, these, however, do not always replace personal connections. Also, in practice there is not enough emphasis on on-the-spot audits, although this would be one of the simplest methods for assessing supplier's proper conditions or the possible risks. Since today we must be more conscious in the evaluation and selection of Suppliers, the onsite audit could help more in this sense: as it is said *"go and see for yourself to thoroughly understand the situation"* ("Genchi Genbutsu" i.e. "Go and See" from TPS – Toyota Production System).

Figure 7 shows, on one hand, the percentage of meetings in person between buyer-supplier, while on the other hand the percentage of audits at suppliers' side; both are at the same level and extremely low (21%), however, the personal contacts ensure much smoother cooperation and an increased trust level between parties, it seems that in practice there is not enough accent on these personal connections.

Considering the above findings, there is a crucial need to increase the proportion of the face-to-face meetings in some cases, because it could strengthen the trust and the relational capital between parties better than anything else; one personal meeting could count more than hundreds of impersonal letters (emails).

We also tried to reveal whether there are significant connections between governance mechanisms (GM, such as trust, fairness, reliability, punctuality, and cooperation itself, as requirements on both Supplier and Procurement side) and other criteria, such as effectiveness of Supplier Management, the nature of cooperation (in terms of common goals) and the supplier segmentation; we tried to see which conditions and to what extent do ensure a good cooperation between Procurement and Suppliers and an effective Supplier Management.

Figure 8 is to show the results of the Cross-table analysis, where the pairwise relationship-significance is also stated on the p-value basis.

Figure 7. Meetings and presence in person at supplier site (*Author's construction*)

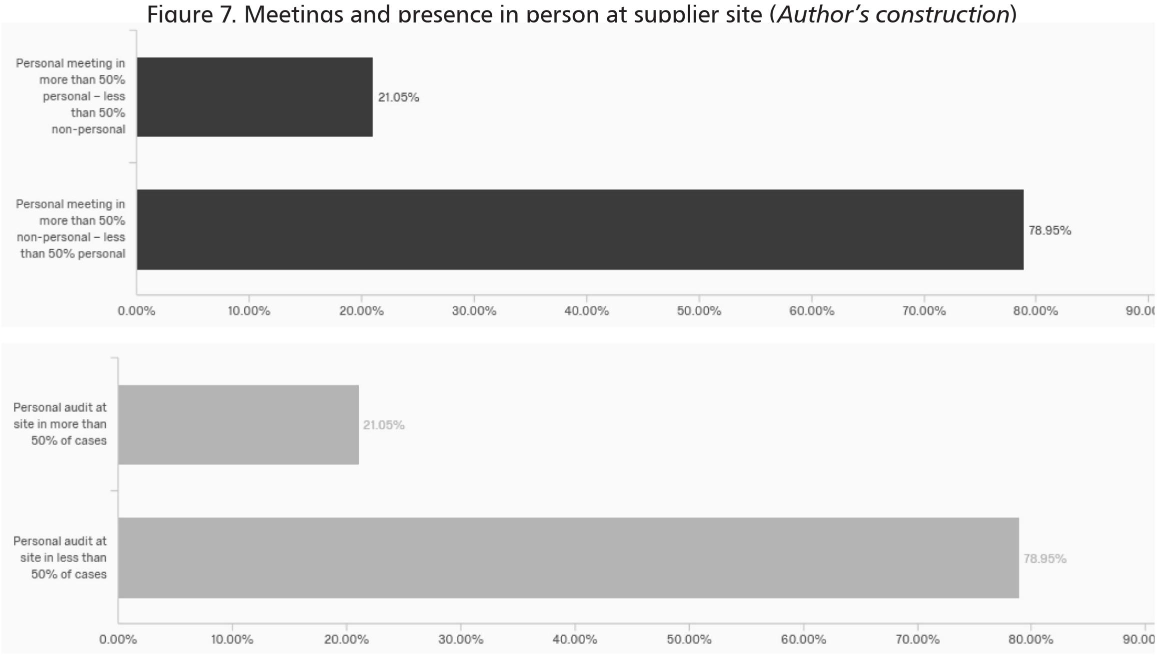


Figure 8. Strength of connections of GM factors and other aspects (*Author's construction*)

STRENGTH OF CONNECTIONS: GOVERNANCE MECHANISM FACTORS AND OTHER ASPECTS by Chi-Square tests results on a 5% significance level (≤ 0,05)		PROCUREMENT – Fairness	PROCUREMENT – Trust	PROCUREMENT – Reliability	PROCUREMENT – Punctuality	PROCUREMENT – Cooperation	SUPPLIER – Fairness	SUPPLIER – Trust	SUPPLIER – Reliability	SUPPLIER – Punctuality	SUPPLIER – Cooperation
		1	2	3	4	5	6	7	8	9	10
Effectiveness of SM	1	0,139	0,684	0,083	0,250	0,434	0,077	0,948	0,164	0,037	0,056
Cooperation with Suppliers	2	0,727	0,040	0,704	0,413	0,321	0,319	0,779	0,454	0,659	0,892
Treatment of Suppliers	3	0,122	0,588	0,480	0,792	0,025	0,779	0,315	0,763	0,748	0,363

We find a connection between variables at those pairs where the intersection of variable shows to be significance between criteria on a 5% significance level. There are significant relationships among criteria if:

- effective Supplier Management is accompanied from the supplier side by punctuality and cooperative attitude,
- there will be good cooperation with suppliers if procurement trust supplier,
- treatment of supplier is appropriate in such a case when a cooperative attitude of procurement exists towards the supplier.

Based on the findings of the survey, the lesson to be drawn is the better cooperative behavior and trust exist between parties of the supply chain (buyers-suppliers), the more effective Supplier Management and smoother cooperation will be in that particular relationship, so, the more unlikely risks will be.

IT platform

This chapter is to depict the degree of digitization, more exactly to give information about the penetration (percentage) and type of applied IT systems/solutions/applications.

Figure 9. shows the result of the survey in respect of the degree of digitized workflows: as a positive result, almost 70% of respondents responded that i) there is 80-20% the proportion of electronic-paper-based processes (60,34%) or there are not at all paper-based processes at their company (8,62%).

However, more than 30% belongs to workflows which are digitized in the proportion of 50-50% only (22,41%) or the workflows are mostly or totally paper-based (altogether 8,62%).

In Figure 10. we collected the spread and types of the digitized IT-platforms (systems/solutions/ applications) applied which can support the purchasing operations, procedures and workflows.

Figure 9. Proportion of digitized workflows (*Author's construction*)

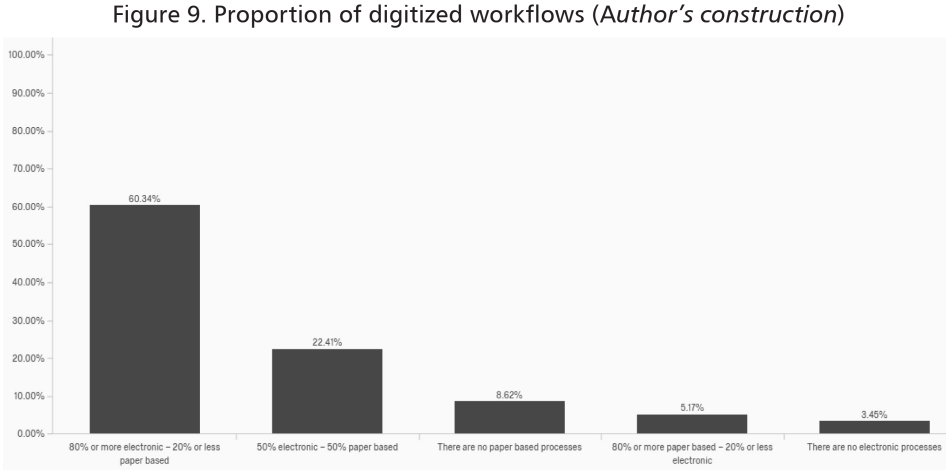
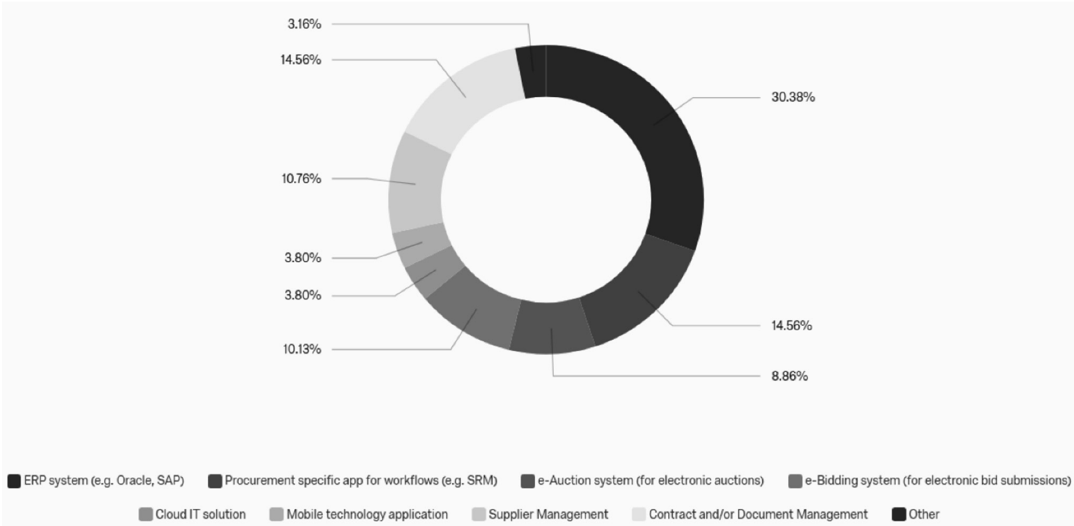


Figure 10. Digitized IT systems/solutions/applications applied (*Author's construction*)



Most of the companies own some digitized IT systems/ solutions/applications, however, their proportion is not yet satisfactory enough; especial considering that majority of companies are manufacturer ones, therefore the lack of ERP system – only 30% of them have such a system – is an alarming phenomenon.

Discussion of findings and concluding remarks

We strive to summarize in this chapter the research findings in comparison to the literature and to our hypothesis and questions.

Supplier selection and evaluation

Considering that in the nowadays global economy and open innovativeness when it is must developing products', services' and suppliers' performance simultaneously, strategic supplier evaluation and selection decisions cannot be based on traditional selection criteria only, such as cost, quality, and delivery (Araz & Ozkarahan, 2007).

In the past, procurement managers focused (mainly) on cost reduction (Kraljic, 1983); recently, they should give importance to stability and continuity of supply, to flexibility and good relationship between partners, because all of them will ensure competitive advantages to the company; many other criteria should be also considered such as to acquire supplier management practices and skills, to develop long-term supplier relationships, to enhance quality management, to strengthen financial results, to increase technology and innovativeness level and so on (Snehota & Håkansson, 1995; Dyer & Singh, 1998).

There is a consensus on that viewpoint that in order to build durable and supporting relationships the increasing importance of well-established and prudent evaluation models and tools is indisputable. Leaders strongly believe that the above objectives can be achieved through an effective Supplier Management system. Therefore, companies need proper tools to monitor and evaluate supplier's performance, to select key suppliers or develop promising suppliers for strategic partnership, to support suppliers in common engineering activities, even to provide feedback to suppliers about their weaknesses and how to enhance them (Araz & Ozkarahan, 2007).

To have a real opinion about suppliers and their capabilities, the main rule is that all suppliers should be evaluated several times. Generally, in case of a potential supplier (to become a new partner) the prequalification will be a strong requirement to see clearly the strength and weakness of the future partner, so to reduce the supply risk. As minimum requirement (and – for instance – during the bidding procedure and supplier selection), the supplier will be evaluated before to conclude a contract. Also, during the cooperation supplier will (should) be periodically evaluated based on tasks fulfillment.

