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FROM REFERENCES TO ORIGINALITY

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Abstract. *This article aims to analyze the specific approach, from bibliographic references or bibliography to creativity or originality, for the whole procedure of modern research, emphasizing its distinctive tendencies or its characteristics in trans-, inter-, cross- and multidisciplinary research, an aspect announced from the very introductory part. After a section dedicated to the four concepts announced in an attempt to identify some similarities and also differences detailed in this article, between references and bibliography, as well as between creativity and originality, there follows a final section, whose content explores the management of sources or references and bibliography (RM), enumerating some of the freeware or paid software (RMS), so that its use can be ensured in a concrete and efficient way. A few final remarks about the future of this new type of management, specific to scientific research, conclude the article and outline several potential trends in this new narrow or niche managerial field.*

Keywords: *references, bibliography, creativity, originality, software (S), reference management (RM), reference management software (RMS), scientific research.*

1. INTRODUCTION

The analysis of the specific approach, from bibliographic references or bibliography to creativity or originality, for the whole procedure of modern research, but also in trans-, inter-, cross-, and multi-disciplinary research, starts from some conceptual similarities and differences between the terms references and bibliography, as well as between creativity and originality, and then proceeds with the enumeration and description of modern software useful in the specific management of bibliographies, and thus related to ensuring the creativity or originality of books, articles, etc.

The authors' avowed option for the Harvard style of editing references or citations (compared to APA, MLA, Chicago/Turabian, etc.), and implicitly for the author-date system of ranking references or citations (as compared to the author-number system), but especially for a software typical of referential management (from a group restricted to *EndNote*, *Mendeley*, *Zotero* or *Docear*) is unfortunately not validated, but only relatively subjective, and cannot be fully outlined, and even less definitive, starting from the role of this article to expound useful information for young, and even older, researchers in this area, which is apparently limited or restricted by the requirements of prestigious magazines and publishers.

2. POINTS OF SIMILARITY AND DIFFERENCE BETWEEN REFERENCES AND BIBLIOGRAPHY, AND BETWEEN CREATIVITY AND ORIGINALITY

The concept of bibliography is not very old, to the point of even contrasting with some of the most optimistic temporal assessments of its occurrence. The term *bibliography* appeared, in its modern sense, as late as the beginning of the nineteenth century, although the classical notion of bibliography originates from a French term, derived from the Latin word, and both actually have undeniable origins in the term *biblion* (the book) + *graphia* (writing), millenary words of descending from ancient Greek. The bibliography of a book brings together a list of the books and source articles, whether a reference is made to what is needed at the beginning of the drafting, or that they are added to what is used during an act of scientific writing, in the view of the author(s).

In the case of scientific research, the bibliography represents both that information set contained in some books and articles, from which the research was started, theoretically and practically, and that to which reference is made at the end, as a general report of a scientific research. The bibliography is presented in a book or article in typical terms and in a standardized manner to facilitate access to the author's/authors' ideas. Any bibliography appears as a printed annex on a particular subject or topic, the description of the books and articles being systematic and combining the author/authors, the year of publication, the title, the publishing house and its location, the editions, sometimes even the translators of the original, etc. [1].

The modern meaning of the concept delimited by *bibliography* is focused exclusively on the outcome of the publication, and so the bibliography becomes, in the case of a research, a list of books and articles that were used by someone when he/she concretized and wrote a research into a particular book or article [2].

There are various different styles of editing a bibliography, and various manners of citing books, articles, etc. Such a style specifies the information needed to edit or quote in a bibliography, including how the information is ordered, as well as the punctuation and other characteristic formatting features. The most common classification of drafting styles for a bibliography, or of citing books, articles, etc., has the the academic discipline involved as its discriminating variable. Thus, the American Psychological Association (APA) addresses the disciplines of Education, Psychology and MLA Sciences (Modern Language Association), and is suited to humanities, while the Chicago / Turabian style is exploited by those sciences, defining a wider sphere and a wider audience, which have to do with business, history and fine arts, while

the Harvard style (Harvard Law Review Association) is generally used in academic quotes, as described in the on-line guide available on the Anglia Ruskin University's specialized link [3,4,5,6].

The bibliographic references are reflected in a list of papers. Typically, the list of references or referenced works is the extended name frequently given to bibliographic references, in the modern terminology of editing or publishing books, articles, etc. These two types of lists virtually mean the same thing. Each is an alphabetical list of the works cited, or the works referred to in the text of a book or an article. The list of cited works is the final subtitle used when quoting sources by following the style of Modern Language Association (MLA) or Chicago (Chicago University – which addresses the general public), while the subtitle *reference list* or, even simpler, *references* is the usual variant when the sources exploited are cited, using the American Psychological Association (APA) or Harvard Law Review styles [3,4,5,6]. In addition to these classical styles, which are already considered major or dominant, there co-exist about 8,000-10,000 different styles in the universe of reference lists or citations and of bibliographies...

On the other hand, the list of references, or the list of cited works and the bibliography do not describe the same concept in research, either, as the former lists, in final position, all the articles cited in the text of the book or article, while a bibliography contains all the materials (books, articles, databases, blogs, etc.) that a researcher has consulted in preparing his/her investigation, whether or not he/she cited from all of them.

As a general rule valid in all styles, each reference quoted in the text should appear in the reference list, and each entry in the reference list must be quoted in the text [7]. Another general finding individualizes the scientific article, where the reference list has become the optimal solution in relation to the books (theses, encyclopaedias, treatises, etc.) which are defined mainly through the bibliography [8].

The structure of the styles described above is also done starting from the hierarchy or the ordering criterion by means of two major systems: the author-number system, and the author-date system. The references or citations in the author-number system are ranked or hierarchized according to their appearance in the text {[1], [2,3], [4], etc.}, rather than in the alphabetical order of the first author's family name, as they appear in the system author-time. For example, the Harvard style is an author-date system, and its main advantage is to provide a more appropriate management for a relative majority of journals and publishers in this field of referencing or quoting.

Such well-established and long-defined notions as *creativity* and *originality* have a real similitude in scientific research, since both of them are basically criteria that must be fully satisfied in a research activity, along with the systematic nature of the investigation, and the transferability and/or the reproducibility of the results [8].

Creativity, as defined by most prestigious dictionaries [9,10], represents the ability to transcend ideas, rules, methods, models, relationships or other similar aspects that are traditional in nature, and so to create other ideas, rules, forms, methods, models, relationships, interpretations, being virtually merged with the terms of originality or imagination and sometimes synthesized as the ability to produce novel, i.e.

completely new or unusual ideas. A nuance of research specific to the field physics appears by redefining creativity as the activity of imagination that is not governed by any rule but only by facts, observations, experiments, etc., so *it cannot be practically taught or learnt*, as Albert Einstein stated in the inaugural speech at The Prussian Academy of Sciences, as early as 1914, and reconfirmed in his 1934 *On the Method of Theoretical Physics*. Modern inter-, trans-, cross- and multidisciplinary research is also remains a creative act, in the dual sense of incubation and illumination, extended with the help of *preparation* and *verification*, nearly one century after Graham Wallas's work titled *The Art of Thought*, and thus generating the four stages of the creative process in general, by means of a specific osmosis, which is conscious and unconscious at the same time [11]. Preparation often coincides with the identification of the problems of research, and implicitly with the study of the bibliographic resources or references, or subsequent citations.

Modern scientific research is increasingly exposed, and prone, to a true *mystery of creativity*, where incubation and illumination become evolutionary, uncontrollable, non-standardisable, processes, which are unanticipated and, especially, impossible to repeat or resume, in ever-different contexts.

Originality describes the ability to think independently and creatively, and also the quality of being new/novel or unusual, special and interesting at the same time [12,13]. Originality is often defined in an antinomial manner, not the same or similar to anything (else) or to anyone (else), and being materialized as the absence or nonexistence of any loan of ideas. In scientific research, originality also lies in primordiality, pioneering, being a preeminent act connoting uniqueness. In modern trans-, inter-, cross-, and multidisciplinary scientific research, originality also includes something specific or strictly particular to a team or a single author (researcher), sometimes conferring the risk of the unusual, the extravagant, the bizarre, and even eccentricity, thus distancing itself from platitude or banality, copying or plagiarism, in an increasingly clear manner [8]. A further significant nuance assimilates the originality with the concept of information, in line with the definition of the latter term as "the novel meaning / the novelty of a message, an almost identical signal emitted, transmitted and received, referring to individual or universal knowledge in a scientific field" [14]. A piece of original research ends with an authentic manuscript, which is transformed, under the impact of time and due to the richness of information contained, into a valuable scientific landmark. New information generating originality in a research also arises as a result of the innovative application of some old methods in new situations, of past models applied to future estimates, which permit to challenge older scientific laws in parallel with identifying new laws and rules, validating or invalidating hypotheses, associations, correlations, etc., in a creative, rigorous and clear manner, while outlining the profile of authentic research. Within the framework of modern scientific research, the mere (though never simple) multidisciplinary approach can generate originality through the extensive coverage of variables and phenomena, methods and models characteristic of seemingly isolated sciences, which are however reunited in the spirit of the team and the joint project. Any authentic aspect must be emphasized in an integrative manner in

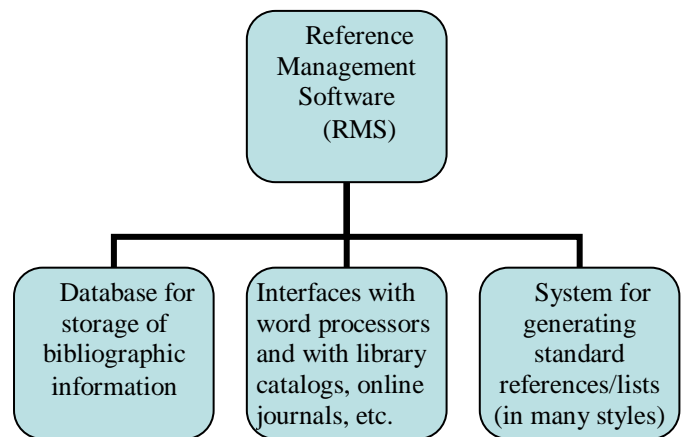
relation to previous research through a literature review section, which will provide continuity of results, initial/final hypotheses, investigative methods and models, validation/invalidation of results etc., thus describing historically a true continuum of the original or originality. Such approach has been pondered since XII century, and can be summarized in Isaac Newton's expression *"If I have seen further, it was by standing on the shoulders of giants"*. Rooted in the Greek mythology, that thought was applied in scientific context by Bernard of Chartres, but opens *incrementalism* direction in scientific research as early as in the medieval year of 1159th. The allegory that can be applied is that if a dwarf climbs on the shoulders of a giant, a dwarf can see a little further than the giant by himself. In our context, originality and creativity can stem from the previous research, and even a minor contribution is an advancement. To obtain new, additional knowledge in comparison to famous researcher in the past, young researcher does not have to be more of a genius compared to the cited grand authors. Young researcher can add more knowledge to the pool filled by great names such as Nobel laureates, if his or hers research is based on the references which are well understood by her or him and add some new contribution.

Thanks to the networking and the Internet, there is an advancement of the human civilization from loose confederation of entities which communicate rarely and scarcely to a unified informational entity which shares information, knowledge and original ideas without significant limits except limits bound for the core human nature. That context enables minor research advancements to combine into the major contributions, like shovel by shovel of rocks can build a mountain, all of that in combination of referencing previous work and adding own original thoughts. Well connected and referenced group of minor advancements and incremental research can integrate into significant overall body of new knowledge. Original thoughts become bricks, and references become mortar in that mountain of new research. In conclusion, creativity and originality are simultaneous and even complementary, and cannot occur one without the other, irrespective of the degree of complexity of the research itself, thus amplifying the identity of meaning in relation to the trans-, inter-, cross- or multidisciplinary character of the research.

3. THE MANAGEMENT OF THE LIST OF REFERENCES AND BIBLIOGRAPHY – A MAJOR FACTOR OF THE CREATIVITY AND ORIGINALITY OF RESEARCH

The management of sources or bibliographic references has become a major success factor for modern scientific research. This new type of management contributes to solving some complex aspects, which are often considered complicated, which arise in the work of a researcher in the increasingly prompt and challenging approach of contemporary research. A significant factor of complexity is the coexistence of a wide variety of styles of editing reference lists and bibliographies, as well as the author-number and author-date hierarchy systems. This niche management, mainly known as bibliographic reference management (RM), is promptly exerted by means of software (abbreviated to RMS) that

provides an essential tool for researchers regardless of age, experience, research and themes, hierarchical team level, project, partnership, consortium, confederation, etc. The evolution of the RMS software available was almost exponential, which foreshadows increasing difficulties in selecting RM software. The contemporary architecture of an RMS includes minimally the elements in Figure no. 1:



Source: [15]. Karavaev, (2016) p. 84.

Fig. 1 The major components of RMS

In principle, these new IT solutions that ensure the management of references and bibliographies benefit from a variety of functions:

- a) they cite from bibliographic databases and websites;
- b) they collect and archive metadata from pdf files;
- c) they allow the organization of citations in the software database itself;
- d) they allow and provide citation annotation;
- e) they allow and ensure the sharing of the database or its parts with colleagues in the research team, project, partnership, consortium;
- f) they share data with other similar software or their users by exporting them in a format that can be imported (thus ensuring import-export compatibility of files);
- g) they enable and secure the exchange of data with other bibliographic reference management products through standard-format metadata;
- h) they produce citations formatted in a variety of styles or systems [16].

There are naturally strengths (the extent to which certain trends, impulses, orders, etc., are from the very moment of software development, dependent on needs, temporal and financial constraints, limitations of the individual user's flow), and also weaknesses (the learning time as a user of a piece of software, accessibility and the user-friendly nature of the interface, archiving or storage capability, user's annotation and search capability, the duration or lifecycle of a software, etc.) for any RMS analyzed. The user of such an RMS also gives different degrees of importance to a list of references or citations or an impeccable bibliography (which should be correct, complete, accurate, recent, well made in point of hierarchy, relevant to research, etc.), and implicitly to the degree of initial accuracy of a reference or citation

(depending on style, system, translation from one style to another, or from one system to another)

An RMS provides its user with the practical, timely, accurate and effective possibility to write and edit a reference list or citations, or a bibliography structured in a one- (very rarely) or multi-criteria manner (frequently), relative to a particular subject, topic or theme, with an author nominated or with a team of this author (et al.), depending on the year of publication or publication, etc.

The main types of RMS, which are already considered classic, refer to *EndNote* (devised by Thomson Reuters in 1988, with the *EndNote Web* variant, now belonging to Clarivate Analytics), *RefWorks* (made by RefWorks/ProQuest in 2001), *Connotea* (made by Nature Publishing Group in 2004), *Aigaion* (made by Aigaion in 2005), *Zotero* (made by Roy Rosenzweig and Center for History and New Media at GMU in 2006), and *Mendeley* (made by Elsevier in 2008). The multiplication process of this kind of software is uninterrupted. The examples of continuity have been increasing over the last decade: the modern RMS has evolved from *Qiqqa* (2010) to *Colwiz* (2011), to *Docear* (2011), to *SciRef* (2012), from *RefMe* (2014) to *F1000Workspace* (2015), etc., and the emergence of innovative RMSs has seen a growing frequency each year. In other words, new and more sophisticated IT solutions for RMS appear, which are ever more pertinent and wider in terms of referencing or citation areas, reference access from online libraries, solutions to host a database on a researcher's personal computer, variants of export-import of references or citations, etc. [17,18,19]. Another important aspect is the manufacturer's specialization by developing software dedicated exclusively to a particular type of discipline, or specific to a typology of academic literature. The type of specialization which is most often cited is represented by the legal literature [20, 21], according to the metadata extracted from the reference lists or citations and bibliographic databases (OSCOLA, LexisNexis, Westlaw, HeinOnline, BAILII). Comparison of one RMS with another is done in relation to various and multiple criteria, some of which may be mentioned as more important: being free of charge (open source), the multiuser character for managing a reference list or citation and annotated bibliography, the time needed for organizing the above lists, the capacity and speed of automatic indexing of the full-text content of the document library, the performance of providing reference lists or citations in the major styles (Harvard, APA, MLA, Chicago/Turabian), as well as getting data from as many styles as possible out of the 8,000 to 10,000 different styles already existing today. There are also already established methods (an example being the COinS method, used to incorporate bibliographic metadata into the HTML code of web pages, complemented by the Z39.50 communications protocol – an international client-server standard, which is also used extensively in library environments).

The authors of the present article did not intend to make a comparison of the specific elements of an RMS population in expansion and competition without precedent in the history of software or management in general but rather limited their task to listing some of the significant RMS types.

4. SOME FINAL REMARKS

Even if it can be said that there are some ways of writing a bibliography or reference list, or list of citations for books,

papers, articles, etc. which have the potential, and even a trans-, inter-, cross- and multidisciplinary applicability, in an explosive contemporary context when the isolating unidisciplinarity is being abandoned, one cannot however appreciate that a universal style can be distinguished, with a dominant impact and coverage with exhaustive tendencies in a population of about 8,000-10,000 different existing styles. Even if the authors of the article rather subjectively consider that, in the medium and long-term the balance will incline towards the Harvard style, they cannot provide enough evidence to testify to the universality tendency of that style. Though incipiently, the four classical styles (Harvard, APA, MLA, Chicago/Turabian) are really and increasingly intersecting mutually, with homogenization and similarity to Harvard, where the internal citations remain in the text, in a simplified version, only to rigorously find their way within the final list of references. At the same time and similarly, the preference for *EndNote*, *Mendeley*, *Zotero* or *Docear* is equally subjective, irrespective of all the justifications that can be added and perceived in the more or less near future.

Referencing, just as any tool, can have its good and bad usage and sides. Research journals and conferences often quantify number of referenced articles, e.g. strongly recommend that a submitted paper has 20, 30, 40, 50 references. Such practice provides a standard, which objectivizes the quality of the research. Standardization in general increases the quality of the output and balances variations in quality between output units but can have its problems [22]. If applied only as a form, without the essence, such standards cannot guarantee expected good results. While we can discuss that there is some correlation between number of references and the quality of the research, we cannot prove causality, i.e. that a large number of references will cause article to be good, or that few references cause a low-quality article. As an interesting example, we can find the PhD thesis of John Forbes Nash, ground breaking work in economic theory, which has just two references in the whole PhD dissertation [23]. Extensive literature review is nearly the only beginning of a process to add incremental effort to the continuum of scientific research. However, good, and ground-breaking ideas can stem in original field, loosely or not at all related to existing research references. Regarding extensive literature analysis performed without the necessary attention and depth, it resembles what the Richard Feynman calls "cargo cult science" – following all the apparent precepts and forms of scientific investigation, but missing something essential [24]. So young students should not insist on the sole number of different references if they are not honestly satisfied with the core value of literature review and consequential referencing.

The unprecedented developments in scientific research, and deriving from that, of scientific literature, have generated a new type of reference list or citations and bibliography management, focused on various types of software (RMS), and the innovation and remarkable nature of that instrumental leap, with reference to the unprecedented evolutionary multiplication of the software dedicated to RM, together with the concrete solution of a more timely and prompt drafting of these lists, have already become major official trends, especially in trans-, inter-, cross- and multidisciplinary research.

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WORKSPACE DESIGN AND ORGANIZATIONAL STRUCTURE: SEARCHING FOR THE ORIGINAL REFERENCE

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Abstract. *This paper analyzes the nature of relations between workspace design and organizational structure design. We present historical development of both and illustrate the relations with four case study analysis. As well as decentralization, other aspects of organizational design can be related with the interior design. This paper starts with the description of interior design evolution in business context. Next part gives review and basic definitions of organizational design. This paper concludes that the focus of contemporary research was on organizational behaviour, while organizational design was neglected in the context of interior design. At the end we illustrate symbolic example of organizational design change implementation, which is finished with changes in allocation of employees in physical space, as well as design or different usage of organizational interior.*

Keywords: *Interior design, organizational design, correlation, causality, centralization*

1. INTRODUCTION

The question posted in this paper is common in scientific research – what is the nature of relations between two correlated phenomena? We study interior design of the organizational workspace facilities on one side and organizational structure design on the other. Since there is no widely accepted approach to quantitatively measure our objects of research, we will rely to qualitative analysis, case studies and pattern description. We will describe historical development of the both observed research objects, and analyze cases of exemplary structure.

In practical means, organizational structure is sum of ways jobs are divided, and how those different tasks are coordinated between members executing those tasks [1]. We can define organizational structure as the predetermined pattern of elements and relations which are purposefully established for the sake of reaching organizational objectives. Workspace design in this context can be defined as the plan of the system of the organizational interior physical environment elements and relations between those object, again purposefully established for the sake of reaching organizational objectives. So we can find similarities between the two phenomena from the definition.

Our second step is to analyze organizational structure into its elements, and decentralization, departmentalization, coordination and communication, corporate values and the process flow are all attached to spatial design; newer

solutions on this field include adapting the work space with people's psychological reactions to space, which affect productivity and creativity in work, in mind. While introducing these elements, we should pay attention to individual needs, as well as needs of whole teams and the organization through operational motto "form follows function". The same principle is valid in the case of organizational structure design, and both forms follow the same, or very similar function. We can also determine distinction between operative and strategical organizational design where similarly to workspace design operational design is focused on efficiency, and strategic design is focused on effectiveness [2].

As the general definition of reference can be given as the source of information used to establish some claim. In that light, we can use it as a metaphor for the relation between organization workspace and structure design. Is the designed structure source for workspace, or vice-versa? Or is there a third phenomenon influencing both? Is there causality, or is there some modifying variable? This article will study individual cases and discuss presented questions.

2. HISTORY OF WORKSPACE DESIGN

The concept of workspace is not new; back in the days of Ancient Rome existed the *officium*, and in the 18th century in India and Great Britain appeared the first offices which held a function of headquarters from which the business was being controlled [3].

1900. – 20th century marks Taylorism and the industrial revolution of that century. Frank Lloyd Wright marked this period, and a building of particular importance is the Larkin [18] building, which symbolizes the first commercially cost-effective project of that time [3].

1910. – 1930. – These years were in the sign of many project which mostly weren't actually built, due to the fall of Wall Street in 1929. and the overwhelming war economy. Although never built, Rohe's design for Friedrichstrasse [17] business building remains to the day one of the most important structures of 20th century. He presented a radical concept to the board: a skyscraper, made solely from steel and glass – decades later this very style dominated the architecture of workspaces [15].

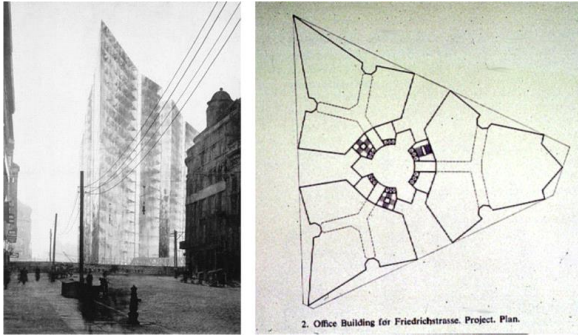


Photo 1 Friedrichstrasse, n.d.

Most important moment of 20th century is undoubtedly the beginning of Bauhaus and motto „form follows function”. Bauhaus was established in 1919. in Weimar by a German architect by the name of Walter Gropius [4]. Functionalistic ideas of Bauhaus represented getting away from decor, flamboyant and overcrowded. Merging the form with function was crucial.

1950. – The fifties brought further progress in building with contemporary materials like steel and glass, and the smart, clinical architecture of the international modernist movement was adopted as the new image of corporate business [5].

1964 – The legendary furniture design company Herman Miller presented an office plan which no one ever got to meet with before. It was called “Action office” and it was a creation of Robert Propst, which was among the first to say that office work is mental work as well, and that the mental effort is attached to the support of the surrounding to the capabilities of an individual [6].



1980 – The '80s were marked as years that gave birth to a dystopian version of Action office of the sixties. The exclusively economical system of thinking lead to the creation of the so-called “Cubicle farm” [16], a space in which, in order to place as much tables as possible, and with that employees, were divided with cross-like dividers and tables in its corners, closing the view, communication and socialization amongst employees, enclosing them in a limited space of minimal dimensions, with those constructions then multiplied a couple of hundred times in aright rows from wall to wall.

1990. – One of, in not the greatest, development of the 1990s, was the Internet, or it being available to the general public. This occurrence had an inevitably powerful impact on

humanity in global, way of thinking in all aspects and necessarily on functioning and modernization of workspace of that time.

2000. – During the last decade, furniture designers tried to divide the sea of cubicles and encourage socialization [7]. Current trend of the workspace layout reflects often complex structure of development of modern companies and different specific work styles. Growing prices of real estate and increase in prices of office space, especially in capital cities, brought the need for more effective space use – and informal, more flexible, multi-use work spaces.

3. RELATIONS OF INTERIOR DESIGN AND DECENTRALIZATION

Structure is an important tool which orients managers and subordinates to think, as well as work within a certain frame. As all of the organizations have a structure, primary obligation of a manager is to develop the right kind of structure in order to reach organization’s objectives. Although a good organizational structure does not guarantee success, a weak one can have a negative impact on the work of even the best of managers, and a wrong one puts a spotlight on all of the wrong problems, worsens irrelevant quarrels and creates a mountain of triviality [8]. Some of the important concepts of universal theory of design are hierarchy, specialization and division of labour, chain of command or authority, unity of command, unity of direction, authority and responsibility [9]. consider the purpose of organizing, the reason of organizing, the structure of organization and the process of organizing as such principles. Organizational design and change are interconnected. True, organizational change could be understood as a process of organizational redesign and transformation [10].

As the surrounding – economical, social, political and technological – changes at an incredible speed, the organization will simply be omitted and outdated, even if it stays right where it is [11].

Decentralization is defined as the degree to which responsibilities and tasks are carried from higher, manager positions, down to lower levels of organizational hierarchy. On the other hand, centralization is defined as the degree to which responsibilities and tasks are held in the top of the organization’s hierarchy. No organization operates as completely centralized or decentralized [12].