Those companies which have some quality assurance system (e.g. possess an ISO certification) the supplier evaluation must be done regularly, at least once a year in order to control the supplier's performance, whether it still is in line with the original (first) evaluation and requirements set by assurance system standards and/or with the contract in force.

As we can see in the figures of the survey regarding the evaluation tools, we can state that all the evaluation means (several types of pre- and post-qualifications) are applied by companies.

Also, the evaluation criteria used in practice generally are in line with the literature; the most popular criteria are the stability of the supply and precise delivery, reasonable price and high product/service quality. The hypothesis that the companies apply improper evaluation criteria and/ or tools in practice is not confirmed.

In terms of selection schemes, however, there is still a quite big accent on prices as well, but the TCO approach is becoming more popular; the financial aspects (more exactly a part of them) have to be replaced by other evaluation criteria which are in line with the today's requirements.

Cooperation

The literature recommends applying a well-balanced relationship network, where the weight and value of suppliers and of relationships with them are measured based on the real risk of each cooperation. Researchers also suggest managing suppliers in that way to make them committed to the company forming a well-functioning business network, because the network is more effective than a single firm, due to the generation, transfer, and recombination of knowledge at several levels; also the cooperative participants of a supply chain can incorporate in their own strategies the aptitudes, capabilities, and performance of their partners (Dyer & Nobeoka, 2000; Gereffi et al., 2005; Håkansson & Snehota, 1995; Håkansson & Snehota, 2006).

Based on the findings of research the proportion of companies who treat their supplier as partners is almost 80%; nevertheless, the remaining part is too large if companies intend to develop well-established networks. A single exception could be, if the endeavor of them is to keep supplier at "arm's-length" distance; but even in this case such an evaluation of partners ("simple source") cannot be a generalized concept, it could be applied after a prudent segmentation of suppliers.

Good relationships and well-working governance mechanism of these relationships can be best achieved through reliable business cooperation and enhanced by personal meetings to increase the relational capital which exists between buyers and suppliers (Dyer & Singh, 1998; Cousins et al., 2006). But as we can see, nowadays there is not anymore enough accent on personal relationships, however, they will result in a smoother bilateral and barrier-free cooperation and will strengthen the relational capital. This will also make more attractive both buyers and suppliers to each other and the projection of such a relationship on cooperation would generate governance mechanisms such as trust, fairness, and commitment (Ganesan, 1994; Baker et al., 2002; Andersen & Kumar, 2006).

Based on results, it seems that the companies have realized the importance of relationships and the function of governance mechanisms, and they consider the cooperation to be effective enough. Despite this feeling, the phenomenon of rare personal connections confirms that there still are deficiencies in terms of cooperation.

IT platform

The opportunity offered by digital technologies to make deep rationalization in the purchase of goods and materials is becoming indispensable in competition among enterprises, taking into consideration the positive effects in reducing costs and process lead-time of the companies which adopted e-procurement solutions (Centobelli, 2013). Digitization and digital solutions can help procurement to achieve an outstanding level of how to handle the enablers (inputs/information): to improve a comprehensive procurement intelligence, to deal with faster procurement processes and solutions, to accelerate the decisions by a better access to information, to boost flexibility in working, and finally to reduce costs. The companies who still use paper-based and labor-intensive processes for procurement freeze a large scale of inefficiencies in their processes (Puschmann & Rainer, 2005).

Therefore, within a short time, the proportion of digitized processes and applications – in order to maintain competitiveness – will be acceptable ones at a 100% level only.

As we see, despite the importance of IT platform and apart from the recommendation of literature, the degree of digitization in inquired companies in not yet satisfactory; more than 30% of companies still apply paper-based workflows in more than half of processes.

Also, the proportion of applied systems, especial in case of ERP systems, is alarming, since only 30% of companies own such a system, but the ERP system is one of the crucial supporting means in case of production. In this case, the hypothesis is definitely confirmed, serious deficiencies exist in the IT architecture.

Besides the findings of the research discussed above, in order to emphasize the most important parts of SM, we have some pieces of advice:

1. We recommend increasing the performance of Supplier Management in terms of tools applied for evaluation and selection schemes used.
2. We propose to focus more on inter-organizational cooperation and strategic sourcing to follow an adequate treatment of suppliers – as partners for a continuous and stable supply – furthermore, to ensure proper importance to personal cooperation as well, to enhance further the relational capital and governance mechanisms such as trust.
3. We suggest to introduce and use as many digitized solutions as possible to secure a continuous monitoring and instant reporting.

If procurement conducts a proper Supplier Management which has a key role in risk mitigation and the discussed factors are treated at their proper importance, this approach will assure to the company an effective and rationalized way of operations and will lead to optimized functions and outstanding business results.

Theoretical contribution and practical implications, limitation of research

This article was written to project attention on the (past) routines and/or on existing ones, and to reveal the deficiencies and/or strengths to have opportunity to align them to the new challenges. The revealed features and the practices of procurement professionals could serve as inspiration for other companies or could shed light on the problems.

The theoretical contribution of the paper is to investigate the relation between Supplier Management theory and practice in Hungary to state whether gaps exist between them. From the managerial implication point of view, the novelty of the article is the endeavor to analyze the applicability of relevant literature in SM practice.

Since the paper shows concrete results of a research and also, formulates suggestions for a more efficient SM practice, the paper seeks to be a guide for practitioners how to strengthen the effectiveness of procurement organizations, where to find the deficiencies. Therefore, we believe it has a considerable contribution to the stream of the relevant researches.

This article depicts aspects and status of – mainly – Hungarian procurement organizations and their Supplier Management. Also, the practices have been studied from the procurement perspective, therefore, the paper does not try to evaluate these issues from the suppliers' point of view. Therefore, the findings cannot be generalized at all.

Furthermore, the result of research – considering the number of respondents (no. of participating companies) cannot be considered representative; that is why it remains an open question whether the answers really reflect the present situation. If not, there is another question whether the quite small sample or a possible euphemism attitude (that maybe was used in the answers) distorted the results in comparison to the existing situation and applied practice, and if so, to what extent?

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ÖMÜR ÖNHON

THE RELATIONSHIP BETWEEN ORGANIZATIONAL CLIMATE FOR INNOVATION AND EMPLOYEES' INNOVATIVE WORK BEHAVIOR: ICT SECTOR IN TURKEY

A SZERVEZETI INNOVÁCIÓS LÉGKÖR ÉS AZ ALKALMAZOTTAK INNOVÁCIÓS MAGATARTÁSA KÖZÖTTI KAPCSOLAT: AZ ICT SZEKTOR TÖRÖKORSZÁGBAN

In this study, it is searched the relationship between the organizational climate for innovation and innovative work behavior of the employees in the ICT "Information and Communication Technology" sector in Turkey. According to the findings of this study, positive innovative climate in the organization has a significant and positive effect on the innovative work behavior of the employees whereas, negative innovative climate in the organization has a negative impact on the innovative work behavior of the employees. Resource supply for the innovation in the organization has also a significant and positive effect on the innovative work behavior of the employees. However this effect is relatively weaker than the effect of the positive innovative climate in the organization.

Keywords: organizational climate for innovation, innovative work behavior, innovation, positive innovative climate, negative innovative climate, resource supply for the innovation, idea generation, idea implementation

A szerző ebben a tanulmányában a szervezeti innovációs légkör és az alkalmazottak innovációs magatartása közötti kapcsolatot vizsgálja a török információtechnológiai (ICT) szektorban. A tanulmány eredményei alapján megállapítható, hogy a pozitív innovációs klíma szignifikáns és pozitív hatású a munkahelyi innovációs magatartásra, míg a negatív innovációs klíma a szervezetben negatívan befolyásolja az alkalmazottak innovációhoz való viszonyát. A szervezet innovációs erőforrása szintén jelentős és pozitív hatást gyakorol a munkavállalók innovatív munkaviszonyára. Ez a hatás viszonylag gyengébb, mint a pozitív innovatív szervezeti légkör.

Kulcsszavak: szervezeti innovációs klíma, innovációs magatartás, innováció, pozitív innovációs klíma, negatív innovációs klíma, innovációs erőforrások, ötletgenerálás, ötletmegvalósítás

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In today's business world, innovation has become vital in all areas. It has become essential that firms must take place in the market with innovative products and services, also make innovations in business processes in order to be able to adapt to continuously changing conditions, respond to highly diversified customer needs, control the costs and therefore gain sustainable competitive advantage. Porter (1991) stated that one of the most critical factors for the firms to gain competitive advantage is creativeness and innovation. King et al. (2007) also suggested that innovation might generate procedures and ideas which enhance productivity.

Technology entering our lives day by day makes our lives easier at one side, however creates new requirements on the other side. Today's information driven firms must particularly be innovative in order to be in a good position in the competitive environment (Kwasniewska & Neçka, 2004). Firms, especially technologically-driven ones, need to be more creative and innovative than before in order to survive, to compete, to grow, and to lead (Jung et al., 2003). Otherwise, such firms that are not able to adapt to change and make innovations in this direction, would not be able to survive (Drucker, 1998).

We may argue that the primary way for the firms of participating in their field of activity with more innovative product and services is to motivate their human resources to innovativeness. Similarly, Imran and Anis-ul-Haque (2011) argued that the organizations willing to maintain their competitive edge foster the innovative work behavior of their employees. Miron, Erez and Naveh (2004) found that individual innovation does not diminish the quality and efficiency of normal work. Employees are well able to balance between being innovative and paying attention to their regular work. They conclude that personal and organizational characteristics necessary to promote innovation, quality and efficiency complement rather than compete with each other (Miron, Erez & Naveh, 2004). Generation and realization of creative ideas in an organization can only be possible if employees at all levels are provided with necessary resources and encouraged for innovation. One way for organizations to become more innovative is to capitalize on their employees' willingness and ability to be innovative (De Jong & Hartog, 2010). Amabile and Pratt (2016) stated that in the absence of the motivation to innovate, or resources in the task domain, or skills in innovation management, innovation cannot happen. Campbell, Gasser and Oswald (1996) empirically demonstrated a positive link between innovation-specific behaviors and organizational performance. Many researchers also stated that innovative behaviors of employees will have positive effect on firms' success (Amabile & Rigolizzo, 2015; Axtell et al., 2000; Smith, 2002; Unsworth & Parker, 2003; Cited in: De Jong & Hartog, 2007, p. 41-64).

Amabile (1996) defined creativity as the production of novel and useful ideas in any domain, innovation as the successful implementation of those ideas within an organization. Amabile (1996) also stated that all humans with normal capacities are able to produce at least moderately creative work in some domain, some of the time and that the social environment can influence both the level and the frequency of creative behavior. A number of theorists have suggested that climate may channel and direct both attention and activities toward innovation (Amabile, 2000; Kanter, 1988). Others have noted that innovative organizations are characterized by an orientation toward creativity and innovative change, support for their members in functioning independently in the pursuit of new ideas (Siegel & Kaemmerer, 1978), and a tolerance for diversity among their members (Siegel & Kaemmerer, 1978). Finally, adequate supplies of such resources as equipment, facilities, and time are critical to innovation (Amabile, 2000; Angle, 2000) and the supply of such resources is another manifestation of the organizational support for innovation.

İşcan and Karabey (2007) stated that in order to succeed in today's rapidly changing business environment, human capital plays a major role and it is very important to establish a workforce producing constantly new ideas and to implement them in the organization. Thus, it is essential to build a strong organizational climate that supports innovation. Innovation can only be nurtured and grow in an organizational climate that encourages to put forward new ideas. Such a climate will work as a tool to help employees pay their attention to innovation and develop a collective mentality supporting innovation (İşcan & Karabey, 2007).

In Turkey, thanks to technological advances in recent years that many innovation potentials has entered our lives. Thus, customer needs and demands in ICT (Information and Communication Technology) sector has been changed to a very large extent and competition between the firms providing such services increased to the same extent. Companies operating in the ICT sector should have to make continuous innovations in their products, services and business processes in order to manage this major change, satisfy their customers and step ahead of the competition by controlling their costs.