Dimensions of decentralization and specialization have two directions of distribution: vertical and horizontal, and by crossing these two directions of authority allocation, four typical models of decentralization can be defined:

An autocratic structure has a small number of managers on top of the management structure which make all of the important decisions. Interesting, but non-stereotypical example of autocratic structure is the headquarters of Thin Office company in Singapore.

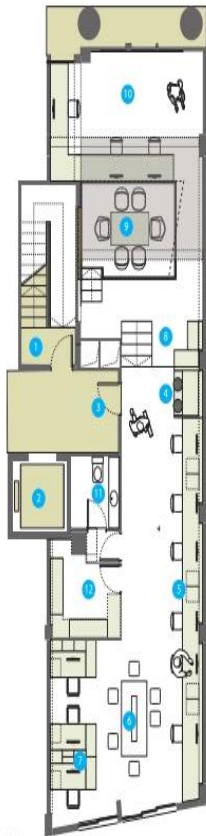


Photo 3. Illustration of an interior of a company with autocratic structure [13]

The “boss box“, which we can see under the number 7 on the floor plan, makes the space even more interesting. These tables in the corner are separated for private conversations of executive managers, but they are not completely separated as an enclosed office, which would be typically autocratic.

Oligarchy structure includes a bigger number of people on top of the hierarchy. An interesting example of this type of structure could be the headquarters of Red Bull company in Amsterdam. In the centre of the space we can see an open type of work space, and on the left an interesting entrance part, reception desk, as well as a number of common seating spots, which promote values of the company like spontaneity and communication.

Still, the most important characteristic which says a lot about the type of structure are separated offices on the wall-faced brim of the entire space, which are divided from the rest of the space with glass panels, in order to give managers enough privacy, for whom they are intended, but, also, allow them to be able to watch over the employees in the centre.

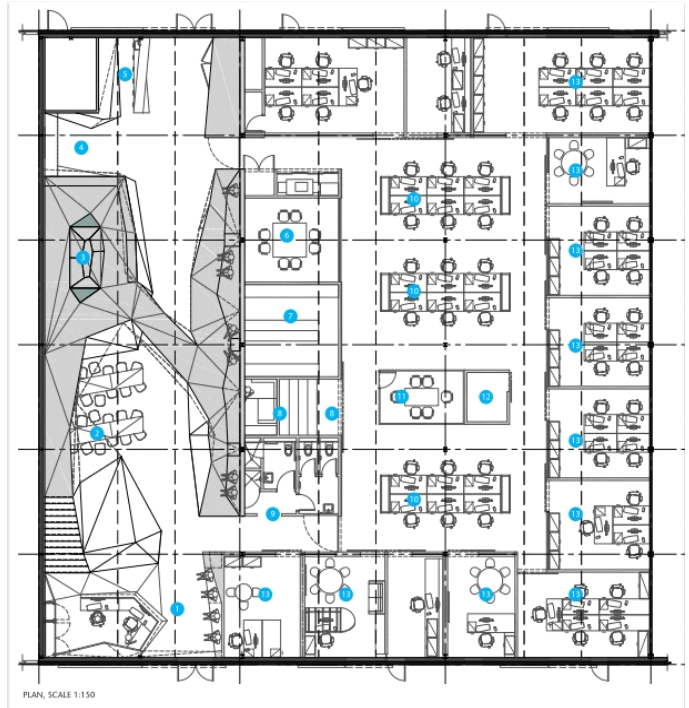


Photo 4. Illustration of an interior of a company with oligarchy [13]

Polycentric autocracy, includes a small number of managers on each level of structure, which bring decisions. We can take the space of Hill+Knowlton company as a good example of a workspace which reflects its polycentric autocratic structure. On the floor plan we can see under the number 6 a few offices which are shared by a few people, in a traditional layout, as well the doors that directly connect these two offices which tells us about their necessary communication and coordination by labour division. Still, in the rest of the space we see all individual offices, intended for one person which communicates the enlarged number of people “on the top”.

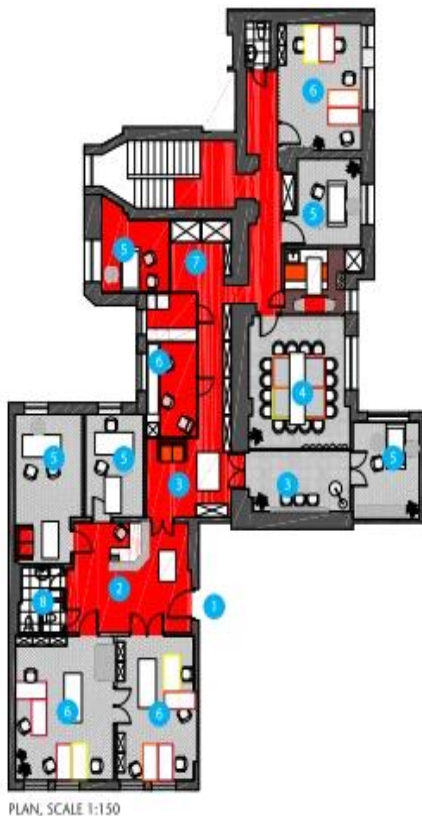


Photo 5. Illustration of an interior of a company with polycentric structure [13]

A democratic structure is the one in which the authority is being equally distributed with professional and executive capabilities [14]. A good example of work space which is adapted to democratic structure and equality is the workspace of Barcode company.

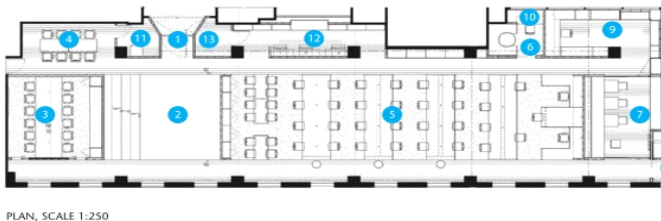


Photo 6. Illustration of an interior of a company with democratic structure [13]

Most important characteristic of this work space in correlation with structure is the common studio, on the floor plan marked with number five, where we can clearly see that all of the employees are placed in a common open-space room, behind massive shared tables, which encourage communication and coordination. In a system like this there are no individual, enclosed offices for top management and different hierarchy levels, as it's the case in oligarchy or polycentric structure, nor the individual rooms which hold the function of CEO's office, which is mostly typical for autocratic structure.

We have to remark, still, that there are no pre-determined rules for different types of structure in correlation with work space. Still, these examples are very valuable in the aspect where they prove us that structure of the organization and the

visual aspect of workspace go together and how one dictates the other; shows their existing relationship and with that, the importance of the impact they have on each other.

4. CONCLUSION

Satisfaction of employees is something all organizations strive for. Satisfied employees build satisfied teams, satisfied teams group and construct main parts of the puzzle that make the organization: and all together, create a successful company.

Interior design elements are not a new thing in business context, but the relationship between them and organizational design is mostly neglected in literature. "Gestalt approach" [15] recommends connection between structures, and mostly focuses on the organizational net's end. Other authors [16, 17, 18, 19, 20] mostly give attention to relations between interior design and various aspects of organizational behaviour.

With enjoined effort of designers, psychologists and managers, this thematic is today significantly more understandable to all groups of people, as to in which all and numerous and incredibly intertwined ways they affect employees each moment, and often becomes an element which is decisive in many ground breaking situations in the work place. This study indicates the connection between organizational design and centralization. Although anecdotal, the proof that most of the programmes of organizational changes with at least redistribution of organizational members in the physical space of offices, if not the complete interior redesign, implies that there is a significant coherence between interior design and organizational design, primarily organizational structure.

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FROM PROJECT TO ACHIEVEMENT – IN THE TRANSLATOR’S CREATIVE APPROACH

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Abstract. *The article aims at some essential aspects of the ethics of (both literary and specialized) translation, starting from the premise that the translator has to observe a set of principles of professional deontology, because in most cases his/her work is paid. A translator may refer to, call into play, or rely on, certain cultural biases or even special translation strategies, yet we believe it is linguistic appropriateness and correctness, as well as communicative and cultural adequacy that should remain at the centre of his/her professional concerns. The author concluded faithful translation (in its very simple acceptance) to be what professional translators must primarily seek: they should translate accurately, in a flexible and readable manner, primarily aiming at domesticating the original – without however ignoring or excluding the necessary aspects of foreignization.*

Key words: *professional translation, ethical codes, translation strategy, domestication vs. foreignization, faithfulness, accuracy*

1. INTRODUCTION

In the present paper, we intend to discuss and briefly analyze (even if somewhat cursorily or expeditiously) – from the standpoint of the concrete achievement or performance (compared to the translator’s intent, whether proclaimed or not) – some aspects of the difficulties, achievements and failures or shortcomings in the field of the more recent techniques and strategies of translation. We are going to refer, first of all, to the *domestication* vs. *foreignization* binomial. We start from the premise that the primary (and desirable) functionality of translation (be it literary or specialist translation) must be appropriated (to the point of perfection, if possible) to the quadrilateral formed by *ethic* (or *conscience*) – *will* – *science* – *skills*.

2. FROM PROJECT TO ACHIEVEMENT

Therefore, we thought it suitable to begin by citing some *definitions* and *demarcation* attempts. General dictionaries (and also internet databases like *Wikipedia*, etc.) define ethical codes as being written systems of standards for ethical conduct. In professional activities, such codes are required in order to define the limits of appropriacy with respect to professional behaviour. As a rule, ethical codes are adopted by the management of the organizations in question because they are perceived as a pragmatic necessity in a complex society that is expected to value moral concepts highly; it goes without saying that they are not loosely intended to foster or illustrate particular moral theories. Therefore, they essentially differ from moral codes applicable in the religious, cultural or educational domains.

Such codes (whether codes of conduct, codes of business ethics or codes of professional practice) are adopted by

organizations to help members to understanding the difference between what should be considered *right* and *wrong*. That understanding is expected to form the basis of their future professional decisions. Of course there are matters that are still debated in terms of how to precisely define the above regulatory instruments and corpora, e.g. the differing degree of comprehension separating *ethical codes* and *codes of conduct* (the former sets out the values that support the code and describe an organization’s obligation to its stakeholders, whereas the latter usually sets out restrictions on behaviour, and is typically addressed to, and intended for, employees alone); and even the distinction frequently made between *ethics* (which is collective) and *morality* (which is individual).

Seen as an attempt to codify *good* and *bad* behaviour, an ethical code ideally establishes various principles, values, standards, or rules of behaviour meant to guide the decisions, procedures and systems of a given organization. In some cases, firm rules are established, but more often than not ethical codes provide general guidance, or even aspirational advice. Most (professional) code of ethics emphasize such (generally human) values as loyalty or faithfulness, fairness, the right of free expression, minimizing harm, independent action, avoiding conflicts of interest, etc.

In the field of professional translation, most codes of ethics try to define and delineate the main roles, standards and responsibilities that practitioners have to assume, observe and comply with. Since, in most cases, the standards set tend to be near superlative, such prescriptive rules are provided as “Every translation shall be faithful and render exactly the idea and form of the original – this fidelity constitutes both a moral and legal obligation for the translator” – International Federation of Translators (FIT), cf. *The Translator’s Charter* (approved by the Congress at Dubrovnik in 1963, and amended in Oslo on July 9, 1994). In their professional practice, “Translators should endeavor to provide service of the highest quality in their professional practice” (*ibidem*).

Accordingly, the most highly praised qualities of a good translator seem to be *accuracy*, *accountability*, *impartiality*, *confidentiality* and *limitation of practice*. As for the objectively verifiable content of the said requirements, here are some more quotations – from the same source: “The translator must translate accurately. By accurate translation we understand a translation that preserves the meaning, style and register of the source document”; “The translator must know his/her linguistic limitations and decline assignments that go beyond his/her skills and competence. The translator must only accept assignments that he/she can complete and deliver in a timely manner (by the due date). The translator must accept documents that he/she can translate. No work should be subcontracted to colleagues without prior written permission. The translator should possess sound knowledge of the source language and be an expert in the target language. The translator should accept translations only for

fields or subject matters where he/she has knowledge and experience”; “The translator is accountable for his/her work and must recognize and acknowledge translation mistakes and try to rectify them even when the translation has been completed, in order to avoid potential liability and risk issues”; “The translator must respect, under all circumstances, confidentiality and privacy of the information contained in all documentation provided by the client for the purpose of translation, unless otherwise required by law”.

Additionally, a good translator should maintain and constantly improve his/her professional skills: “The Translator: Must seek professional development courses to maintain, improve and expand translation skills and general knowledge through self-teaching, formal and informal continuing education. Must acquire the proper terminology and enhance his/her knowledge by creating and updating terminology files. Must seek evaluative feedback and practice self-evaluation concerning performance”.

With respect to the other actors in the said professional domain (and market segment, for that matter), supplementary rules, standards and constraints are added, e.g. “Respect for all parties: The translator must show respect for all parties involved in the translation assignment, including respect for self, the agency and to its clients. The translator must respect copy rights and intellectual property. Translated documents remain the client’s exclusive property”. Of course any translators’ code of ethics is formulated in keeping with *national* and *international* legal regulations.