Those companies can be truly and sustainably innovative companies if only their employees generate innovative ideas and implement those ideas in the organization. Thus, it is considered the most prominent factors could be to establish an organizational climate where the employees are supported for innovative activities, can express their ideas freely and access the necessary resources easily in the organization.

In this study, the relationship between organizational climate for innovation and employees' innovative work behavior in ICT sector in Turkey shall be investigated. It is considered that the results of this study will contribute to the managers working in ICT sector in order them to provide their subordinates a business environment that encourages innovation that positively effects subordinates' innovative work behavior.

Literature review

Innovative Work Behavior

Many research focus mainly on the creativity or idea generation. However, innovation as the theory stresses that also includes the implementation of the ideas (King & Anderson, 2002). King and Anderson (2002) define innovation as new to the social setting in which it is introduced, although not necessarily new to the person(s) introducing it, based on an idea which is a necessary but not a sufficient condition for innovation, aimed at producing some kind of benefit, intentional rather than accidental, apart from financial gains, possible benefits might be personal growth, increased satisfaction, improved cohesiveness or better interpersonal communication.

Based on the above definitions, De Jong (2007, p. 19) described innovative work behavior (IWB) as "individuals' behaviors directed towards the initiation and intentional introduction (within a work role, group or organization) of new and useful ideas, processes, products or procedures". According to Baer (2012) and Kanter (1988), IWB refers to the development and initiation of novel and useful ideas and implementing these ideas into new and improved products, services or ways of doing things. Rules and regulations and procedures are not sufficient to ensure effective employee behavior in the workplace, there is always some need for discretionary innovative actions to adapt to new situations and unusual circumstances (Janssen, 2003). Especially the firms operating in technology domain should be more creative and innovative rather than they did in the past in order to survive, compete, grow and lead (Jung et al., 2003). IWB implies that individuals go beyond the scope of their job requirements to be innovative of their own free will. It includes idea generation as well as the types of behavior needed to implement improvements that will enhance personal and/or business performance. The construct of IWB thus captures both the initiation and implementation of ideas. In doing so, IWB differs from more limited constructs such as employee creativity which focuses on the discovery and generation of ideas (De Jong, 2007). Initiation for idea generation is a divergent phase, including activities such as the recognition of problems and thinking about ways to improve things. This phase results in more suggestions for innovations, such as new products, services or work processes. Implementation is a convergent phase directed towards the development and launch of innovations in order to acquire their benefits (King & Anderson, 2002). King and Anderson (2002), described innovation process as two main phases: initiation and implementation. The dividing line between the two phases is believed to be the point of the first adoption of the innovation; that is, the point at which the decision is made to implement the idea. First phase ends with the generation of the idea and second phase ends with the realization of the idea (King & Anderson, 2002).

Scott and Bruce (1994) first regarded innovative work behavior as a multistage process and stated that innovation consists of multistage and discontinuous activities as idea generation, idea promotion and idea implementation and individuals can be expected to be involved in any combination of these behaviors non sequentially and at any time. Based on in-depth interviews with managers of an R&D facility and drawing on Kanter's (1988) work on the stages of innovation, they developed a six-item scale. Leaving out the transfer task, Scott and Bruce's (1994) measure captures the behaviors of idea generation, coalition building and idea realization as Kanter (1988) stated four major dimensions: idea generation, coalition building, idea realization and transfer. Janssen (2000), referring to Scott and Bruce (1994), he regarded IWB as consisting of three dimensions, namely idea generation, idea promotion and idea implementation.

Individual innovation begins with idea generation, that is the production of novel and useful ideas in any domain (Amabile & Rigolizzo, 2015; Kanter, 1988). These ideas are the first task of innovation process and can stem not only from creative ideas that originate within organization but also from the ideas adapted from the existing situation which resulted in innovation as well. Perceived work-related problems, incongruities, discontinuities, and emerging trends are often instigators of the generation of novel ideas (Drucker, 2014). Problems at the existing work flow, insufficient response to customer requests or market trends change can be examples to such instigators (De Jong & Hartog, 2007). Employees respond to these situations with new ideas such as developing new products and services, reengineering the working styles and/or processes (Kanter, 1988; Amabile, 1988).

The next task of the innovation process consists of idea promotion to potential allies. At its core, innovation is a sociopolitical process that can be expected to be resisted by organizational members who are committed to the existing frameworks of thoughts and actions (Janssen, 2003; Kanter, 1988; cited in: Janssen, 2005). Therefore, a worker's innovative behavior is likely to be obstructed by resisting co-workers who have an interest in safeguarding the existing paradigm or who want to avoid the uncertainty and insecurity surrounding change. Taken together, on the basis of literature on resistance to change, co-workers are likely to resist a worker's innovative ideas for change because of their desire to avoid the insecurity and stress surrounding change, their habits and preferences for familiar practices and actions, their wish to reduce cognitive dissonance, and their commitment to the established framework of theories and practices. This resistance to change can be conceived as interpersonal conflict in the sense that the innovative worker who is pushing forward ideas for change is obstructed or irritated by the resisting co-workers who prevent this change. Besides conflict with co-workers, a worker's innovative behavior might also be resisted by other actors in the work environment, such as supervisors, subordinates or other stakeholders of the organization (Janssen, 2003). That is, once a worker has generated an idea, he or she has to engage in social activities to find friends, backers, and sponsors surrounding an idea, or to build a coalition of supporters who provide the necessary power behind it (Kanter, 1988; cited in: Janssen, 2000).

The final task of the innovation process concerns idea realization by producing a prototype or model of the innovation that can be experienced and ultimately applied within a work role, a group or the total organization (Kanter, 1988). Simple innovations are often completed by individual workers involved, while the accomplishment of more complex innovations usually requires teamwork based on a variety of specific knowledge, competence, and work roles (Kanter, 1988). Additionally, implementation of human resources strategies, administrative policies such as labor health and safety or team work implementations can also be evaluated in terms of innovation. For example, starting a teamwork activity in a public department governed by highly formal rules where many people cannot even communicate each other healthily can also be considered as an innovative practice. Innovations may vary from those that are relatively minor, to those that are of great significance. Some innovations can be introduced in an hour while others may take several years. Some innovations are unplanned and emerge by accident. In contrast some innovations are planned and managed (West, 2002).

Organizational Climate for Innovation

There are the meanings accepted in the organization emerging as a result of interaction between individuals that are consisted of common values, norms and their meanings of symbolic expressions. Senses, approaches and behaviors that characterize the organizational life can be defined as organizational climate (Özçer, 2005). Schneider et al. (2011) conceptualized climate as employees' shared perceptions of organizational events, practices, and procedures. These perceptions are assumed to be primarily descriptive rather than affective or evaluative (Schneider & Reichers, 1983; Schneider et al., 2011; cited in: Schneider, Ehrhart & Macey, 2013).

Schneider and Reichers (1983) expressed that it is meaningless to speak about organizational climate without attaching a referent. Schneider suggests that the dimensions of organizational climate will differ depending on the purpose of the investigation and the criterion of interest, and that general measure of organizational climate will contain dimensions that are not relevant for each specific study (Scott & Bruce, 1994). For example, in the study of innovative performance among R&D units, only two of the ten generic work-climate dimensions examined, performance-reward dependency and flexibility, were consistently correlated with measures of R&D innovation (Abbey & Dickinson, 1983; cited in: Scott & Bruce, 1994).

Amabile et al. (1996) describe studies indicating that internal strife, conservatism and rigid, formal management structures represent obstacles to creativity. The authors suggest that because these factors may be perceived as controlling, their likely negative influence on creativity may evolve from an increase in individual extrinsic motivation (a motivation through external factors but not the task itself) and a corresponding decrease in the intrinsic motivation necessary for creativity. In a study comparing the work environments (climate) of highly creative R&D projects against less creative projects, Amabile et al. (1996) found support for their model and found that high-creativity projects were overall higher on work environment stimulants and lower on obstacles than low-creativity projects.

Amabile et al. (1996) stated that the stimulants (i.e., organizational and supervisory encouragement, work group support) incorporate facets of a climate of positive affect. Thus, it is suggested that a climate of positive affectivity within an organization may provide a secure base from which teams can generate both creative ideas and ensure their implementation. Senior managers should focus on managing the climate or culture of the organization in order to increase employees' experience of positive challenge; organizational encouragement for innovation; support and openness; and to decrease their perceptions of chronic organizational hostility, conservatism, and rigid formal structures. Finally, increasing positive affect by determining and increasing the factors that promote employee satisfaction may well lead to higher levels of team innovation (West et al., 2004). A number of theorists have suggested that climate may channel and direct both attention and activities toward innovation (Amabile, 2000; Kanter, 1988). Others have noted that innovative organizations are characterized by an orientation toward creativity and innovative change, support for their members in functioning independently in the pursuit of new ideas (Siegel & Kaemmerer, 1978), and a tolerance for diversity among their members (Siegel & Kaemmerer, 1978). Additionally, adequate supplies of such resources as equipment, facilities, and time are critical to innovation (Amabile, 2000; Angle, 2000), and the supply of such resources is another manifestation of the organizational support for innovation.

In this study, employees' perception of organizational climate for innovation is selected as independent variable and more specificly, as it is oftenly cited in the creativity and innovation literature, is concerned with the two dimensions of the climate for innovation. These dimensions are support for innovation (Kanter, 1988; Siegel & Kaemmerer, 1978) and resource supply (Amabile, 1988).

Siegel and Kaemmerer (1978) noted that support for innovation is characterized by an orientation toward creativity and innovative change, support for their members in functioning independently in the pursuit of new ideas and a tolerance for diversity among their members. Individuals who perceive that the organization expects, sponsors, and supports innovation respond with innovative behavior for both intrinsic reasons like self-satisfaction and because outcome expectancies are increased (Scott & Bruce,1994). Additionally, adequate supplies of such resources as equipment, facilities, and time are critical to innovation (Amabile, 2000; Angle, 2000) and the supply of such resources is another manifestation of the organizational support for innovation.

The relationship between organizational climate for innovation and innovative work behavior

Managers who understand how to positively impact the climate of innovation and work behavior supportive of innovativeness will create the most opportunities for innovation in their organizations which, in turn, may enhance the performance of organizations (Shanker et al., 2017). İşcan and Karabey (2007) state that human capital plays a major role to succeed and it is so important to establish a workforce in the organization that generates and implements continuously new ideas and it is essential to build a strong organizational climate that supports innovation in order to have this workforce in today's rapidly changing business environment. Innovation can only be nurtured and grow in a climate that encourages the new ideas. Such a climate will work as a tool for focusing employees' attentions on innovation and developing a collective mentality that supports innovation (İşcan & Karabey, 2007).

A number of theorists have suggested that climate may channel and direct both attention and activities toward innovation (Amabile, 1988; Kanter, 1988). Sarros, Cooper and Santora (2008), mentioned that climate for organizational innovation is a useful proxy when it is difficult to get direct behavioral measures of innovation across diverse organizations and industry sectors. Yeoh and Mahmood

(2013) and Imran et al. (2010) also found a significant positive relationship between innovative organizational climate and innovative work behavior.

Mumford and Gustafson (1988) have argued that organizational innovation also depends on whether the organization has a climate that supports innovation. Even when individuals have developed the capacity for innovation, their willingness to undertake productive efforts may be conditioned by beliefs concerning the consequences of such actions in a given environment. When an organization's culture emphasizes reliable and efficient operations without making any mistakes or is not highly concerned with innovation, employees will be discouraged from taking initiative in their work even if they are given autonomy. In part, this is due to employees fearing potentially negative consequences associated with risky decisions. However, when an organizational culture values initiative and innovative approaches, employees are more likely to take calculated risks, accept challenging assignments and derive intrinsic enjoyment from their work (Yukl, 2009).