Quite naturally, the evolution of society and the ever-changing contexts that translators face bring forth challenges and difficulties in ethical decision-making, which such ethical codes can help professionals in the field to identify and cope with. Their responses to such new and challenging issues have to prove efficient, justifiable and relevant. The more or less recent translation strategies that theorists and practitioners alike embraced and let themselves be guided by should not turn into mere theoretical, useless patterns or downright barriers.

Here are some practical aspects, namely illustrative cases of achievement and failure. Without intending to proclaim ourselves arbiters or gurus of this complex, even hazardous province, and much less authoritarian guardians or strict supervisors of the adequacy (or appropriateness, correctness) in the field – since translation is definitely an intricate, difficult and rich domain –, we undertook a modest examination of a variety of texts (both literary and excerpted from the media, including, to a limited extent, even the *webosphere*), in terms of how much the specific qualities that make a good translation are observed. So we mainly focused on the *accuracy*, *transparency* and *fluency* of the translated fragments (making up *functional faithfulness*), typically analyzing the semantics, stylistics and cultural attitude evinced by the Romanian versions, while having in mind the specificity of the *domestication* / *foreignization* choice. Some of our findings are presented below, under these possible headings: • Semantic inadequacy: – Cases of mistranslating *False Friends*: – Ambiguity – Sheer howlers. • Omission, or adding unnecessary information. • Inadequate or false cultural information. • Stylistic inadequacy. • Inadequate use of the Romanian language.

A good example of patent difficulties and notorious challenges in finding suitable translatorial equivalences can

certainly be the issue of marking grammatical gender. For instance, English has only one way of saying *a self-made man*, so there is no possibility of saying *a self-made woman*... though there are certainly lots of women who would define themselves like that. (So, *what* should they be called instead?). Similar difficulties are posed by translating literary texts in which there occurs the so-called *Intimate Pattern* (which M. Mathiot defined like this: “the striking characteristic of the use of *he*, *she*, *it* in the intimate pattern is the speaker’s disregard for the two attributes that serve as defining criteria for entities in the normative pattern: 1. human status, and 2. biological sex. The intimate pattern is constituted by three types of usage, in which the rules of the normative pattern are disregarded: on the one hand, non-human entities are personified, while human entities are denied their human status. On the other hand, there is a reversal of sex roles: women are treated as if they were men and referred to as *he*; men are treated as if they were women and referred to as *she*”. Of course there are numerous other linguistic issues that are equally difficult for a well-meaning professional translator or interpreter, e.g. grammatical agreement or concord, the sequence of verb tenses, the specific means of intensification (that are typical of either English or Romanian), expressing impersonal meaning, expressing modality, etc.

In our analytical approach we will start from some illustrative remarks on the distortion of the linguistic message as a result of the uncontrolled, chaotic and, ultimately, uneducated influx of very recent loan words (or Anglicisms), e.g. “Revenind la 2013, după ce pierdusem în primul tur la trei turnee diferite, domnul Țiriac mi-a dat *un wild-card* pentru Madrid. (...) Mi-am angajat *un mental coach* pentru câteva luni, înainte de *French Open*. (...) Nu e ușor să ajungi numărul 1 în lume. Trebuie să fii foarte *consistentă*, trebuie să joci un tenis bun tot anul” (*the infelicitous, very imperfect translation of an interview of Simona Halep, published on the net*). As we could see, the term *wild-card*, although a specialized term, sounds out of place here, while *un mental coach* is jarring in the context, and *consistentă* – instead of *consecventă* – is a clear mistranslation, arising from a *False Friend*).

The following example is excerpted from the variegated, motley globalized (or rather cosmopolitan) lingo of the press: “(pictura numită) *Salvatorul lumii*” [vândută la o licitație în decembrie 2017 cu aproximativ o jumătate de miliard]... Normally – and traditionally, the term would have been translated as “Mântuitorul” (cf. Eng. *the Saviour*, as it seems the painting in the original / source text was called – which was poorly, i.e. literally translated). And the public space seems to vie with the media in this specific respect, e.g. “Să depășim aceste *diviziuni*” (from the translation of a speech by Princess Margareta, Nov. 2017) – instead of *dezbinări, neînțelegeri, situații conflictuale*); “Însă susținea că nu câștigă suficient de mult și că nepoții săi îl obligă la *costuri*” – instead of *cheltuieli*; “inginerii civili” – instead of *inginerii constructori*, etc.

Though it might be seen as a secondary concern (given the fact that the question of linguistic standardization and accuracy is nowadays treated rather loosely and (pseudo)democratically, i.e. *politically correct*), some totally un-Romanian translations that the mass media generally exhibit can be cited in this context, as well, e.g. “1942. Nemții

prăbușesc [instead of *doboară!*] un avion englez *peste Paris*” (from a *Telekom* tele-text film presentation). Moreover, it may be noted that, in some cases, the very correctness (and also standardization / normalization) of the Romanian language sometimes seems to be overtly questioned, e.g. “*Primele două cele mai mari mall-uri*” (in *Magazin istoric*, November 2017, p. 91); *Malaysia* (*ibidem*).

The first and most obvious cause of such infelicitous translations or renditions clearly and evidently lies in the *literal* character of the material results of those translators’ work, e.g. “*zise cu amar*” (which is actually the erroneous, blatantly imperfect, since literal, Romanian rendition of Eng. *bitterly* – cf. also *bitter*, *bitterness* –, where a normal, semantically and syntactically accurate translation should have read *cu înrâncenare*, *întrâncenat*, etc.); “*Cândva obișnuiam să cunosc indivizi ca dumneata*” (cf. Eng. “*I used to know...*”); “*Ai încărcat corpul lui Mitchell și valizele în elicopter, ai zburat peste ocean și ai coborât cu elicopterul jos deasupra apei*” (the translation is at least ambiguous: the reader is led to understand that the character flew to the other side of the ocean!); “*Aparent, părinții doamnei Almore au angajat un detectiv particular*” (cf. Eng. *apparently* – where a much better, clearly unambiguous, Romanian variant would have been *se pare că*); “*să se țină la depărtare de vecini*”; “*Nu vrem nici un polițist împușcat, pe cât posibil*” (where the translator’s way of expression seems to have been the result of sheer lack of reflection and/or pure indolence – compare with “*Nu ne-ar plăcea să fie împușcat niciun polițist, dacă se poate*”, etc.); “*Asta pare a ieși din discuție...*”; “*După trei minute astfel petrecute, am virat spre continent*” (where one may wonder if the translator tried to render Eng. *inland* or *towards the mainland*), etc.

Very often indeed, what one is faced with is the translator’s manifest lack of knowledge of the vocabulary of the source-language (and also – one has to add – his/her failure to make proper use of a decent bilingual or monolingual dictionary, that is to say, the most useful – and, normally, indispensable – bibliographic instrument that a good, conscientious translator should employ), e.g. “*alarmă (ceasului)*” (instead of *soneria...*); “*și și-a turnat o porție decentă*” (cf. Eng. *decent*); “*Omul cu nas ascuțit s-a materializat în stânga mea*” (cf. Eng. *to materialize*); “*s-a întors cu două pahare înalte*” (cf. *highballs* in the original text – a recognized, and normally recognizable, lexical (and WFR) *False Friend*: “**highball** [ˈhaɪboːl / ˈhɑːboːl] *noun* [countable] especially American English: an alcoholic drink, especially whisky or brandy mixed with water or soda” (<https://www.ldoceonline.com/dictionary/>); “*un Colt .38*” (which, admittedly, represents a rather special case, involving a spelling / typographical convention of English). Furthermore, sometimes very common *False Friends* (which ought to have been well-known) can be encountered in erroneous, sadly superficial translations, so one comes to wonder why the authors of the texts in question showed such a shallow attitude to their own professional proficiency, documentation and self-training, e.g. “*un vultur de la presă*” (cf. Eng. *vulture*); “*Ochi violeți. Aproape purpurii. Ochi ca de fată*” (cf. Eng. *purple*).

In other cases, the errors of equivalence arise from disregarding the dialectic interplay the diachronic axis and the synchronic linguistic norm (or convention). Here are some of our examples: (the first one is a more general observation,

which applies to several translators and translations of literary texts that we surveyed – Rom. *pix* is an always risky equivalence for rendering English *pen*: native speakers of English are not in the least interested in marking the existence of a particular writing instrument, like a *ballpointpen* or *ballpen*, since everyday use finds it satisfactory to mention the term *pen*: by the way, should our current bilingual dictionaries make a detailed glossing of *pen*, providing a whole range of words, including, say, *stilou*, *pix*, *toc*, *condei*, *plăvăz*? And, again, should the equivalent rendition of such a text observe the strictly contextual limitations, i.e. the exact concordance with the period of time when the plot of the book took place?): “*Pe teighea (...) erau obișnuitul pix fără arc, sugativă ostenită și sticla de cerneală murdară*” (note that Raymond Chandler’s novel was published as early as 1944, so at a time when people would use mere *pens*, or rather *pen-holders*, but never *ballpens*); “*a-și desface baierile pungii*” (*Magazin istoric*, November 2017 – where a specific type of anachronism occurs, i.e. a both cultural-stylistic and referential kind of anachronism, since there is no adequacy of the referent to the time period referred to in the text: after all, the text makes reference to *malls*; if the translator had been willing to stylistically comply with the stylistic rigours of the text, he/she would have said (by adapting – or equating – it) “*a-și deschide (larg) portmoneul*”; “*bijuterii expuse sub spoturi*” (basically, we can make the same observation as above, regarding this time the interplay of diachrony and synchrony, as against terminology and semasiology: the historical period when the neologistic term *spot* started to be used in Romania is at loggerheads with the time setting of the story in the novel, which takes place in the mid-1950s; so what we actually have to do with is a case of faulty lexical updating or synchronization, since a rather recent term, in use after 1990, was used to translate the reality of the 1950s in America); similarly, a few pages below the translator produces such renditions as: “*un dealer de automobile*”, “*sunetele surfului*” (intended to render Romanian “(val de tip) brizant”). Now here is a similar, though much more interesting case – which we believe deserves further, more methodical, discussion: “*Comisionarul era înalt (...) și la fel de cool ca o bucată de pui în aspic*”.

There unfortunately occur quite numerous genuine translation howlers, too, e.g. “*Au adus un tanc!*” (in the subtitles to the movie *Les Misérables* starring Anthony Perkins, broadcast by *Prima TV*: the soundtrack was completely unambiguous as to the weapon the military were moving in, which was *a cannon*; as a matter of fact, the barrel of the gun was clearly visible on screen; and, to top it all, the episode presented took place in 1830); “*pubelă de gunoi*” (a case of redundancy, i.e. a pleonastic phrase); “*un coafez poponar*” (the possibility that the translator could have used the underlined term ironically or humorously is, indeed, rather slight), etc.

We think that the remarks of a predominantly cultural nature that we selected may illustrate a type of subtler (though equally serious) equivalence and/or rendition challenges and errors, e.g. the very original title of Chandler’s novel (*The Lady in the Lake*), referring back to Tennyson’s famous romantic poem *The Lady of the Lake*), poses the problem of explicitation: what should the translator have done in this case? Maybe provide the reader with a preliminary footnote?: “*–Nu te-aș fi sunat, dacă nu era. [in the line below]* Un

absolvent de Harvard. Știa să folosească frumos modul *conjunctiv*”. Actually, there is neither *conjunctive* nor *subjunctive* in the Romanian version; anyway, the original text literally contained a mention of the *subjunctive* – and consequently, the Romanian reader should have been presented with a fairly close equivalence of that grammatical mood (in the respective logical and semantic context), i.e. the so-called *conditional-optative mood* (Rom. *modul condițional-optativ*).

Last but not least, one can notice the totally inadequate – and all too frequent – use of (standard, grammatical, correct) Romanian, e.g. “indiferent ce gen de șantaj plănuia să folosească (...), financiar sau *amatoricesc*”; “Cinci mii de dolari (...) Polițaii nu ți-ar da nici *plevușcă*” (maybe the translator made a regrettable confusion between the term *plevușcă*, which actually means “small fry” – i.e. “unimportant people”, and *mărunțiș*, meaning “little money”, perhaps considering the former as a more stylistically colourful, i.e. slangy, variant of the latter); “un ins *dibace*”(!); “O casă frumoasă cu toate *luxurile*”(!); “Nu am avut dificultăți *în a găsi*...”; “Am oprit *cu oceanul mormăind* invizibil aproape sub picioarele mele”, etc. And, finally, here are some examples of what we believe are extreme cases of linguistic ignorance or/and abusive neglect: “Dacă pînă ieri-dimineață nici măcar nu știai de existență lui Almore, *trebuie* că de atunci ai auzit o grămadă de chestii despre el” (where a far better variant would have been “cu siguranță că...”); “*Trebuie* că o cunoscuse binișor pe doamna Florian” (instead of the correct, much simpler Romanian phrases: “Se vede (treaba) că...”, or “Era limpede / clar că...”); “*Trebuie* că a simțit miros de marijuana...”, etc. (The underlying English structures, which caused the calqued patterns cited above, are quite apparent – even transparent: “You *must have known* Mrs. Florian very well”, “He *must have smelled* marijuana...”).