Scott and Bruce (1994) defined climate as individual cognitive representations of the organizational setting expressed in terms that reflect psychologically meaningful interpretations of the situation. Individuals whom perceived the organization's expectations and supports for innovation, respond to such expectations with innovative behaviors because of either intrinsic reasons such as self-satisfaction or their increasing beneficial expectations (Scott & Bruce, 1994). Thus, it is assumed that there is a positive and direct relationship between the psychological climate for innovation and individual innovativeness.

Scott and Bruce (1994) predicted that the degree to which organization members perceived an organizational climate as supportive of innovation would affect individual innovative behavior, hence given climate's conceptualization as a determinant of individual behavior and the previous empirical support for climate's effect on organizational and departmental innovation. Interviews indicated that support could motivate employees in both phases of the innovation process. How support motives idea generation as the first stage of innovation is explained as follows; Experiencing support was believed to be helpful in creating and generating ideas. An innovative respondent stated that: "People know that I just love new ideas. That's why they come up with suggestions every day. I am always excited by them" (De Jong & Hartog, 2007, p. 53). How support motives idea implementation as the second stage of innovation is explained as follows; the way in which leaders dealt with mistakes seemed to be a key driver in the implementation stage. Most respondents from our group of frontrunners, but also some in the non-innovative subset, indicated that mistakes should not be used to punish subordinates but instead should be considered a learning opportunity. For example: "You can really discourage innovative behavior by being unreliable. When you do not support your subordinates when problems arise, you can forget successful innovation" (De Jong & Hartog, 2007, p. 53).

As soon as the decision to implement a promising idea is made, providing the necessary time and money seems to be essential. Some relevant quotes of interviewees include: "Being enthusiastic about an idea is one thing, but your employees will not believe you if you do not come up with the resources to develop it" and "We have plenty of ideas, but at the moment we do not innovate at all. We have had a vacancy for over six months now, and we need all our time to keep up with our current activities" (De Jong & Hartog, 2007, p. 55). Empirical support for a positive connection between providing resources and application behavior is widely available. Ekvall and Ryhammer (1999) examined a variety of organizational variables that might influence innovation among scholars working at a Swedish university, and found that the availability of resources was most strongly related to their innovative results. Drawing upon interviews with R&D managers and employees. Nijhof et al. (2002) recommended exempting employees from their ordinary tasks in order to concentrate all their efforts on the development and implementation of their ideas. When employees were assigned to work on innovations only part-time they experienced working on a project as something additional to their daily activities, and this often resulted in longer development times, as their daily work remained the number one priority (cited in: De Jong & Hartog, 2007). Thus, it is assumed that providing adequate time resource is also one of the important elements of climate for innovation in order to proceed effective innovative behavior in the organization. In the light of the statements made above, the hypothesis of this study is suggested as follows;

H1: Organizational climate for innovation has positive effect on innovative work behaviors of employees

Method

Sample

The sample (N=270) consists of employees working in the companies in ICT sector in Turkey. As it is seen in Table 1, 87 of the participants are female and 183 are male. The age of all participants ranging from 23 to 61 and the average age 34.4 (Std. Deviation 0.46) respectively. 47.8 % of the participants (129 persons) are in age group 31-40, 34,4% (93 persons) in age group 23-30, 17,8% (48 persons) in age group 41-61. 66% of the participants (178 persons) are engineers and technicians, 10% (27 persons) are financiers and business administrators. 44% of the participants (120 persons) are working at non R&D departments and 14% (37 persons) are working at R&D departments.

According to the definition, qualification and classification of small and medium enterprises in the related regulation published in the official newspaper dated November 18, 2005 and issue no: 25997, companies employing less than 10 people are classified as "micro" enterprises, employing less than 50 people are "small" enterprises, employing less than 250 people are "medium" enterprises (Turkish Official Newspaper Issue no: 25997, dated Nov. 18, 2005). Accordingly, 61,5% of the participants (166 persons) are working at "large" enterprises where equal or more than 250 people are employed, 20,7% (56 persons) are working at medium, 12,2% (33 persons) are working at small and 5,6% (15 persons) are working at micro enterprises. In summary, 38,5% of the participants (104 persons) are working at the companies classified as SME "Small and Medium Enterprises" (Turkish Official Newspaper Issue no: 25997, dated Nov. 18, 2005).

97,8% of the participants have the university or higher degree. 23% of the participants have female and 77% have male managers. 54,1% of these manager are in age group 36-45 and 97,4% of them have university or higher degree.

57,4% of the participants (155 persons) have 0-3 years seniority, 31,4% (85 persons) have 4-10 years seniority, 11,2% (30 persons) have 11-35 years seniority at their existing companies and 42,2% of the participants (114 persons) have been working with their existing managers for 0-1 years, 45,6% (123 persons) for 2-5 years, 12,2% (33 persons) for 6-35 years (Table 1).

Table 1 Demographic data

	N	%
Gender		
Female	87	32,2
Male	183	67,8
Age		
23-30	93	34,4
31-40	129	47,8
41-61	48	17,8
Profession		
Engineer-Technician	178	66
Business Adm.-Financier	27	10
Other	65	24
Department		
R&D	37	14
Technical (Non R&D)	120	44
Other	113	42
Number of employees in the co.		
0-9	15	5,6
10-49	33	12,2
50-249	56	20,7
>250	166	61,5
Education		
High School	6	2,2
University	131	48,5
Master Degree	120	44,4
Doctorate	13	4,9
Gender of the manager		
Female	62	23
Male	208	77
Age of the manager		
27-35	64	23,7
36-45	146	54,1
46-63	60	22,2
Seniority at the existing co.(year)		
0-3	155	57,4
4-10	85	31,4
11-35	30	11,2
Education of the manager		
Primary School	2	0,7
High School	5	1,9
University	168	62,2
Master Degree	78	28,9
Doctorate	17	6,3
Seniority with existing manager (Year)		
0-1	114	42,2
2-5	123	45,6
6-35	33	12,2
Total N :	270	

Procedure

Employees attended to the survey through questionnaire link sent them by e-mail. This method is not considered as a major disadvantage compared to hand-distributed survey because of the employees' competence and ability of using technology and computer in ICT sector. The questionnaires are sent to 1210 employees in total. 397 of the questionnaires are responded and the ones which their reliability is supposed to be low (e.g. all the questions are filled with the same constantly repeating score) or so many questions left blank are excluded from the survey. As a result of this elimination, 270 questionnaires used in the analysis of survey data.

Bartlett, Kotrlik and Higgins' (2001) method derived from Cochran's (1977) formula is used for determining whether 270 samples is sufficient or not as adequate sample size for this study. First of all, total employee number in ICT sector in Turkey as the population should be determined for the calculation of adequate sample size representing the population. Lastly, sector's employment data for 2013 has been published in Turkish Statistical Institution's "TUIK" bulletin dated April 27, 2015 and issue no: 21501. According to this bulletin, totally 187.019 persons were employed as of 2013 year-end in ICT sector in Turkey. Sample collection process for this study has been realized in the middle of 2014. Thus, considering the yearly growth rate of service sectors in Turkey was around 5-10%, we might estimate that the total employment number in ICT sector in Turkey was less than 200.000 persons in the middle of 2014 when the sample collection was performed for this study (TURKSTAT "TUIK", 2015).

Cochran's (1977) formula uses two key factors: (1) the error the researcher is willing to accept in the study, commonly called the "Margin of Error", (2) the "Alpha Level", the level of acceptable risk the researcher is willing to accept that the true margin of error exceeds the acceptable margin of error also known as Type I error (Bartlett, Kotrlik & Higgins, 2001).

Alpha level is considered as 0,05 in many surveys. It is considered as 0,05 in this survey as well. Accordingly, if the sample size is >120 (it is 270 in our study) and alpha level is 0,05 then, t value will be 1,96 (Ary, Jacobs & Razavieh, 1996; cited in: Bartlett, Kotrlik & Higgins, 2001).

The general rule relative to acceptable margins of error in social research is as follows: For categorical data, 5% margin of error is acceptable and for continuous data, 3% margin of error is acceptable (Krejcie & Morgan, 1970; cited in: Bartlett, Kotrlik & Higgins, 2001). Acceptable margin of error is considered as 3% since continuous data is used in this survey. Accordingly, acceptable margin of error for mean (d) is calculated by multiplying acceptable margin of error and number of points on primary scale. d= ,03 x 5 = 0,15.

The Formula below is used for the calculation of estimation of standard deviation (S) as it is defined in Cochran's (1977) Formula;

$$S = \frac{\text{Number of points on primary scale}}{\text{Number of Standard Deviation}}$$

(Points at the two sides of the mean of the scale)

According to above Formula, variance estimation in this study is calculated as below. Number of points in the scale is 5 since 5 point equal interval scale is used in this study and there are 2 points at each sides of the mean point of this scale which is 4 in total. Accordingly variance estimation is S=5/4= 1,25.

When we placed all the values in the Cochran's (1977) sample size Formula for the continuous data, we found the sufficient sample size amount as 267 necessary for this study below.

$$no = \frac{(t)2 * (s)2}{(d)2} = \frac{(1.96)2*(1.25)2}{(5*.03)2} = 267$$

The correction Formula suggested by Cochran (1977) is used in the situations where sample size higher than 5% of the population. However, it is not necessary to apply the correction Formula for this study since the sample size we found 267 above is not higher than the 5% of the population which we already estimated the population as not higher than 200.000 (5% of the population is approx. 10.000). As a result, it is decided to continue with the sample number (n=270) already collected and finally found sufficient for this study.

Instruments

It is utilized from the instruments already existed in the literature in order to measure the variables in this study. The instruments are translated from their original language English into Turkish by the researcher. Turkish translations of the instruments are reviewed by the consultant academicians working at Marmara University, Business Administration Department, Organizational Behavior Section considering the appropriateness of the meanings of each item and necessary changes have been made. Afterwards, Turkish instruments have been applied as a pilot study on 50 people working at different positions in various sectors in Turkey in order to test the operability of each item in the instruments. The data, criticism and feedback obtained from the results of this pilot study were reassessed by the researcher and academicians and instruments were finalized with the latest revisions. Detailed information regarding the instruments is below.

Innovative Work Behavior Scale

Innovative work behavior (IWB) scale developed by Janssen (2000, 2001) was used for measuring employees' innovative work behavior in the organization. Participants self-rated their innovative behavior at work with the IWB scale consisted of 9 items. Janssen (2000, 2001) described IWB scale with three dimensions by utilizing Kanter's (1988) work on the stages of innovation. First three items refer to "idea generation", the next three items refer to "idea promotion" and the last three items refer to "idea realization" dimensions. Equal interval scale consisting of 5 choices is used for rating (1-Never, 2-Rarely, 3-Sometimes, 4-Often, 5-Always). Original English scale's Cronbach Alpha is 0,97.

The IWB scale can either be rated by the respondents (self-reports) or their supervisors (leader-reports) (Janssen, 2000). In this study, self-reporting is chosen besides observer-scores for three reasons; First, a worker's cognitive representation and reports of his or her own IWB may be more subtle than those of his or her supervisor, since a worker has much more information about the historical, contextual, intentional and other backgrounds of his or her own work activities (Jones & Nisbet, 1971, cited in: Scott & Bruce, 1994). Second, the assessment of IWB as discretionary work behavior is much like many forms of subjective performance appraisal, highly susceptible to idiosyncratic interpretations and thus likely to vary across different raters (Organ & Konovsky, 1989, cited in: Scott & Bruce, 1994). Finally, the supervisor measure may miss much genuine employee innovative activities, and may capture only those gestures intended to impress the supervisor (Organ & Konovsky, 1989, cited in: Scott & Bruce, 1994).

Organizational Climate for Innovation Scale

Organizational climate for innovation scale was originally developed by Siegel and Kaemmerer (1978) and later modified by Scott and Bruce (1994) for wider usage. Organizational climate for innovation scale composed of 22 item measures respondents' perception of innovative climate in the organization in the context of support for innovation and change, tolerance of differences and resource supply for innovation. 11 items in the scale are reverse coded. Organizational climate for innovation scale that was first used by Scott and Bruce (1994) contains originally two dimensions: support for innovation and resource supply for innovation. All items were rated on a 5 point scale ranging from 1 (definitely disagree), 2 (quite disagree), 3 (somewhat agree), 4 (quite agree) to 5 (definitely agree). First dimension support for innovation's Cronbach Alpha is 0,92 and second dimension resource supply for innovation's Cronbach Alpha is 0,77 of the original English scale (Scott & Bruce, 1994).

Statistical Data Analysis

In the factor analyses which determine the factor structure of the variables, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy test and Bartlett's Test of Sphericity was firstly used to see whether data for the variables were convenient for conducting factor analysis or not. Then, factor analyses were conducted with principal component analysis (PCA) and varimax rotation for the factor structure. Cronbach's Alpha analysis used for computing the reliability level of the factors. Pearson correlation analysis used for the determination of the significance, strength and direction of the relationships between variables and then simple linear and hierarchical regression analyses are conducted to test the hypotheses. T-test and ANOVA tests are used to test the group differences with regard to research variables.

Findings

Factor analysis performed for the organizational climate for innovation variable with data collected through 22 items organizational climate for innovation instrument. As a result, items *"Around here, people are allowed to try to solve* *the same problems in different ways.”,” The main function of members in this organization is to follow orders which come down through channels.”,” In this organization, we tend to stick to tried and true ways.”, “This place seems to be more concerned with the status quo than with change.”, “The reward system here benefits mainly those who don't rock the boat.”* that belong to support for innovation dimension were excluded from the analysis because of their factor loadings were distributed on several factors and their reliability (Cronbach’s Alpha) coefficients were found to be low. When the factor analysis performed with the remaining items again, it was found that organizational climate for innovation variable was grouped under three factors and total variance explained ratio was 66,5%. When the items which were grouped under these three factors examined, it was found that the items of support for innovation dimension of Scott and Bruce’s (1994) instrument were divided into two tailed perceptions of the participants as positive and negative climate for innovation and resource supply for innovation items emerged as a separate dimension similar to original instrument. However, according to the factor analysis result, the following items originally forming the resource supply for innovation dimension *“There is adequate time available to pursue creative ideas here”, “Assistance in developing new ideas is readily available”, “There are adequate resources devoted to innovation in this organization”, “This organization gives me free time to pursue creative ideas during the workday”,* shifted to support for innovation dimension. As a result, three factors were named as positive innovative climate, negative innovative climate and resource supply for innovation. As a result of reliability analyses, Cronbach’s Alpha for positive innovative climate is 0,938, for negative innovative climate is 0,846 and resource supply for innovation is 0,688.

Factor analysis performed for the innovative work behavior variable with data collected through 9 items innovative work behavior instrument. As a result, item *“Mobilizing support for innovative ideas.”* that belongs to idea promotion dimension was excluded from the analysis because of its factor loadings were distributed on several factors and its reliability (Cronbach’s Alpha) coefficient was found to be low. When the factor analysis performed with the remaining items again, it was found that innovative work behavior variable was grouped under two factors and total variance explained ratio was 64%. When the items which were grouped under these two factors examined, it was found that the items of idea generation were formed the same as Janssen’s (2000, 2001) instrument. However, idea promotion and idea realization dimensions emerged as one dimension. As a result, the first factor was named as idea generation as its items were kept the same and the second factor was named as idea realization because its items were more associated with the application and implementation of any kind of innovation in any organization. As a result of reliability analyses, Cronbach’s Alpha for idea generation is 0,750, for idea realization is 0,814.

Correlation analyses were performed to determine the relationships between the variables and factors of this study. As it is seen in Table 2, significant, positive and moderate (r=0,428) correlation between organizational climate for innovation and innovative work behavior is found. As it is also seen in Table 2, correlation analyses were performed at factor level in order to understand in details the correlation between the main variables of this study.

It is found either the significant, positive and very low intense (r=0,152) correlation between positive innovative climate and idea generation or significant, positive and moderate (r=0,565) correlation between positive innovative climate and idea realization. Negative innovative climate is found to be significantly and negatively correlated (r= -0,320) with only idea realization.

Resource supply for innovation is found to be significantly and negatively correlated (r= -0,196) with only idea realization. As noted, the direction of the correlation between resource supply for innovation and innovative work behavior is negative. Items forming the resource supply for innovation dimension have negative contents and emphasize the lack of resources so that this finding is not surprising and indicates that innovative work behavior will be reducing as the resources are getting inadequate.

In order to test the hypothesis of this study *(H1: Organizational climate for innovation has positive effect on innovative work behaviors of employees),* we performed

Table 2 Correlation Analysis Among Research Variables

	Variable	M	SD	V1	1.	2.	3.	4.
V1	Organizational Climate for Innovation	2,90	0,49					
V2	Innovative Work Behavior	3,41	0,61	,428**				
1.	Positive Innovative Climate	2,96	0,91					
2.	Negative Innovative Climate	2,78	0,86		-,640**			
3.	Resource Supply for Innovation	2,91	1,02		-,534**	,374**		
4.	Idea Generation	3,59	0,64		,152*	-,021	-,026	
5.	Idea Realization	3,30	0,71		,565**	-,320**	-,196**	,567**

** P<0,01 (2-tail)
* P<0,05 (2-tail)

the simple linear regression analysis first for organizational climate for innovation and innovative work behavior variables (Table 3) and then for their sub dimensions which significant correlation exists among them (Table 4 and 5) to test organizational climate for innovation's contribution on innovative work behavior.

Table 3 Regression Analysis among Organizational Climate for Innovation and IWB

Model	Independent Variables	R	R^2	Adj.R^2	F	P	β	t	Sig.
1	(Constant)	,428	,183	,180	59,967	,000		9,023	,000
	Org. Climate for Innovation						,428	7,744	,000

Dependent Variable : IWB

As it is seen in Table 3, the simple linear regression model established between organizational climate for innovation and innovative work behavior is significant (F=59,967; p<0,001) and 18,3% (R2=0,183) of employees' innovative work behavior is explained with their perception of organizational climate for innovation. This result supports the first hypothesis of this study.

Table 4 Regression Analysis among Positive Innovative Climate and Innovative Idea Generation

Model	Independent Variables	R	R^2	Adj.R^2	F	P	β	t	Sig.
1	(Constant)	,152	,023	,019	6,312	,013		24,783	,000
	Positive Innovative Climate						,152	2,512	,013

Dependent Variable : Idea Generation

As it is seen in Table 4, the simple linear regression model established between idea generation and positive innovative climate which significant correlation found among them. This model is found significant (F=6,312; p<0,05) and 2,3% (R2=0,023) of employees' innovative idea generation is explained with their perception of positive innovative climate in their organization.

Table 5 Regression Analysis among Positive/Negative Innovative Climate and Resource Supply for Innovative Climate and Innovative Idea Realization

Model	Independent Variables	R	R^2	Adj.R^2	F	P	β	t	Sig.
1	(Constant)	,565	,319	,317	125,793	,000		16,354	,000
	Positive Innovative Climate						,565	11,216	,000
1	(Constant)	,320	,103	,099	30,626	,000		29,032	,000
	Negative Innovative Climate						-,320	-5,534	,000
1	(Constant)	,196	,038	,035	10,679	,001		22,444	,000
	Resource Supply for Innovative Climate						-,196	-3,268	,001

Dependent Variable : Idea Realization

As it is seen in Table 5, the simple linear regression model established between idea realization and positive innovative climate which significant correlation found among them. This model is found significant (F=125,793; p<0,001) and 31,9% (R2=0,319) of employees' innovative idea realization is explained with their perception of positive innovative climate in their organization. As it is seen in Table 5 as well, the simple linear regression model established between idea realization and negative innovative climate which significant correlation found among them. This model is found significant (F=30,626; p<0,001) and 10,3% (R2=0,103) of employees' innovative idea realization is explained with their perception of negative innovative climate in their organization. The regression model between resource supply for innovation and idea realization is also significant (F=10,679; p<0,001) and 3,8% (R2=0,038) of employees' innovative idea realization is explained with their perception of resource supply for innovation in their organization. In these models, beta and t values are negative. It is also found in the correlation analyses that there is a negative correlation between innovative idea realization and negative innovative climate and resource supply for innovation.

Multiple regression analyses were performed for the sub dimensions of organizational climate for innovation and innovative work behavior and its sub dimensions as well. When the effects of three sub dimensions of organizational climate for innovation on innovative work behavior was tested, significant effects of positive innovative climate (β = 0,542; p < 0,001) and resource supply for innovation (β = -0,137; p < 0,05) on IWB was found (Table 6). However, the effect of positive innovative climate on IWB is stronger. The effect of negative innovative climate on IWB is not significant in this analysis.

Table 6 Multiple Regression Analysis among Organizational Climate for Innovation Dimensions and IWB

Dependent Variables	Model	Independent Variables	R	R^2	Adj.R^2	Standard Error	ANOVA F	ANOVA Sig.	B	β	t	Sig.	VIF
IWB	1	(Constant)	,483	,233	,227	,54025	40,557	,000	2,570		21,358	,000	
		PIC							,365	,542	8,550	,000	1,398
		RIC							-,083	-,137	-2,169	,031	1,398

IWB : Innovative Work Behavior,
PIC : Positive Innovative Climate,
RIC : Resource Supply for Innovative Climate,

Table 7 Multiple Regression Analysis among Organizational Climate for Innovation Dimensions and Innovative Idea Realization

Dependent Variables	Model	Independent Variables	R	R^2	Adj.R^2	Standard Error	ANOVA F	ANOVA Sig.	B	β	t	Sig.	VIF
IR	1	(Constant)	,579	,335	,330	,58224	67,292	,000	2,112		16,289	,000	
		PIC							,503	,644	10,918	,000	1,398
		RIC							-,104	-,148	-2,510	,013	1,398

IR : Idea Realization,
PIC : Positive Innovative Climate,
RIC : Resource Supply for Innovative Climate,

When the effects of three sub dimensions of organizational climate for innovation on idea generation was tested, only significant effect of positive innovative climate on idea generation was found. Therefore, we may state that innovative idea generation can only be explained with positive innovative climate. The results of the simple linear regression can be examined above (See Table 4).

When the effects of three sub dimensions of organizational climate for innovation on idea realization was tested, significant effects of positive innovative climate (β = 0,644; p < 0,001) and resource supply for innovation (β = -0,148; p < 0,05) on idea realization was found. The significant effect of negative innovative climate on innovative idea realization which is found in the result of simple linear regression analysis lost its significance when it is analyzed with all three sub dimensions of organizational climate for innovation in a multiple regression model (See Table 7).

According to the results of the analyses above, we accept the hypothesis *"H1: Organizational climate for innovation has positive effect on innovative work behaviors of employees"* of this study. We may particularly state that positive innovative climate has remarkable effect on IWB. When we examine this relationship at factor level, we find that positive innovative climate has remarkable effect particularly on innovative idea realization.

Demographic groups, shown in Table 1, were compared to examine the differences among them with regard to the organizational climate for innovation, IWB and their sub dimensions.

As a result, significant difference has been found in employees' positive innovative climate perceptions and innovative idea realization behaviors between the companies employing less than 250 people and companies employing equal or more than 250 people. Additionally, significant difference has been found in employees' innovative idea realization behaviors among the participants' age groups.

As it is seen in Table 8, positive innovative climate perceptions and innovative idea realization behaviors of employees working in the companies which employ less than 250 people is significantly higher than those of employees working in the companies which employ equal or more than 250 people.