3. CONCLUSION

We can conclude by saying that *faithful* translation (in its very minimalistic definition or acceptation) is what a professional translator must primarily seek. It is however evident that this is no simple desideratum, since the mere ethics of his/her profession should urge him/her to achieve a correct, well-adapted, nuanced, flexible, readable rendition, which should, first and foremost, be a *domesticated* variant of the original – which does not, nevertheless, exclude the necessary aspects of *foreignization* (meaning the illuminating elements of cultural insight and human empathy that a thoroughly educated, cultured individual, living in today’s globalized village, must master).

Likewise, a good, ethical translator should not forget that, before trying to fly, a bird must make sure it/she/he has learnt how to walk and run (to paraphrase a German proverb).

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PMO AS A REFERENCE FOR THE ORGANIZATIONAL INNOVATION

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Abstract. Organizations have become significantly different today thanks to the factors such as economic globalization, demographic and social changes, technological change, ecological pressures and growing emergence of political and economic uncertainties all around the globe. Parallel with that, the discipline of project management was changing, moving and expanding from operational to strategic asset and became somewhat „rounded up” today, understood as a dynamic process whose methods in practice change with the emergence of new ideas on a daily basis and used not only by the project-based companies that organize most of their activities in projects, but also by the traditionally organized industries and organizations, such as service, financial and public companies. Naturally, organizations were in search for medium and instruments that will enable them the project management implementation and saw their chance into project management office as new organizational entity with a flexible form, functions and roles that will help them to oversee all the activities related to projects.

Keywords: project, project management, project management office, organizational innovation

1. INTRODUCTION

Projects are recognized as ventures that, by combining activities that lead to new products or services, improve procedures, administer and develop business, and become essential for the success of any organization [1]. Simple as that, projects are seen as the device of efficiency [2]. Looking back in the past, Balck [3] was talking about project as an instrument for organizational change and development and, more than 20 years after, Ward and Daniel [4] are still talking about project but as a means of leading strategic change. This projectification of business activities, seen as the source of change in a rapid changing world, has led the firms towards management by projects [5] and those organizations were in search for structure and instruments that will enable them to successfully manage projects [6].

Seen as a medium for successful project management methodology application, Project Management Office (PMO) became nowadays a widespread new organizational phenomenon [7]. Some authors are even pointing finger to a PMO as the most important activity and organizational innovation associated with the project management concept from the beginning of the new millennium [8] and many research are showing that a large number of widespread industry organizations have established or rearranged a project management office recently. However, academic knowledge on these organizational entities and their positioning in the scientific context of organizational

innovations is relatively poor and unsounded. For these reasons, paper tries to explain the concept of project management office as an attempt of positive impact on organizational structure, culture and operations in order to achieve the best possible results in this ever changing reality.

2. PROJECT MANAGEMENT OFFICE AS ORGANIZATIONAL INNOVATION

Organization of business activities through projects has now become a common practice of doing business. Also, the popularization and dissemination of the concept of project management through its application in all spheres of life and business caused the situation in which the project management concept is viewed by wider scientific public as a form or source of strategic advantage and greater organizational competitiveness in the future. In other words, project management is seen as the art and science of planning, designing and managing work throughout all the phases of the project life cycle [9].

Given that the practical application of project management abounds in obstacles in all phases of the projects [10], in order to apply project management more efficiently, different methodologies have been developed in the aim of establishing a standard, repeatable project implementation process in organizations [11]. Modelling of project management methodologies is essential, especially because of a temporary nature of project explained by its own definition as an organizational tool for inputs optimization in order of achieving determined cost and quality within the given time goals [2]. The precondition for the implementation of these methodologies was seen in the existence of a project management office as an institutionalized entity within the organization [12].

Organizational innovation can be defined as a new, non-obvious and useful set of rules, processes and structure that has found its viable application in organisations [7] or as the implementation of an organizational method in business practice, organization of workplaces or external relations [13], which has not been used in that organization before and which is the result of strategic management decisions. Institutional theory and innovation diffusion literature suggest that the drivers for adopting an organizational innovation may differ across organizations, and that drivers may be linked with the timing of the innovation [14]. Organizational innovation changes and promotes debts, responsibilities, command lines, flow of information, as well as the number of hierarchical levels or divisional separation of functions, i.e. the structure and processes, within the organization and can be considered as intra-organizational and inter-organizational innovation [15]. While inter-organizational innovations are

viewed as new organizational structures created with the desire for better coordination and cooperation with the environment, intra-organizational innovations relate to innovations within organizational units, their functional divisions and defined competencies and can affect the organisational structure and strategy.

Thus, PMO can be defined as a novel intra-organizational form for supporting of project management, leveraging performance and (sometimes) bringing innovation in project management [2]. Organization can delegate numerous of its functions giving to PMO a role in implementing coordinated project management within its domain. One of probably the most widely accepted definition of Project Management Office was provided by the Project Management Institute [16] and explained it as a management structure that standardizes management processes associated with projects and facilitates the sharing of resources, methodologies, tools and technologies.

PMO has been found today as an important aspect of project management practice, but the concept of these offices is not generally new. For quite some time, they have been used as a medium for administration of large projects, based on the need for an overall, coherent approach [17]. This emergence of project offices, related to large-scale projects, was established by engineering, space and defence industries in the fifties. The modern concept of PMO in form of organisational entity lunched itself under a public supervision during the nineties, with the appearance of millennial bug. But the widespread ideation of business activities through projects was the factor that had led project management offices to the rise of unexpected proportions and their establishment in a variety of organizations and industries as a medium of project management application.

Imagined as a set of different functions for managing government strategies, later evolved into cost control and transparency demonstration, which developed in a pragmatic way to manage non-operational businesses, and then escalated into benchmarking and best practices, PMOs could be viewed today as a product [18]. Although the concept of a project management office has been around for many years as sad, their functions, purposes and definitions have changed over time [19] and some are illustrated in Figure 1. This non-stopped continuity in the evolution of the project management office is one of the factors that enabled today's organization to remain valuable [21] and to adapt to a changing environment [22].

Traditional PMO	Next Generation PMO
Focus mostly on tactical issues	Focus on strategic and cultural issues
Science of project management	Art and craft of project management
Views organization as a "complex machine"	Views organization as a "complex ecology"
Emphasis on monitoring and control	Emphasis on collaboration
Provides tools similar to a precise "map" to follow	Provides tools similar to a "compass" that show the direction
Internal process focused	Focus on end products, customers and outcomes
Process driven	Business driven
Standard (heavy) methods and practices	Adaptable and flexible (agile) methods and practices
Based on rules; follow rules	Based on guiding principles; follow rules and improvise if needed
Defined, repeatable, managed and optimized practices	Adaptive and innovative practices
Focus on efficiency	Focus on effectiveness and innovation
Process leadership	Thought leadership
Heavy management and governance	Balanced management, governance and leadership

Fig. 1 PMO model changing over time [20].

However, as project management has become a common practice of doing business in most varied sectors and industries, the forms of these offices vary so much within organizations that it cannot be concluded that there is a unique set of their functions and roles. Even more, a poor overview of the project management office literature is contributing to the situation that the offices found in the research practice and those described in the literature are significantly different [23]. This situation can certainly be explained by the late involvement of the academic community in examining the phenomena of the project management office, which at that moment its practical implications and significance had already gained. As a consequence of this late reaction, each study had shaped a small part of the concept, which for now is difficult, almost impossible, to integrate into a coherent and comprehensive perspective [24].

3. PMO ROLES AND FUNCTIONS OVERVIEW

A PMO can be established to support one, single large project, or to coordinate multiple projects. Managing a large number of projects is the prevailing model of business today [25] and managing multiple sets of projects simultaneously is a challenge organizations have to master in order to implement their strategic objectives [26].

Depending on the fact if projects under its domain are unrelated or loosely related, authors are making difference between managing a program or portfolio of projects. By the term of program management office, Association of Project Management [27] defined a group of related projects that together achieve a beneficial change of a strategic nature for an organization. On the other hand, definition of portfolio reflects this notion of change as the totality of an organization's investment in the changes required to achieve its strategic objectives [28]. This, so called, project portfolio management office (PPMO) is a unique structural arrangement designed to fulfil specific purpose [21] acting as a central coordination unit that supports the senior management with it specialized knowledge about project portfolio practices [29]. This kind of office has emerged to develop competence in project management, manage single project performance and coordinate multiple projects [30].

In this regard, scholars have been looking at a PMO as on individual entity, primarily because organizations had been implementing one single office for managing projects until recently. Research are showing that large organizations have started to implement multiple concurrent PMOs, each one having different mandates, functions and characteristics [2].

PMOs can be located at different levels in the hierarchy and in different parts of the organization. In these terms, Crawford [31] proposed and described three types of project management offices: the project control office, the project office as a business unit and the strategic project office, shown in Figure 2. In line with Crawford's understanding of the different levels of PMOs, Rad and Levin [32] suggested three suitable project management office levels within the organization: PMO for individual projects or program of related projects, PMO at divisional level and PMO at the corporate level. Looking at the performance of these offices in literature, there is no evidence of different performance of offices located at different locations within the organizational structure [33]. However, there is a significant correlation

between the location of the office within the organizational hierarchy and the number of projects under its domain – the higher the hierarchical level of the office is, the greater the number of projects for which coordination is in charge and vice versa [34]. This relationship is different if you observe the total number of projects in the organization and the number of entities in the form of project management offices. In organizations that undertake a large number of concurrent projects, project management offices are distributed at lower organizational levels, managing a smaller percentage of the total number of projects, while their coordination simultaneously carries out offices in higher hierarchies [34]. Scholars also tried to explain the diversity of PMO using basic contingency variables such as size, region or industrial sector organization belongs, but research did not found a

systematic relationship between the external contexts listed above and structural characteristics of PMOs.

Not only did the design of PMOs in different industries and regions, in public and private sectors, in different-size organisations, and managing different-sized projects not vary significantly, but the performance of the PMO in these contexts did not vary significantly either [33].

Beside those, Hobbs and Aubry [33], in their detailed research of 500 PMOs worldwide, identified only four organizational characteristics that showed significant relationships with PMO characteristics and those are: internal or external clients, matrix and non-matrix organizational structure, level of project management maturity and supportiveness of organizational culture.

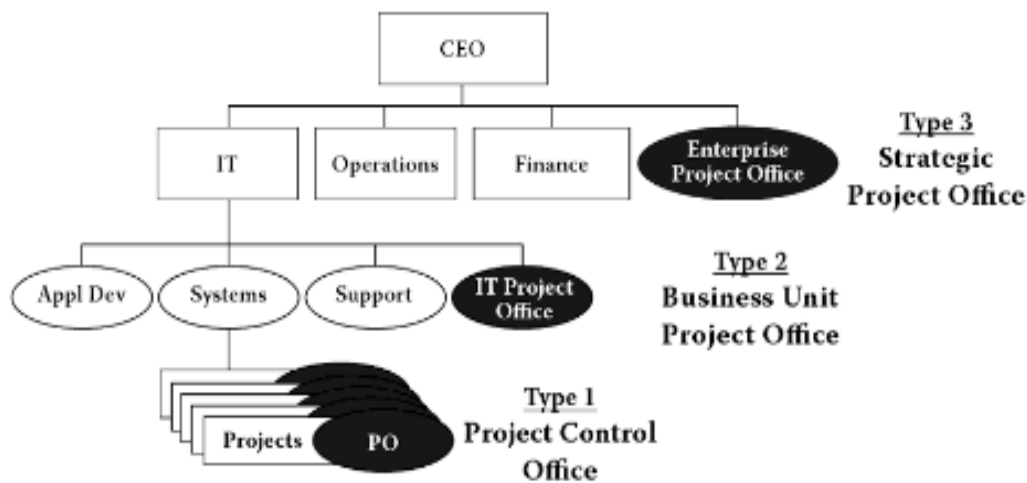


Fig. 2 Crawford's model of PMO within the organizational hierarchy [31]

On these characteristics, they modelled three types of project management offices: (1) PMOs with many projects and project managers and considerable decision-making authority, (2) PMOs with few projects and few, if any, project managers and less decision-making authority, and (3) PMOs with few, if any, project managers, a mandate including most of the organization's projects and a moderate level of decision-making authority. They noted that PMO with more decision-making authority and more projects and project managers not only tend to perform better than other PMOs, but are also found more in organizations that are mature in project management, have a supportive organizational culture, nonmatrix type of organization and stuff working on the projects located in the same organizational entity as the PMO. Numerous authors have tried to describe assignments that can be put in front of a PMO. Previous studies [2][20][35][36] have identified activities commonly undertaken by PMOs. For example, Desouza and Evaristo [35] described those activities as strategic, tactical and operational, as shown in Figure 3.

Also, Kendall and Rollins [20] are talking about four models of PMOs: project repository model that emphasizes tools and data, project coaching model which provides training, mentoring and other help to project managers, enterprise

model that takes over the project management direction and function, and deliver value now model which provides focus on the total project portfolio, linked to the organization's goals and assets. Muller et al. [2] identified three distinctive roles of project management offices that are making a difference for the nature of relationships and for the organizational outcomes: serving, controlling and partnering role. They described some PMOs as pure service units, some other as management units with direct control on projects and again others as cooperation medium for continuous improvement of project knowledge. This role model displays (a)symmetry in relationships between a PMO and its organizational stakeholders. Artto et al. [36] defined five tasks of project offices within the organization: (1) managing practices, (2) providing administrative support, (3) monitoring and controlling projects, (4) training and consulting, and (5) evaluating, analyzing and choosing projects.