Table 8 T-test for the Research Variables

	N	Mean	Standard Error	F	Levene Sig.	t	t-test Sig.
POSITIVE INNOVATIVE CLIMATE				7,375	,007	3,782	,000
Companies employing less than 250 persons	104	3,23	0,992				
Companies employing equal or more than 250 persons	166	2,79	0,815				
IDEA REALIZATION				11,765	,001	2,260	,025
Companies employing less than 250 persons	104	3,43	0,826				
Companies employing equal or more than 250 persons	166	3,22	0,618				

As it is seen in Table 9, innovative idea realization behaviors of employees whom are within age group 41-61 is significantly higher than those of employees whom are within age group 23-40.

Table 9 ANOVA for the Research Variables

	N	Mean	Standard Error	ANOVA F	Sig.	Scheffe		Mean Diff.	Sig.
IDEA REALIZATION				4,781	,009				
23-30 age	93	3,20	0,742						
31-40 age	129	3,27	0,693						
41-61 age	48	3,58	0,643			41-61 age	23-30 age	0,377	,011
							31-40 age	0,304	,039

Discussion

In this study, it is found significant relationship between participants' perceptions of organizational climate for innovation and their innovative work behavior. According to the survey results, employees' perception of organizational climate for innovation has stronger effect on their innovative idea realization behavior rather than their idea generation behavior. Amabile (1996) defined creativity as the production of novel and useful ideas in any domain and stated that individual innovation begins with idea generation. Based on the definition, we may state that innovative idea generation is more related to creativity and emerging as a result of individual characteristics. King et al. (2007) also found that that organizational climate for innovation is positively associated with organization performance and productivity. On the other hand, main focus of the companies in ICT sector in Turkey could be decent operation rather than new idea generation. This could be the reason that employees' perception of organizational climate for innovation has stronger effect on their idea realization behavior rather than their idea generation behavior.

Particularly, employees exhibit innovative idea realization behavior when positive innovative climate is facilitated in their workplace. In such workplaces where positive climate is facilitated, innovative idea generation behavior can also be observed to a lesser extent as well. If negative innovative climate is in place, it does not affect employees' innovative idea generation, however it has negative effect on their innovative idea realization behavior. In the workplaces where adequate resources are supplied for innovation, only employees' innovative idea realization behavior is positively affected in a low amount. In the correlation analyses, it is found out significant, negative and low intense (r= - 0,196) correlation between resource supply for innovation and idea realization. Therefore, this result can be interpreted as innovative idea realization increases as the inadequacy of resources reduces.

Scott and Bruce (1994) and Yuan and Woodman (2010) predicted that the degree to which organization members perceived an organizational climate as supportive of innovation would affect individual innovative behavior, hence given climate's conceptualization as a determinant of individual behavior and the previous empirical support for climate's effect on organizational and departmental innovation. Interviews in Scott and Bruce's (1994) study indicated that support could motivate employees in both phases of the innovation process. Experiencing support was believed to be helpful in creating and generating ideas. In this context, our findings in this study do not strongly support Scott and Bruce's (1994) findings above.

In demographic analyses, it is found that positive innovative climate perceptions and innovative idea realization behaviors of employees working in the companies so called as SME (Small and Medium Enterprises) which employ less than 250 people is significantly higher than those of employees working in the companies which employ equal or more than 250 people. Based on my experience and observations, I think that bigger companies might face with more competition and more uncertainty because of continuous changes rather than smaller companies in ICT sector. Additionally, SMEs are more operation oriented companies compared to the bigger ones that assumed to be more creative. Therefore, I think that positive innovative climate perception and innovative idea realization behavior might be seen more often in smaller companies where the competition, change and uncertainty facts are felt relatively rare and the decisions and initiatives can be taken faster and easier. In demographic analyses again, it is found that innovative idea realization behaviors of employees whom are within age group 41-61 is significantly higher than those of employees whom are within age group 23-40. I think the participants in age group 41-61 can take more initiative because they are more experienced than those in younger age group and thus exhibit more innovative idea realization behavior, at least they are more conscious to exhibit such behavior.

As a result in this study, it is found out that building a positive innovative climate in the workplace has significant effect on employees' innovative work behavior exhibition. It is also observed that a negative climate has unfavorable and bad effects on IWB. Companies' resource supply for innovation has also positive effect on employees' innovative work behavior.

It is crucial for the companies to encourage and recognize their employees' creative ideas and innovative behaviors, to provide them adequate time for creative and innovative activities, reward their exhibition of such behavior and additionally to provide a flexible and "open to change" working environment in order to build a positive innovative climate in the workplace. It is suggested the companies operating in the ICT sector in Turkey to build such a positive climate as mentioned above in their organization in order to be more competitive, to better manage the change and to make more innovation to satisfy their customers more.

In this study, it is also found that organizational climate for innovation has effects on mainly employees' innovative idea realization behavior however lesser effects on employees' idea generation behavior. Innovative idea generation is one of the dimensions of IWB, however also the first stage of IWB at the same time. Amabile et al.

(1996) and Kanter (1988) stated that innovation begins with idea generation, that is the production of novel and useful ideas in any domain. Therefore, for the future studies, it is suggested that researchers had better emphasize on the factors effecting particularly idea generation behavior more in order to better explain which other factors have significant effects on IWB. At the same time, I think the investigation of other factors such as leadership styles etc. that supposed to have effects on IWB and the employees' innovative work behavior from other sectors in Turkey or other countries will contribute to competitiveness yet it is not as much as desired but in an increasing trend today.

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CSABA MAKÓ – MIKLÓS ILLÉSSY – BALÁZS HEIDRICH

WHEN WILL ALPHA AND OMEGA COLLIDE?
IN SEARCH OF THE THEORETICAL RELEVANCE OF EU INNOVATION POLICIES

MIKOR ÉR (VÉGRE) ÖSSZE AZ ALPHA ÉS AZ OMEGA?
KUTATÁS AZ EU INNOVÁCIÓS POLITIKÁINAK ELMÉLETI KERETEIBEN

Innovation has been really become a buzzword in recent decades both in the scientific and the political community. It is regarded as a primary driver of social and economic development. However, the EU's innovation performance hasn't improved significantly in the past 15 years, despite the remarkable political effort to boost it. In this paper, by a thorough analysis of the most relevant EU policy documents from 1995 to 2014, the authors examined the evolution of the European innovation policies and compared it with the evolution of innovation studies. They found that just as Europe is lagging behind its most important competitors in terms of economic performance, so does the innovation policy lag behind the current state of the art of innovation research. This poses significant problems if we are to fully exploit the social and economic potential of innovation activities. They argue that a broader operational concept of innovation could make innovation policies more inclusive and thus both the capacities and the gains of innovation could be more effectively developed. However, this can only be achieved through closer cooperation and interactions between the scientific community and those actively involved in different stages of policy making processes. This would be even more beneficial in the eve of digitalisation, automation and robotisation when the new technologies are near to being fully integrated into diverse economic activities, if we are to minimise the social risks and maximise the economic gains associated with the 4th industrial revolution.

Keywords: EU innovation policies, SMEs, inclusion

Az elmúlt évtizedekben az innováció, a társadalmi és gazdasági fejlődés elsődleges motorjaként közkedvelt témája volt nem csak a tudományos közösségnek, de a politikusoknak is. Az innovációt övező érdeklődés és az ösztönzésére irányuló számottevő politikai akarat ellenére az adatok azt mutatják, hogy az EU innovációs teljesítménye nem sokat javult az utóbbi 15 évben. A szerzők tanulmányukban arra vállalkoznak, hogy közelebbről is szemügyre veszik az 1995 és 2014 között született legfontosabb dokumentumokat, amelyek meghatározták az EU innovációs politikáját és ezek alapján rekonstruálják az EU innovációs politikájának fejlődését, majd összevetik ezt azzal a fejlődési pályával, amelyet az innovációról szóló szakirodalom befutott. Az innovációról szóló politikai és szakmai diskurzus összehasonlítása arra az eredményre vezetett, hogy amiképp az EU jelentős lemaradásban van legfontosabb versenytársaihoz képest az innováció területén, az innovációs politika hasonló távolságból követi az innovációs szakirodalom változásait. Ez a politikai tudásdeficit pedig jelentős akadálya annak, hogy kihasználjuk az innováció kínálta társadalmi és gazdasági előnyöket. Tanulmányukban amellett érvelnek, hogy az innováció tágabb megközelítésére alapozott innovációs politika jelentős mértékben hozzájárulhat ahhoz, hogy inkluzív módon hasznosítani lehessen az innovációban rejlő lehetőségeket. Ehhez azonban az eddigieknél szorosabb együttműködésre van szükség a tudományos közösség tagjai és a politikaformálásban érintett szakértők között. Mindez még fontosabb lenne a digitalizáció, az automatizáció és a robotizáció hajnalán, amikor az új technológiák a hagyományos gazdasági tevékenységeket is egyre inkább átformálják, egyszerre kínálva jelentős társadalmi és gazdasági kockázatokat és hasznokat.

Kulcsszavak: EU innovációs politikák, kis- és középvállalkozások, befogadás

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Innovation has become a core issue over the past few decades, and especially since 2010, with the new European development strategy called Europe 2020 – A strategy for smart, sustainable and inclusive growth (hereinafter Europe 2020). However, despite the rather ambitious initiatives aimed to reduce the gap in innovation performance between the EU and its main competitors, that is the USA and Japan, we are witnessing relatively slow development in this field. One of the reasons for that is enduring differences between the innovation performance of large firms and small- and medium-sized enterprises (SMEs). For example, the Community Innovation Survey collects data on the share of innovative enterprises by the size category of the firms. While the firms with a smaller number of employees tend to be less innovative in all European countries, there are significant differences in the gap between the ratio of large and small, as well as large and medium-sized firms. In the next table we compare the innovation performance of different size categories of firms. The second column displays the difference between the share of innovative large enterprises (250 or more employees) and innovative small (less than 50 employees) firms (thus referred to as the innovative L/S ratio), the third column shows the similar difference between the proportion of innovative large enterprises and innovative medium-sized (50-249 employees) firms (innovative L/M ratio).[i]

As we can see from the Table 1, the differences between the innovation performance of large and small firms are relatively high in the case of post-socialist and Mediterranean countries, the size gap significantly decreases in the case of the most developed European countries. It is also worth noting that the differences are much bigger between the large and small firms, than between large and medium-sized firms.

Table 1 Size gap in innovation performance

	Innovative L/S ratio	Innovative L/M ratio
Poland	3,9	1,8
Hungary	2,5	1,5
Spain	2,4	1,4
Czech Republic	2,2	1,3
Slovakia	1,9	1,4
Italy	1,9	1,2
EU-28	1,7	1,3
Portugal	1,7	1,3
Austria	1,7	1,2
France	1,6	1,2
Finland	1,5	1,2
Germany	1,5	1,2
Ireland	1,5	1,2
United Kingdom	1,2	1,1

Source: Eurostat – Community Innovation Survey, 2014

Our study examines whether or not current innovation policy at European level is apt to boost the innovation performance of the SME sector and to reduce the above-mentioned size-gap. The paper is structured as follows. In the first section we will shortly outline a theoretical framework in which we will analyse and evaluate the development of European innovation policies. This is followed by an overview of the most important phases of EU innovation policy development: the Green paper on innovation (1995), the Lisbon strategy (2000-2010) and the Europe 2020 strategy (2010-2020). In the third and final section, we will summarise the main findings and draw some conclusions.

Theoretical framework of innovation policy analysis: narrow vs. broad approach of innovation

The origin of modern innovation studies dates back to the 1950s when it was called 'science policy research' (Martin, 2016). This heritage has a long-standing impact on how innovation is perceived today by the actors involved in the innovation policy formulation process. There are two main approaches of innovation policies. In the more traditional (i.e. narrow) policy approach, innovation is regarded as a linear process, where the source of all innovation activity is scientific research. The results of scientific basic research transformed into engineering and manufacturing, while the new product is distributed through marketing and sales activities. The directions in the process are unilateral, there are no feedback mechanisms included in this system. An implicit consequence of this approach is that innovation is mainly regarded as a radically new product or process, and incremental innovations are seen as of secondary importance.

It is also worth noting that this traditional approach places particular emphasis on the emergence of new ideas, while their wider exploitation and diffusion remains a relatively neglected aspect of innovation. In this narrow approach, innovation is very technological in its nature and thus the primary manifestation is in the manufacturing sector. This approach also focuses specially on the generation of explicit knowledge. Policies therefore aim to improve both the quantitative and the qualitative aspects of the higher education system (e.g. by raising the number of PhD students) and the research base of the country. All these characteristics of the narrow/traditional approach denote the main rationale of state intervention in the field of innovation (Fagerberg, 2014, p. 5). It is embedded in the neo-classical stream of the economic literature in which self-regulated markets would create the optimal resource allocation. According to this argument, innovation has 'public good' properties inhibiting firms to invest as much in innovation as the 'optimum level' would require because the returns from innovation investments cannot be fully appropriate, as new ideas and solutions are diffused throughout society and the economy after some time has passed. This is the so-called market failure argument (Fagerberg, 2014, p. 5).

Schienstock and Hamalainen (2001) gave an essential critique of the narrow (traditional) approach by underlining its implicit assumptions as follows: innovation is understood in the narrow approach as an exceptional event; innovation and the process of knowledge creation is seen as an isolated process; problems of uncertainty remain unsolved; R&D is supposed to be the main (if not the only) source of innovation; and the narrow approach also neglects collaborative elements of innovation (Schienstock & Hamalainen, 2001, p. 50). There is an increasing volume of evidence that suggests that the linear model of innovation represents the exception rather than the rule. Most of the time it is hard to find any direct causal link between new scientific knowledge and innovation. Schienstock and Hamalainen (2001) contrast the science-based notion of innovation to the activity-based one which can take place anytime and anywhere. Instead of being a single event, innovation should be rather seen as a continuous process related to the everyday practice of organisation. Thus, they stress the importance of incremental innovations. Another basic feature of innovation concerns its ambiguous and uncertain character. In order to cope with this inherent uncertainty, this approach proposes to use the recursive model of innovation as opposed to the linear one (ibid., p. 51). In this model the triggers of innovation may vary depending on the given case, there are multiple actors involved in the process of innovation and there are 'complicated feedback mechanisms and interactive relationships' among them. As this model stresses the importance of the socially embedded character of innovation, it is implied that instead of explicit knowledge, the tacit dimension will be more relevant with trust relations and collective knowledge playing a key role.

This critique of the narrow approach of innovation policy is deeply rooted in the theoretical stream of national innovation systems which is the result of the 30-year old evolution of the innovation studies from the late 1950s until the late 1980s. In this view, each country represents a specific case with specific actors and institutions and with unique relationships among them. As Martin puts it: "The notion of a 'national system of innovation' (NSI) is one of the most important conceptual developments to emerge from I(*nnovation*) S(*tudies*). It shifted attention from the previous focus on individual innovation actors (e.g. firms, universities, and public research labs) to the links and interactions between the various actors making up the national innovation system" (Martin, 2016, p. 435).

National systems of innovation (Lundvall, 1992; 2016) evolve historically and seem to show path-dependent characteristics, i.e. resisting capacity towards the changes in the environment. It is also implied that there are no universal policy solutions or instruments that can be effectively implemented independently from the context of the given country. The two models of innovations imply two different knowledge management models as well, since they rely on two different types of knowledge. According to Jensen et al. (2004), the narrow approach can be characterized by the STI-mode (Science, Technology, Innovation) of knowledge management system dealing mostly with explicit and codified knowledge, while the broad approach involves tacit and 'often highly localized' knowledge where Doing, Using and Interacting, the so-called DUI-mode of knowledge management plays an important role (Table 2).

Table 2 The evolution of innovation studies: narrow and broad approach of innovation

Dimensions	Narrow Approach	Broad Approach
Model of innovation	Linear	Recursive
Dominant form of innovation	Radical	Incremental
	Technological	Non-technological
Knowledge base	Scientific, explicit and individual	Practical, tacit and collective
Mode of innovation	STI-mode	DUI-mode
Sector	Manufacturing	No focus on specific sectors
Policy implications	Market failure approach	System approach

Source: own compilation

The evolution of innovation as a concept in European innovation policies

In this section we will investigate how the concept of innovation has been changed in different European policy documents during the past 15-20 years. By doing so we will rely to a large extent on the theoretical framework briefly summarised earlier. First of all, we would like to present some methodological limitations of this section. Public policy can be defined as: '*all* actions by public organizations that influence certain societal processes' (Edquist, 2014). However, in this policy analysis we cannot meet these criteria, therefore we limit our focus to the main policy documents of the single public organization of the European Commission (EC). The EC has had so many programmes and initiatives that a holistic evaluation would be impossible. Therefore, we will examine only the most important innovation policy documents of the three most important strategic documents of the EU, namely the Green Paper on Innovation (1995), the Lisbon Strategy (2000) and Europe 2020 (2010). Beside these, some additional reports and communications were produced. Our main argument is that although a relatively stable consensus was reached within the research community about the advantages of systemic or broad approach of innovation compared to the narrow one already during the early 1990s, the innovation policy was dominated by the latter until the 2010s.

Green Paper on Innovation (1995)

The beginning was surprising. One of the very first documents aimed at determining innovation policy at the European level was the Green Paper on Innovation adopted in 1995 (European Commission, 1995). The objective of the Green Paper was to identify key factors and policy measures through which innovation activity can be enhanced in the EU. Although the definition of innovation adopted in this strategic document was quite vague: 'the successful production, assimilation and exploitation of novelty in the economic and social spheres', later we can find definitions for product, process and organisational innovation (European Commission, 1995, p. 1). The document also emphasizes the importance of such background factors as the innovation culture or skill basis of the society, as well as the contribution of the public service sector. As the document puts it: '… innovation is (…) the introduction of changes in management, work organisation, and the working conditions and skills of the workforce' (European Commission, 1995, p. 1).

These are clearly important elements of the broad approach. Similarly, the document recognizes that innovation is not a linear process but involves dense interactions of different actors, including the users 'and anticipating the needs of the market and society are just as important – if not more so – than a mastery of the technology' (European Commission, 1995, p. 1). The Green Paper also distinguishes between radical and incremental innovation - giving equal importance to both kinds. Concerning the sectors involved in innovation activities the document also remains neutral, recognizing the importance of innovation not only in high-tech sectors but also in agriculture, service, and even public sector innovation is underlined. Later in the document, the authors argue that organisational innovation plays a crucial role as it is frequently a necessary precondition for the success of other forms of innovation and that Europe lags behind its competitors in this field.

In relation to the theoretical framework briefly sketched in the previous section, the Green Paper is balancing between the broad and narrow approach of innovation. There is an inevitable gap between the theoretical background of the Green Paper and the measures proposed: although from a theoretical point of view, this document can be evaluated as one which fully applies the broad-based approach, in terms of policy measures it remains technology-oriented. According to the document one of the most important weaknesses the European Union has to face is the so-called European paradox. This term refers to the fact that while Europe performs well in terms of basic scientific research, it struggles in transforming its scientific excellence into commercial success compared to its main competitors, i.e. to the US and Japan. This analysis had a long-lasting impact on the orientation of European innovation policies, focusing mainly on patent regulation, tax incentives and stronger collaboration between R&D sectors and industry, strengthening the technology absorption capacity of SMEs, etc. This phenomenon can be observed in the Green Paper itself.

This is most visible when it comes to the measures proposed on the basis of the broad-based theory applied. In the second part of the paper, the Commission outlines a full set of actions that has to be taken in order to improve innovation capacity of both firms and individuals in the European Union (European Commission, 1995, pp. 38-47). None of the listed 13 measures can be linked to non-technological innovation but reflect a narrow approach especially emphasizing the importance of technological innovation, scientific, explicit and individual knowledge-base, the STI mode of innovation and the manufacturing sector. This divide between theoretical assumptions and concrete policy measures can be identified in subsequent innovation strategies and other policy documents, too.

The Lisbon Strategy: one step forward, two step back towards a holistic innovation policy

The Lisbon Strategy (2000) aimed to create a model for a knowledge-based economy and society which is the most competitive and dynamic in the world. The Strategy defined three strategic goals: sustainable economic growth, more and better jobs and greater social cohesion. It was not at all surprising that in the context of knowledge-based economy, innovation quickly became a core issue. There were two main initiatives aimed to foster innovation. The first was the establishment of the European Area of Research and Innovation, the second aimed to create friendly environment for start-ups and SMEs. As part of this initiative, the Commission aimed to increase the competitiveness and dynamism of the business sector by creating a friendlier environment especially for start-ups and SME-s. This involved lowering the costs and the administrative burdens of doing business. Encouraging interfaces between the partners of the Triple Helix models and advisory services and other types of business angels also became a priority in the policy agenda. It is important to note that this was the first time in the history of the EU's innovation policy when innovation activity of the SMEs had been given top priority.

However, in these key policy documents one can hardly find any traces of broad-based innovation. In fact, the only quantifiable innovation-related objective of the Strategy was to increase the share of R&D expenditures in GDP from 1.9% to 3% by 2010 and to raise the proportion of private investments within these expenditures from 55% up to 67%. The implementation of the Lisbon Strategy has been achieved in three main phases. This first period is also known as Lisbon I and took place between 2000 and 2004. This was followed by a mid-term review and a second period of the Strategy 2005-2008, also known as Lisbon II. The third phase was the continuation of Lisbon II in the context of global financial crisis and economic downturn. The mid-term review resulted in a slightly modified innovation strategy 'European Partnership for Growth and Jobs' and in an Action Plan 'More Research and Innovation – a Common Approach'. The analysis of these documents together with other key policy documents shows that the broad approach has never been fully applied during this period of time. It is especially true for the action plans, more concrete policy measures and evaluation methods.

A good example for this contradiction at different policy levels can be found from 2003 when the European Commission issued a communication on updating the concept of innovation (EC, 2003a) and also an action plan (EC, 2003b). Both documents were approved in 2003. The first one represents a theoretical shift from linear to a systemic model of innovation though keeping the strategic aim of raising the share of R&D expenditure to 3% of the GDP: 'Important though research is as the source of invention, innovation encompasses more than the successful application of research results. The evolution of the innovation concept – from the linear model having R&D as the starting point to the systemic model in which innovation arises from complex interactions between individuals, organisations and their operating environment – demonstrates that innovation policies must extend their focus beyond the link with research' (EC, 2003a, p. 4). Beside the R&D-based linear approach, the document also recognises the importance of incremental innovations, the so-called value-innovation, organisational and business model innovation and design and marketing innovation. The document criticizes the innovation policies of the past: 'Although it is the systemic model that now dominates in policy discussions, many measures put into practice with the intention to promote innovation still appear to owe more to the linear view' (EC, 2003a, p. 7). This broadening of the innovation approach involves a shift in the focus of the innovation policy as well as recognising that enterprises are at the heart of the innovation process. Therefore, the most important target of the innovation policy should be the enterprises, their behaviour, capacities and environment. In parallel with this shift, statistical data analysis also has to be reviewed as well: 'These models also colour measurements of the innovation process and innovation performance, which are usually biased towards indicators of technological innovation' (EC, 2003a, p. 7).

While the developed policy document explored the new broad-based approach of innovation, the Commission issued an innovation action plan three months later in the same year which reflected rather few elements from the renewed concept of innovation elaborated a few months earlier. The only focus of the action plan was to design policy initiatives which can effectively help to increase the average research investment level from 1.9% of GDP to 3% of GDP by 2010, of which 2/3 should be funded by the private sector. As it has been argued earlier, this objective, that has never been achieved, would require at that time an annual growth rate of 6% in the public sector and 9% annual growth in the private investments. Initiatives, on the other hand, aimed to boost organisational or other non-technological innovation are completely missing from the action plan. Concerning the measurement, we can see the dominance of indicators reflecting the narrow approach of innovation throughout the Lisbon process. In March 2000 the European Council approved a set of structural indicators. Among these only the following ones were aimed to measure innovation to a very narrow extent: public expenditure on education, the total R&D expenditure, the level of Internet access, the number of science and technology graduates, the patenting activities, venture capital investments and ICT expenditure.