As the reason why there exists such variation in the structures and roles of PMO, scholars are highlighting the fact that there is no "one-size-fits-all" solution [19][24]. This means that PMOs are structured with given functions that are in line with the needs of their home organization.

4. REFERENCES FOR THE ESTABLISHMENT OF PMO

Some research at the beginning of the twenty first century were showing that reported project performance is higher in organisations that have PMO in comparison with organisations that do not, but not high enough to merit statistical significance, and in the other hand organisations that have a PMO have clearly done more than those that do not have a PMO in promoting project management standards and methods, historical archives, training and consulting and mentoring [37]. Accordingly, scholars are describing many

pros for establishment of project management offices, which are mostly general, expressed in the organization's positive expectations of the methodology implementation. Studies are showing the increase of project success rate in case if project management methods are used [38]. Turner [39] demonstrates that PMOs have a positive influence on the success of project portfolio management. Kerzner [40] points to facts such as improved coordination, increased availability of information, better resource utilization, operational efficiency and control as well as increased project outcome quality.

Level of influence	Activities
Strategic	Ensure projects are aligned with long-term objectives of the organisation and contribute to the strategic growth of the organisation Efficient and effective knowledge management to improve the policies, practices and methodologies of project management in the organisation
Tactical	Ensures close integration between ongoing projects Ensures consistent quality of products and services generated by projects Knowledge sharing across ongoing projects
Operational	Providing regular status reports to decision makers and coordinating communication about projects Ensuring information is available to inform specific project decisions Acting as a central source of knowledge on project management including best practices and standardised methodologies Conducting routine project evaluations

Fig. 3 Desouza and Evaristo's model of activities commonly undertaken by PMOs [35]

Unger et al. [30] indicate that the PMOs they studied show improvements in resource allocation and commitment, cooperation improvement between the projects, improved quality of information sent to management for decision-making and improved single-project performance. They claim that PMO adds value to a portfolio of projects as well as to organisations. Hobbs and Aubry [23] are highlighting the improving project management maturity of an organization. Hurt and Thomas [22] state that PMO can make benefits such as cost savings, increased revenue, reduced rework, improves competitiveness, attainment of strategic objectives, strategic alignment, more effective use of human resources, improved general use of resources and better project decision-making. Others are citing reasons like reducing the project failure rate, achieving greater cost control and improving the predictability of their assessment, the possibility of larger and more complex projects execution, increasing project quality and confidence in project implementation capability. Van der Linde and Steyn [19] within their research concluded that PMO is perceived to add value overall.

However, there are no authors who are explaining project success by the very existence of project management office. This can be explained by the lack of a proper methodology for evaluating project management's contribution or, perhaps better said, the inability to evaluate these contributions especially with financial measures. As we said, the roles, functions and legitimacy of project management offices vary as well as industries in which they operate, so the scholars have practical problems with measuring the impact or value added by the PMO.

Nevertheless, surveys are showing that the number of established offices is increasing year by year. A global survey

conducted in 2015 by ESI International [41], one of the world's leading training and consulting organizations in the field of project management, which involved 900 companies from all over the world, showed that almost three-quarters of the respondents stated that the organization in its organizational context has established a project management office.

On the other hand, despite the growing popularity of PMOs, research also shows that three-fourths of PMOs shut down in the first three years of their establishment [42]. Aubry et al. [43] noted that the life expectancy of PMO is approximately two years. In this regard, Stanleigh [44] found their inability to demonstrate the value as the main reason of the short life span of PMOs. Additionally, research showed that good project evaluation and full information, which can be provided by PMO, is likely to be associated with de-escalation or top management's lack of satisfaction, as they become aware of problems with projects [4]. This identified lack of management satisfaction by Ward and Daniel is in accordance with previous research that found a low importance to the contribution of PMO's to organizational performance by executives [45]. Also, some researches argues that explanation for PMOs' short living lie in the process of co-evolution that PMOs undergo over time in interaction with organizational capabilities and context [46]. In this regard, investigating the creation and reconfiguration of PMO as an organizational innovation, Hobbs et al. [7] emphasized the unstable nature of organizational structures and the difficulty in finding evolution patterns. They highlighted the dynamic interplay between PMOs and the organizational context and the recent research by Bredillet et al. [46] confirmed it. Here is necessary to mention the PMO

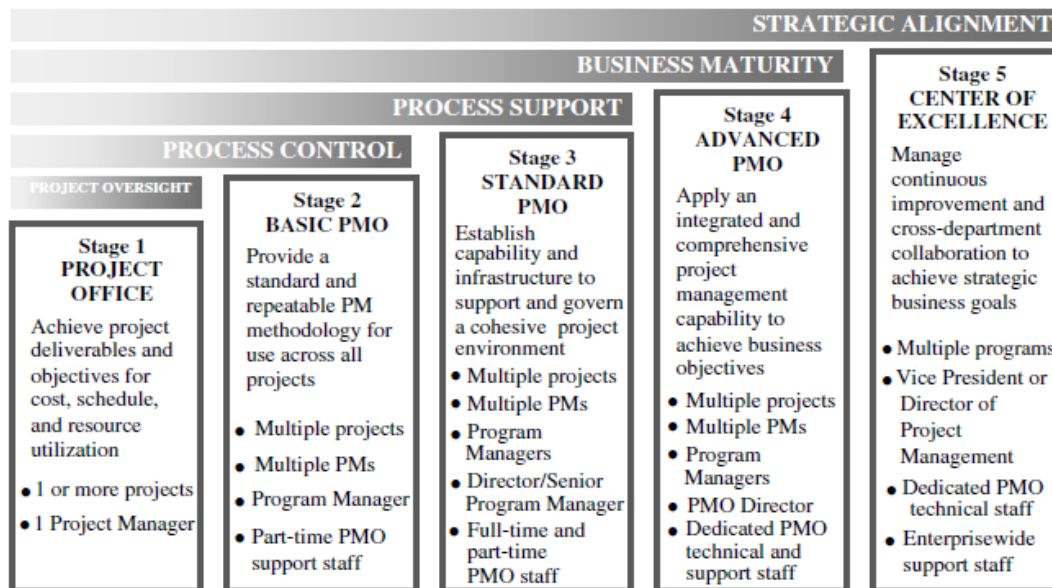


Fig. 4 Overview of PMO capabilities across the PMO competency continuum [47]

evolution within the organizational framework that tried to describe Hill [47] as a series of phases through which the offices are undergoing in its development. This model is shown in Figure 4 and assumes that, in order to establish an office at a certain stage, the organization has already adopted the competencies described in the phases preceding the selected one. Given the fact the phases are characterized by certain factors and business processes that become more and more complex with the growth of the competencies of the office, this model also confirms that the project management office is not a stable system, but a concept that evolves both within the individual organization and within the population of organizations as a whole [48]. In addition, the same authors point out that different influences shift not only the concept of the project management office from one context to the other, but also other components of the organization itself, thus achieving a two-way relationship: both offices and organizations are adapting and evolving over time, thereby creating a common context of organizational project management.

This means that the foundation stone for a PMO establishment has to be the presence of a rational effort for new management techniques implementation, clear vision and good planning process taken by executives. But PMOs have to be periodically reviewed and restructured if necessary with the aim of lining up with the strategic goals of the organisation.

5. CONCLUSION

Research shows that pressures from the environment and internal complexity of the organization are both factors that affect the recognition of project management as an organizational change agent [14]. These changes are undertaken with the goal of achieving strategic objectives by top management of the organization and appeared in a form of new, more flexible organizational forms [49].

If the innovation is seen as a dynamic construction of something new in which it can be difficult to discern any regular pattern, then the complexity theory could explain numerous PMO types and functions found in practice, together with the inability of scholars to describe as well as to evaluate them because of the need for more complex tools to understand the complex reality of today's organisation. In these terms, project management office can be and should be seen as an intra-organizational innovation, primarily because it is a recent and important phenomenon [7].

To date there have been few studies exploring PMO contribution to project success and management satisfaction which are mostly general, expressed in the organization's positive expectations of the methodology implementation. Nevertheless, because many PMOs are struggling to show value and some are failing, causing a very high mortality rate among PMOs, practitioners and organizations are advised not to implement a PMO under naive assumptions of value for money or because PMOs are popular [23]. The fact is that there is no specific rule for setting up a project management office, and in this regard the authors emphasize the need for harmonizing the office structure with the organization's corporate culture as the most influential factor of success [35]. Particular context, history and identity of an organization must be taken into consideration as well [24]. In this context, the role of the project management office can be seen as an attempt of positive influence on the continuous organization building [48].

From showed, we can highlight several important functions that PMO can provide for organization. First is that PMO certainly can be an abiding, knowledgeable driver for continuous change. This is because PMO is permanent organization that organizes projects as temporary configurations in coalitions to deliver particular outputs. Second, research show that PMO is more flexible to rapid change than organization: the variables on the organizational side can only be changed with significant efforts [33]. It is indisputable that organizational design takes time, because a

collective effort must engage what is found outside and inside the organization [24]. Third, good PMO governance in the coalition with rational expectations of high executives can lead to leveraged performance and even bring hoped-for innovation in project management. For those organisations that have already found a PMO as an institutional project management medium, it is necessary to re-examine if their strategic goals are in line with the aim in which the PMO was established from time to time, in order to maintain the PMO that fits executives' wishes and standards in terms of successful project management.

As the knowledge about project management rounded-up and the utilisation of project management techniques and methodologies took place in wide spectrum of industries and organizations, it is undisputable that business organizing through projects will be present for quite some time. In accordance with the above, paper can be seen as an attempt to contribute to the popularization of the theory of project management offices as organizational innovation through a brief overview of available literature, as well as creating further opportunities for studying the field of organizational project management through, in this way enabled, animation of the scientific public.

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THE AUTHOR'S QUANTIFIED APPROACH – VIA THE SIMILITUDE REPORT: FROM REFERENCES TO CREATIVITY

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Abstract. *The authors analyze the structure of a standard article based on the similarity report made by any prestigious publication before a peer review and eligibility check. After a brief introduction, in which the general structure of the article, in the authors' view, and the final structure of the article, subsequent to the control of publishers or journals, are seen in parallel, the central section of the article presents several similarity reports with the Plagiarism Detector (used in demo version). References and citations, together with their limiting weight in the text of the article, are the main topics for discussion. Some final remarks highlight the relative relevance of using limiting thresholds for the amount of references and citations in publications.*

Keywords: *references, citations, bibliography, plagiarism detector, similitude report, scientific research*

1. INTRODUCTION

An article, once conceived, broadly complies with the sections of a classic research report, prior to the editing and publication, starting with the title and summary together with its specific keywords, plus a literature review section, then another one which is methodological, and especially one devoted to results and discussions, and finally conclusions or remarks are necessary, which are focused on the limits of the paper and the perspectives of the synthesized scientific research. In the final stage, the publishing house or journal analyzes the article from the perspective of the standard structure – namely referenced, plagiarism and original. The structural analysis of the similarities, mirrored by the analysis of classical sections, starts from the information defined by the anti-plagiarism report, made by any prestigious publication, prior to a peer review and a necessary eligibility check.

There is no direct or indirect relationship between the classical sections of the article and its standard structures, but rather the three structures are found in each section, or in other words all the sections are x-rayed in terms of percentages related to the level of structures resulting from the similarity investigation: referenced, plagiarism and original. The present article exemplifies this structure by means of an anti-plagiarism software, which also quantifies the actual amount of references and citations or quotations, generating a useful and original discussion about the optimal references and citations.

2. THE RELATIVE OPTIMUM OF REFERENCES AND CITATIONS ACCORDING TO THE SIMILARITY REPORT

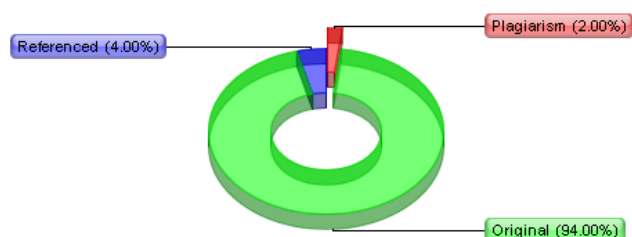
Two major features of a carefully and accurately designed article, rigorously drafted and published in a journal that enjoys real prestige, consist of exemplification and argumentation with a probative role, both pragmatically realized with the help of other works (books, articles), which thus support the importance of the themes, topics, hypotheses, methods, models, experiments, simulations of results, or even findings of the research. This practice becomes more convincing and validates the hypotheses and opinions of the author or authors. Such an approach constantly seeks to identify an optimum of references and citations or quotations, often exemplifying in the form of references to other works or citations and quotes from other texts in various books or articles [1]

It should be remembered that if the list of references and the list of citations can coincide, and even do coincide in the modern conceptualization of an article, they nevertheless differ clearly in relation to the bibliography of an article, the former listing, in the end, all the articles quoted in the text of the book or article, while a bibliography covers all the papers (books, articles, etc.) that an author has consulted in the preparation of his/her investigation, whether or not he/she has generated references or quotes from them.