Europe 2020: significant changes in European Innovation policy

In the new European strategy called Europe 2020 – A strategy for smart, sustainable and inclusive growth, innovation remained an important issue and became one of the seven flagship initiatives. The aim was to adopt a much more strategic approach to innovation: 'An approach whereby innovation is the overarching policy objective' (European Commission, 2010, p. 2). The so-called Innovation Union initiative is built around 34 specific commitments in five main thematic areas: strengthening the knowledge base and reducing fragmentation, getting good ideas to market, maximising social and territorial cohesion, pooling forces to achieve breakthroughs: European Innovation Partnerships, and leveraging policies externally. We can see two major steps towards the broad-based approach of innovation: the emergence of social aims as an outcome of innovation activities and the importance of policy learning with self-reflection and different feedback mechanisms, implicitly assuming some sort of social dialogue in this field.

Instead of presenting all 34 commitments we will only outline the most important points of the strategy. One of the primary aims of the strategy is to increase the R&D&I investments to 3% as a share of GDP in all Member States. This remains an important threshold to reach despite the financial and economic crisis. Fast growing SMEs are one of the most important target groups of these initiatives of easing access to finance, making intellectual property rights more affordable to enterprises and setting interoperable standards. In order to tackle societal challenges more effectively, the strategy launched a special programme called the European Innovation Partnership. The main societal challenges identified by the strategy are among others: life-threatening diseases, new solutions to improve the lives of elder people, ways to radically cut CO2 emissions, alternative sources of energy, reducing and recycling waste, smart transport, healthy or high-quality food stuffs, communication and interfacing (European Commission, 2010, p. 22).

The Commission monitors the innovation performance of the Member States through the Innovation Union Scoreboard (IUS) and through the Summary Innovation Index (SII). The Scoreboard was first created in 2002 and has been revised several times since then. The SII is a composite indicator of 25 sub-indicators. Since this is the primary monitoring tool of the EC which is reflective of the EU's innovation policy approach and influencing it at the same time, it is essential to thoroughly analyse it. In a recent research paper, Havas et al. (2015) revealed a strong bias towards R&D-based innovations, that is, towards the narrow approach of innovation policies. As they argue, among the 25 indicators: '10 indicators are *only* relevant for, and a further four *mainly* capture, R&D-based innovations; seven could be relevant for both types of innovations; and a mere four focus on non-R&D-based innovations. Given that (i) the IUS is used by the European Commission to monitor progress, and (ii) its likely impact on national policy-makers, this bias towards R&D-based innovation is a source of major concern' (Havas et al., 2015, p. 18). The only other instrument to measure innovation activities of the firms is the Community Innovation Survey (CIS) carried out every second year.

According to the first evaluations of the Europe 2020 strategy, further improvements are needed in eliminating inconsistencies in rules and practices making innovation activity less burdensome and risky, especially by creating a real European single market. Another gap identified is the weak innovation culture which could be only improved by a closer involvement of society. Although major achievements have been reached concerning public sector innovation, significant reserves remained unused in this field. The strategy puts a special emphasis on promoting the inclusive character of innovation, that is on equal access to both development capacities and the benefits of innovation, further steps need to be taken in order to strengthen this inclusive dimension. The evaluation also identifies considerable skills shortage and mismatches: 'It does not only concern sector-specific skills, but also numeracy and literacy skills, as well as the '21st century skills' for creativity and entrepreneurial spirit' (European Commission, 2014, p. 11). From the perspectives of this paper, the most important elements are the recognition of the inclusive character of innovation and the necessity of the development of generic skills instead of industry-specific ones.

It is also worth noting that since the beginning of the launch of Innovation Union Initiatives (2010), important policy priorities have been defined. Among the top six priority areas we can find social innovation, design-driven innovation, demand-side innovation policies, public sector innovation, public procurement of innovation and workplace innovation. Overall, we can say that the European innovation strategy represents a significant shift from the narrow to the broad approach of innovation policy although it is far from its full application and can be placed somewhere midway between the two. The essence of the evolution of the European innovation policies is summarised in the Table 3.

Conclusions and implications

A remarkable shift in the evolution of the EU's innovation policy was found from the narrow to broad-based approach when it comes to its theoretical basis. This is, however, only true with two restrictions. First, there is a considerable gap between the theoretical foundations of innovation policies and their policy measures. As we could see from the Green Paper on Innovation (1995), at a theoretical level, innovation policies have been open to a broad-based, systemic or holistic approach from as early as the mid-90s. On the other hand, this is hardly reflected in action plans and on a policy measure level in general: the measures seem to be derived from the narrow approach to innovation where state intervention is justified by market failures and which is characterised by the linear model of innovation focusing on radical and technological innovation of the manufacturing sector on the basis of scientific, explicit and individual knowledge.

Table 3 The evolution of EU innovation policies 1995-2015

	Green Paper (1995)	Lisbon I (2000-2005)	Lisbon II (2005-2008)	Lisbon III (2008-2010)	Europe 2020
Elements of broad-based innovation concept	Fully applied broad-based approach	A slight shift from a linear towards a systemic approach appears only in 2003	Public procurement as a tool to boost innovation	No significant changes compared to Lisbon II	Top 6 priorities: social innovation; design-driven innovation; demand-side innovation policies; public sector innovation; public procurement of innovation; workplace innovation
Elements of narrow innovation concept	In terms of proposed policy measures, it remains technology-oriented: importance of technological innovation, scientific, explicit and individual knowledge-base, the STI mode of innovation	Strategic objective is to raise the share of R&D expenditures in the GDP from 1.9% to 3% by 2010	Focus is on R&D expenditures, green economy, strong industrial base and on innovation-friendly environment, explicit reference to market failure approach	Increase investment in R&D, innovation and education. Develop clean technologies for cars and construction. High-speed internet for all	Innovation statistics remain science and technology-focused
Measurement		Establishment of the European Innovation Scoreboard: no indicators of non-technological innovation and Job Quality			5 key indicators and the creation of Innovation Union Scoreboard and Summary Innovation Index
Sector prioritised	Innovation is important in low-tech sectors, in private and public segments of services	No sectoral focus	Promotes innovation in the services	Green economy, car manufacturing and constructions	Health and social service, green economy, public sector
Interrelation of Innovation and Job Quality	Recognised but poorly developed, more focus put on quantitative dimension of employment	Exclusive focus on quantitative dimension of employment, although improving working conditions becomes a strategic objective	'Better jobs' dropped from the agenda		Job quality is of high priority again, though not in direct relation to innovation
Social inclusion	Does not appear				Special emphasis on promoting the inclusive character of innovation.

Though this shift does not appear in concrete policy measures and action plans and remains mainly rhetoric: 'enterprises are at the heart of the innovation process'.

Contribution of innovative-related trade in manufactured goods to the balance of trade of goods; Share of fast growing and innovative firms in the economy; Percentage of employment in knowledge intensive activities; Patent applications weighted by GDP; Hourly labour productivity

The weaknesses of the narrow approach are numerous and obvious. Concerning education, for example, which is an important element of all innovation policies, we did not find any references to the skill needs, knowledge and manpower use practices of the enterprises and especially SMEs (i.e. demand side). Instead, European policies targeted almost exclusively the supply side of education. In the context of the current disruptive technological changes (like automation, digitisation, robotisation, etc.) the skill biased aspect of innovation is worth special attention: 'Beyond the quantitative effect of new technologies on the number of employees, it is also important to investigate the qualitative effect of technological change on different categories of workers. The basic premise here is that innovations are skill-biased and, therefore, replace tasks traditionally carried out by unskilled workers with new jobs demanding skilled workers' (Vivarelli, 2014, p. 138).

The market failure argument is about the justification of state intervention. According to the argument rooted in traditional neoclassical economics such an intervention can only be justified in the case of market failure, i.e. when markets are unable to produce optimum functioning. Market failures may have various sources: economies of scale and scope, asymmetric information, externalities, etc[ii]. As Edquist (2014) rightly argued: 'the notion of optimality is irrelevant in the field of innovations and innovation systems' (p. 15). The design of innovation policies should not follow universal objectives (such as the share of R&D expenditures in GDP) but has to be based on the analysis of the characteristics, strengths and weaknesses of the individual national innovation systems. In relation to this, it is necessary to stress the differences in the countries' historical and institutional contexts. This institutional variety plays an important filtering role between such megatrends as globalization, networking of economy and society, ICT, outsourcing of business functions etc. On the basis of these concluding remarks, we can formulate some general propositions for a future innovation policy:

1) Separate research policy from innovation policy. This is the heritage of the traditional linear view of innovation inhibiting the shift towards a holistic policy approach.
2) Another important element which may facilitate such a shift in policy orientation would be the development of a measurement tool better at capturing the complex character of innovation processes.
3) Innovation policies should be more open to low-tech sectors and put less focus on high-tech. The case of Denmark and Austria are the examples of highly innovative countries with low-tech industrial structure. In addition, low and medium-low sectors represent important segments of the economies where the dominant form of innovation is incremental innovation.
4) A similar shift in the focus is needed from large to small and medium-sized enterprises because this sector is an important locus of employment and economic performance in every country.
5) The shift towards a broad approach also involves changes in innovation governance where processes of policy design and policy learning are of essential importance.

We would refrain from proposing a set of more concrete actions because an appropriate innovation policy takes into account the specificities of different national innovation systems and there are no universally applicable political solutions. There exists, however, numerous national level initiatives that can serve as an example for measures based on a holistic innovation approach such as the Swedish functional public procurement system (Edquist, 2018) or the Finnish workplace development programme (Alasoini, 2015). The Swedish functional public procurement system is a good example for how to increase the demand for innovation, whilst the Finnish programme is aimed to enhance the learning networks consisting of enterprises, universities, research institutes and other stakeholders at a local level.

Although we examined primarily the evolution of the EU's innovation policy in this paper, it is also worth noting that the main locus of innovation-related public actions and measures can be found at a national level. The EU innovation policy is important in this regard as a general framework which orientates national innovation policies to a different extent. There is some inherent contradiction between a single EU innovation policy and the real needs of different Member States having their own historical developments and path dependent national innovation systems. What is important here, therefore, is the existing policy learning processes and mechanisms enhanced basically by a more or less intensive dialogue between the stakeholders involved. It is only through this dialogue that a compromise can be reached between the feasibility of scientifically desirable and the politically administrative policy actions.

These conclusions derived from an analysis of the development of the European innovation policy are especially relevant in the Hungarian context. According to the results of the latest issue of the European Innovation Scoreboard the indicators indicating the most significant lagging compared to the European average can be found in the SME sector. Hungary is a moderate innovator, its overall innovation performance is 66% of the European average, the three indicators reflecting the innovation performance of the SME sector vary between 13.7-16% of the EU-average (European Union, 2018, p. 66). It is clear from this analysis that it will be extremely difficult and costly to narrow the gap between the European and the Hungarian SME-sector's innovation performance, if the Hungarian innovation remains in the old paradigm of the narrow approach of innovation as SMEs generally lack the necessary human, financial and technological resources to run R&D projects and the majority of them operates outside of the manufacturing sector. Therefore, the redesign of Hungarian and European innovation policies is a major challenge ahead of us and must represent a top priority for all stakeholders of the national innovation system.

Endnotes

[i] For example, in the first case we divided the proportion of innovative large enterprises from all large enterprises by the proportion of innovative small firms from all small firms, and so on. The table shows that the proportion of innovative large enterprises is 3.9 times higher than the innovative small firms in Poland.

[ii] For a literature review, see: BIS, 2010.

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