The reference or citation, in the structural context of the similarity report, is quantified based on the existence or not of quotes (i.e. inverted commas) that delimit the actual quotation, since the fact they are missing places the respective text outside the referenced structure, and into the structure of plagiarism. The bibliography loses its major significance, acquired in classical sections, while references and citations or quotations turn into a relevant structure relative to the creativity or originality of the paper.

The Plagiarism Detector software, or software package, provides, in addition to the total and per-section analysis of the article and book text, a quantification of each structure, both in terms of the number of similar or identical words in phrasing (for suspected theft of ideas and detection of area of plagiarism), and in terms of percentage (for all structures from referenced, to plagiarism and original). This can be exemplified in the content of a final report of the Plagiarism Detector software, which is relatively incomplete in its available demo version, being numbered (e.g. Detector v. 1020) and redefined as the Originality Report, as a scanning process for an analyzed document (dated for the year and day in the calendar, e.g. 30.08.2017, but also for the time of the day, e.g. 17:33:39). The report is nominated and numbered successively, in an exemplifiable form such as

Report 1 Name and surname 30.08.2017.docx., being synthesized graphically:



Source: Distribution graph: Comparison Preset: Word-to-Word. Detected language: Romanian

Fig 1. Generated by Plagiarism Detector (Demo Version)
(Warning: Demo Version reports are incomplete)

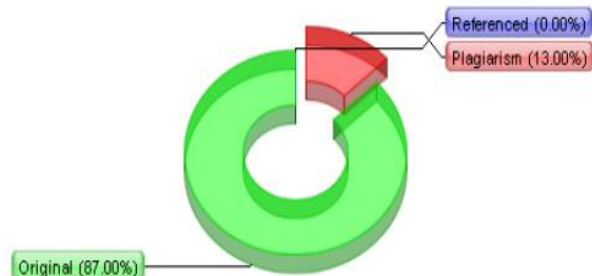
Using this program to check a text involves going through several steps:

Step 1. Add documents;

Step 2. What to detect. The user must choose between Word-to-Word detection and Text Rewrite detection;

Step 3. Select the Check Type

So, the program allows one to choose how to detect plagiarism: either "Word-to-Word", which provides maximum accuracy and is recommended for areas like Sciences, or "Text Rewrite", which offers maximum detection and is recommended for the Arts domain.

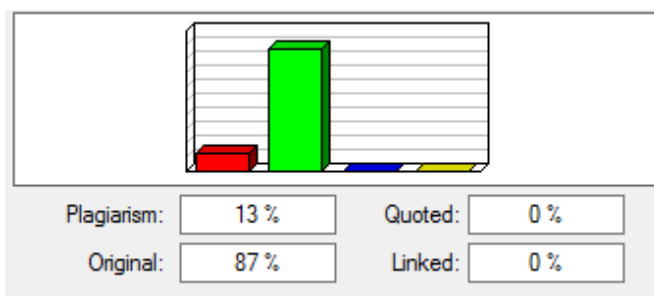


Source: Distribution graph: Comparison Preset: Text Rewrite. Detected language: Romanian

Fig 2. Generated by Plagiarism Detector (Demo Version)
(Warning: Demo Version reports are incomplete)

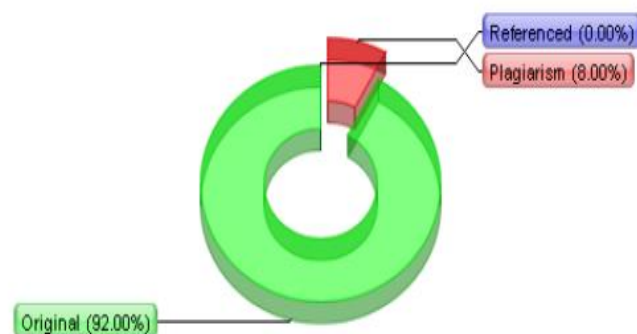
In the panel of viewing the reports for the latest verified documents, the weights of plagiarism, citations / quotes, original text, and links are graphically presented as columns, as shown in Figure 3.

Using plagiarism detection options (Word-to-Word or Text Rewrite) can generate slightly different results. The authors used the same text containing plagiarism elements, and checked it using both options. Figure 4 shows the results obtained for the same text as that in Figures 2 and 3, but the option went for Word-to-Word verification. A slight decrease in the percentage indicated for plagiarism can be noted, which is but normal given its multiple forms.



Source: Distribution graph: Comparison Preset: Text Rewrite. Detected language: Romanian

Fig 3. Generated by Plagiarism Detector (Demo Version)
(Warning: Demo Version reports are incomplete)



Source: Distribution graph: Comparison Preset: Word-to-Word. Detected language: Romanian

Fig 4. Generated by Plagiarism Detector (Demo Version)
(Warning: Demo Version reports are incomplete)

Creativity has a multitude of definitions in the literature, but these can be summed up as the ability to create new ideas, concepts, and methods. Creativity is closely linked to originality, the two concepts lying at the basis of the progress and diversity of human society. Both concepts have been intensely debated in the last centuries, and are viewed from different angles by specialists in various fields.

There is a close connection between creativity and originality: we cannot talk about creativity without originality, or vice versa.

The development of ICT has made it possible to produce collections of documents unprecedented with regard to size, and the field of scientific literature is no exception. Scientific papers can be organized or grouped within these collections based on criteria such as keywords or JEL codes, but in recent years there have been proposals for grouping them based on the analysis of the references of each work, using Artificial Neural Networks (ANNs). [3]

Plagiarism is a detrimental phenomenon in any field, including the world of science. The spread of the Internet has favoured the appearance of various forms of plagiarism which are hard to detect by classical means. That is why plagiarism detection software is now used that offers maximum efficiency in a short time.

The Plagiarism Detector program can detect plagiarism in text, online and offline documents, and can be successfully used by universities, publishers, journals, or anyone interested

in the originality of a document. This program uses the largest digital database available to the public in the world – the one presupposed by search engines.

One standard that can measure its success is the fact that the program is being used by customers in 150 countries.

The Allen Institute of Artificial Intelligence [4] has developed the Semantic Scholar project [5], a non-profit, free of charge academic search engine based on artificial intelligence. This search engine provides access to millions of scientific papers using machine learning techniques, and calculates the number of citations for these papers taking into consideration only quality papers.

5. SOME FINAL REMARKS

If there are two images of a paper or article and, implicitly, as many approaches, which are sharply different, the first being focused on the classical sections and the second on the structures quantified by the similarity report, what finally manages to secure their essential cohesion is references or citations and creativity or originality. In any section, the references or citations along with creativity or originality, as exclusive solutions to plagiarism, ensure the continuity of the methodological, argumentative or motivational approach, synthetically and analytically investigative. Even though the authors of the present article consider that a general optimization of the percentage restriction of structures is not justified, the option of a Pareto (20/80) ratio between the referenced and the original matter seems to be a real solution, which is able to ensure the balance of an article. In addition to Plagiarism Detector, there are many other programs capable of identifying correct citations or quotes and incorrect quotes (which are basically transformed into plagiarism).

The article structures can be multiplied relative to the software package or software used. The first structure identical to the referenced matter is given by the percentage values of the citations / quotes, plagiarism is identified as the structures of identity (or absolute similarity) structures, and the relative similarity with the texts found after the confrontation as potential sources of plagiarism, and the original is relativized and renamed as a structure defined by indecision, which is eventually quantified as the percentage of phrases or sentences that were not found in the contrasting base and/or the Web.

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OKR SYSTEM AS THE REFERENCE FOR PERSONAL AND ORGANIZATIONAL OBJECTIVES

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Abstract. *In order to measure the correlations between the company's and the personal objectives of the employees, there is a precondition in the terms of implementing the adequate management system. This paper emphasizes the importance of the OKR system and its use in modern business organizations. Nowadays, using management tools through the MBO methodology is not sufficient to achieve competitive results. Encouraging employees to achieve highly ambitious goals, as well as integrating individual objectives of employees and company's objectives, is something that is often omitted. At the end of the 20th century, tech companies started using OKR as a new strategic management tools. Many of them, such as Google, LinkedIn, Intel, owe their growth and success to OKR system. This paper will introduce a practical example of the OKRs shema in an online booking reservations company and the specificities of its use in a different systems which is one of the main benefit of the OKRs. By presenting the success scores of individuals and overall success score, this paper will show the importance of bottom-up management concept through the correlation between personal development, success score of each individual and company's success score.*

Keywords: *Objectives and Key Results, Success Score, MBO, Organizational Success*

PACS numbers: 89.65.Gh, 89.75.Fb

1. INTRODUCTION TO MODERN MANAGEMENT METHODOLOGIES

Modern management systems and philosophies are now applied in many companies as an upgrade to the basics of strategic management. The need for developing strategic tools came in the 50s and 60s, with Chandler (1962), Selznick (1957), Ansoff (1965) and Drucker (1954) as the founders of strategic management and tools in strategic management.

One of the basic strategic management methodologies is Management by Objectives. Peter Drucker has embraced a variety of management techniques made to improve the company's performance. [9] He has introduced Management by Objectives (MBOs) in 1954, a process during which management and employees define their key objectives and what they should do to achieve them. [21] Many companies took over MBO and modified it in accordance with their needs and their strategic business units. By further development of management philosophy, George Doran gave a framework in 1981 for the definition of goals by the principle of SMART philosophy, where the goals should be specific, measurable, achievable, realistic and time-oriented.

Subsequently, many strategic tools based on goal-based management have been developed. One of these tools is the Balanced Scorecard by Kaplan and Norton (1992).

Martinsons et al. (1999) recognize BSC by its multidimensional approach to performance management. [15] Kaplan and Norton define BSC as the performance measurement tool which has several points of focus. One of them is finance, however, by the BSC, company should be oriented also on customer centricity, improving business processes and on development and learning of the organization. So, it provides a holistic performance outlook. [11]

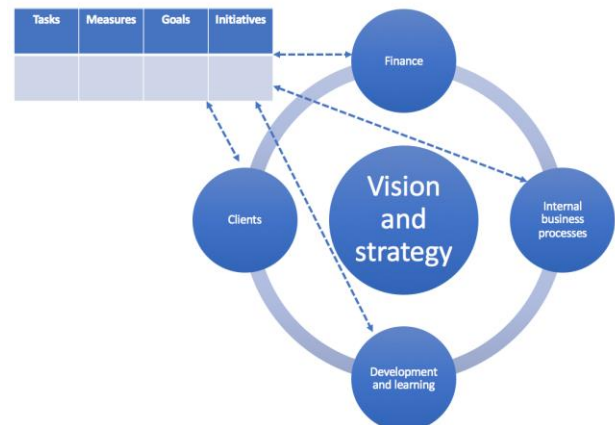


Fig 1: Balanced Scorecard as a Tool for Measuring the Goals [12]

Many companies treat the financial aspect of business as the most important. Companies which focus only on the financial perspective of their business are more likely to lose control of their overall success. Each perspective of the BSC (financial aspect, aspect of improving processes, clients and development and learning aspect) is related to the previous one and could be seen as a chain. In order to track the success from each of those perspective, the company should have well defined KPIs. Some of the key performance indicators recommended by Norton and Kaplan are ROCE (Return on Capital Employed) or refunds on invested own funds, level of the customer's loyalty, just-in-time delivery of services/products, duration of processes, knowledge expansion, etc. In Figure 2, there is a brief example how the chain of BSC should look like.

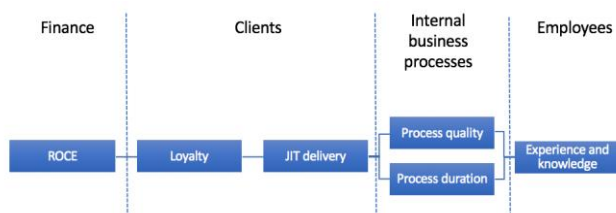


Fig 2: The relation of KPIs in different aspects of business using the Balanced Scorecard [12]

The essence of all perspectives in the concept of the BSC is to provide answers to several questions:

- How does the stakeholders perceive the company through the company's vision and strategy;
- Which business processes need to be modified and improved in order to increase stakeholder's satisfaction;
- In which parts employees need to improve in order to accomplish their goals and to achieve the vision of the company. [12]

The majority of Fortune 500 companies have been using BSC as a multi-dimensional and a holistic tool. It has many advantages. The benefits of the BSC include overcoming inadequacies of the traditional financial orientation of most businesses. BSC helps companies transform strategies and vision into measurable steps as part of performance management and it helps businesses realize the insight of their values and how are they creating them. [1] However, BSC has weaknesses as well. Awadallah and Allam (2015) point out on the implementation problems and lack of the knowledge to define key success factors for identifying KPIs. Đorđević and Stojanović (2013) highlight the lack of transparency through the organization as one of the BSC weaknesses. [6]

All in all, during the history of modern management, goal-setting has been used for two main purposes (Mello, 2016, p 10):

- To increase the motivation of employees (efficiency) and
- To assess the performance of employees.

By setting a clear goals, organizations tend to increase focus, effort and persistence towards successfully achieved goals. Individuals pay more attention to a task associated with goals than the ones that are not. On the other hand, people feel more energized and eager to put an extra effort if they see the final goal and are more persistent in achieving that goal. [6]

In 1999, John Doerr has used a new methodology based on MBO and BSC, called OKR which stands for Objective and Key Results. Doerr introduced OKRs as a system for managing key objectives. Doerr was firstly exposed to OKRs at Intel in the 1970s. At that time, Intel was making a transition from producing memory chips to producing microprocessors and they needed an extra focus on the set of priorities in order to succeed. By creating OKRs the company achieved their main objective, which was huge at that time. However, the origins of OKRs in the terms of exploring them were related to Google and implementation of the OKRs by Doerr in Google in 1999. [2]

John Doerr has defined OKR system as an essential management scheme based on critical thinking, collaborative

efforts and structured objectives, but he also points out on a management methodology that helps businesses focus on a joint effort in achieving the company's goals. Many tech giants like Google, Oracle, Intel, LinkedIn, and other successful tech companies, use OKRs in their day-to-day business. The concept of OKRs highlights the relation between the goals set by the employees themselves as their personal OKRs and the company's OKRs. [2]

2. THE MAIN DIFFERENCES BETWEEN MBO AND OKR METHODOLOGY

Many organizations identify OKRs with MBO and BSC. However, there are several main differences between OKR and MBO as a management methodology:

- OKRs are set and evaluated more frequently (monthly, quarterly or semi-annually);
- OKRs are more transparent – they are completely public to each member on every hierarchy level;
- Bottom-up concept of setting goals – Unlike MBO, where goals tend to be defined in top-down concept, OKRs involve every individual goal as part of the company's main objectives;
- OKRs are always defined as ambitious with 50% chance of achieving them. However, success is acknowledged after 70% accomplished. That does not mean that OKRs treat 70% as a 100% achieved goals in the MBO methodology. The aim is to set the higher goals.
- OKRs involve not directly related compensations. If the employee achieve highly ambitious goals, the company should reward employee as a % of his/her monthly/quarterly salary. The type of reward is a flexible factor in the OKRs. However, this can affect employees by setting the lower goals, therefore the % of goal's completion isn't that important as the actual results. [6]

When it comes to setting goals, this process is different in OKRs in comparison to MBO as well.

MBO starts with the top-down concept, by setting the main organizational objective. Next step is to communicate the objectives through the lower hierarchy levels and to monitor the employees efforts towards main objectives. After the evaluation, if the objectives are accomplished, employees should get rewarded. [3]



Fig 3: The MBO five-step process [5]

So, the main difference is in the concept of setting the goals. MBO promotes top-down management style, while OKRs promotes bottom-up style. On the other hand, MBO has multiple weaknesses:

- No single person is responsible for specific achievements, but the organization as a system, which leaves a small space for the rewards of individuals;
- Comparative ratings are complexed, so it is hard to compare them;
- MBO does not motivate employees to improve their personal knowledge and to develop themselves as an employees, not just a part of an organization;
- The whole MBO process is time consuming;
- MBO is more suitable for people hired on a higher hierarchy levels (management, sales people, etc), who work independantly and it is less applicable to routine jobs and positions that include such work. [9]

3. OKR SYSTEM AS THE REFERENCE TO MANAGEMENT BY OBJECTIVES

Over time, many companies have lost their focus points, although they adhered to the MBO concept and the balanced scorecard as a management tool. Through the technological revolution, achieving higher level of transparency has become easier than ever. By creating such conditions, many companies search for a new, modified model of strategic management by using goals and key results. Objective and Key Result (OKR) system is one of the most popular in tech industry which affected the overall business results.

Management by objective as a concept was mostly used and dominant during the 80s and 90s. In 1981, George Doran set the foundations for managing goals in a more effective and efficient way by establishing the concept of SMART objectives. [14] By defining key Performance Indicators (KPIs) as measuring units in order to define company performance, companies have made a clear path to track their performance, evaluate their business and make forecasts. In 1999, John Doerr made a unique OKR system for setting, tracking and evaluating individual objectives of employees and as a final result – company’s main objectives. Since this system has been implemented by Google from the very

beginning, it is presumed that it contributed to the overall success of the company.

By using the OKR system, Google has focussed on efficiency and effectiveness through the “70-20-10” rule as an extension to Objective and Key Results. This rule points out that 70% of activities should be related to the main objectives and important projects, 20% should be related to the supporting activities and second priority objectives and 10% on the remaining activities as the *health meatrics*. Health meatrics are the tasks which need to be fulfilled so that a company could work operatively without any bareers. OKR also have a function of increasing transparency within organization and making a better prioritization. Key objectives should be set quarterly and evaluated quarterly. With the growth of organization, OKRs could change the period from quarterly setting to six month period of setting and evaluating objectives. *Google* has choosed a half-annual period where employees have the chance to progress twice a year if they achieve the agreed objectives. [19] The complexity of a company and its structure could affect the slower decision-making. That’s why most of the companies seek for a more flexible management concepts which could increase the company’s growth and development of its employees. [10]

In order to better understand OKRs principles, according to the founder of the OKR system – John Doerr, it is recommended to follow the main directions when setting OKRs, such as:

- Objectives should be defined as inspirative and motivational and they should clarify where will the accomplishment of those objectives lead the organization;
- Goals should be ambitious as high as 0.5 possibility to get accomplished (thereby encouraging innovation to achieve goals);
- Through the OKRs, organizations should stimulate highly productive and effective employees;
- It is necessary to have 4-6 objectives (no more and no less) due to the focus factor, and 3-5 key results as a monitoring tool for objectives;
- Key results must be measurable (if not, than converted to the measurable unit), time-oriented, and specific;
- For each of the objectives and key results, it is necessary to identify the responsible sector or person;
- The OKRs should be set quarterly or semi-annual (depending on the size of the company);
- With the setting up of such a system, it is recommended to set a bonus for achieveing high results, and to motivate employees to achieve higher results each month;
- The goals should be set by a bottom-up concept;
- OKRs should be transparent to every hierarhy level in the company. [2]

Unlike the Balanced Scoreboard, the OKR system is also considered as a tool that highlights the importance of personal objectives and use them to form the company’s main goals. If the OKR is compared with the Balanced Scoreboard, the main difference is that it stimulates employees on each hierarchy level to achieve more ambitious goals (with 50% chance of achievement at the time of setting). Unlike OKRs, BSC is more oriented toward management levels. [17]

The OKR system can be applied within any organization, but it requires discipline, a lot of pre-training and education about OKR as a management system.

Table 1: The specifics of using OKRs in different organizations [2]

Type of the organization	Specifics of using the OKS
Big organizations	The biggest challenge during the implementation of OKRs is how to chose a proper communication channel which will be on a high level of transparency. It is suggested to set OKRs by departments. Evaluation should be done quarterly or semi-annually;
SME	SME should evaluate OKRs more often than bigger corporations – on a monthly or quarterly basis;
Organizations in the domain of providing services	In service or project oriented companies, objectives set by individuals should be vertically aligned;

Organizations should adopt OKR system according to their size and orgnizational structure. If there are several hierarchy levels, OKRs should be set according to that structure, by connecting objectives from lower hierarchy levels and setting them as the key results to the directly superior departments. This system could also be explained with an equation:

α – Organization
 β – Department
 γ – Employees
 O – Objectives
 KR – Key Results

α_O – Main objectives of the whole organization
 α_{KR} – Key results that explain objectives

$$\gamma O1 = \beta KR1$$

$$\gamma O2 = \beta KR2$$

.

.

.

$$\gamma O_i = \beta KR_i$$

$$\beta O1 = \alpha_{KR1}$$

$$\beta O2 = \alpha_{KR2}$$

.

.

.

$$\beta O_i = \alpha_{KR_i}$$

Every decision maker included in setting his objectives and key results, shouldn't have more than 6 objectives and 5 key results that are related to each of the objectives. The more complexed organization is, the more levels of OKRs should be organized.

However, this system was initially implemented for startup organizations. Since, many of the startup companies have flat-line management, they require less levels of OKRs, which could be seen in the Figure 1. It appoints that all employees and their personal OKRs are directly related to the company's OKRs. [22]

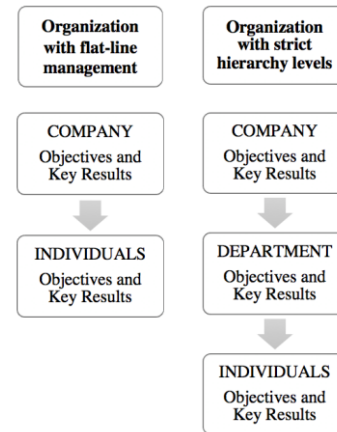


Fig 4: Structure of OKRs in flat-line management organizations and organizations with strict hierarchy

In order to understand even better how OKRs should be set, Doerr has made a universal example while he was implementing this management system into Google (1999). Larry Page, one of the cofounder had his key objective – winning a SuperBowl. After the OKR meeting, the bord of directors have accepted Larry's key objective and it automatically became the key result of his superior – John Doerr. On the other side, Jack – Head of PR had an objective – filling the stands to 88%, which also after the OKR meeting got voted and became the second key result of his superior John Doerr. These two key results should bring x amount of dollars for the owners. [13]

The OKR meeting is organized to give a direction in which the entire company should enhance the personal goals, so that employees could have the freedom to define their own personal OKRs or OKRs of their department.

4. THE USE OF OKRs SYSTEM IN AN ONLINE BOOKING AGENCY

In the following case, there will be shown a real example of FishingBooker – the world largest online platform which helps customers to book fishing trips worldwide. Eventhough this company is pretty young (established in 2013), the exponential growth made it the world largest company in that domain. As every startup copmany, FishingBooker needed to experiment with several management models and in the late 2016, the company adopted OKR as an official management and evaluation system. [7]

FishingBooker was counting 20 employees at the beggining of its “OKR era”. One of the hardest parts was the education part, where employees should get educated about the mechanism of this system and how to set their own goals. By involving a bottom-up structure of setting goals, all the employees need to know how to set SMART goals. Organization itself needed to have a certain level of employees satisfaction as a precondition, in order for them to be fully motivated to set the proper OKRs.

The process of setting OKRs involve adherence to the OKR principles, from setting highly ambitious goals to transparency principles and reporting on a weekly basis. Unlike MBO, OKRs require a more frequent reporting about the achievements. Weekly reporting requires making two types of priorities – P1 and P2. P1 includes activities that are directly related to achieving the company’s OKRs, while P2 involves activities on personal development. Beside P1 and P2, there are “health meatrics” which include activities that are necessary to be done in order for the company to work properly. They are in most cases related to routine work. When reporting on a weekly basis it is important to report about the previous week achievements, but also to communicate the plan for the next week. Since OKRs support the rolling forecast methodology, these reports also include the plan for the next four weeks. After each week the progress should be recorded on the OKRs if the change happened (on a scale from 0-1). [18] FishingBooker uses this type of weekly reporting and each employee send it to the official channels of communications which are visiable by everyone.

Weekly OKRs progress reports have the recommended template. Bellow is the exapmle how should this report be structured.

Objective: Atomize processes in the finance department

KR: Build an automated reporting system on the website 0.7/1

KR: Learn to use databases through the knowledge of SQL 0.6/1

KR: Make a valuation of total asset 0.3/1

LAST WEEK:

P1 – Close the new deal from the list of top 10 affiliates. [DONE]

P1 – Create automation reporting module on the website. [IN PROGRESS]

P1 – Create a monthly P&L statement [DONE]

P2 – Improve SQL knowledge by watching 10 hours of video materials [IN PROGRES]

P2 – Finish reading the book “Reinventing the CFO” [DONE]

NEXT WEEK

P1 – Finish the automation reporting module on the website.

P1 – Make the evaluation report on the total assets.

P2 – Improve SQL knowledge by watching the rest of the video materials 5 hours.

Note: The automation didn’t achieve 100% completion. The testing phase is left.

NEXT 4 WEEKS

P1 – Finalize the reporting module on the website with testing it.

P1 – Make the valuation of the company based on the total asset value.

P2 – Improve SQL knowledge.

Transparent communication is important factor during the implementation and using the OKRs. Therefore, the implementation of the proper information-communication system is necessary for the implementation of OKRs. The number of employees is one of the factors which will affect the type of system. However, by using the Composite index of ICT adoption, companies could measure their needs for the proper system. [4].

The first phase by which FishingBooker started implementing OKR as an official management system was the education of employees. This process lasted for one month. However, it wasn’t expected for employees to be capable to set the goals on their own at the very beginning. The education could be considered as the most important phase due to potential resistance by employees, since implementing OKRs is a big organizational change.

After the education part, the second part considers setting the goals on each level (personal and organizational goals) for the next quarter. This is also

traced by defining the scale for measuring success. The success rate is measured on a scale from 0-1. It is up to the company to put the scale on their own, however, the literature suggests using the following structure:

0.0 – No progress is made

0.3 – Small progress is recorded (what's accomplishable with minimal effort);

0.5 – Reasonable progress is recorded (what's accomplishable with considerable effort). [6]

0.7 – Expected progress is made (what's accomplishable with expected effort – as discussed before, 0.7, or 70%);

1.0 – Outstanding progress made (more than was expected).

FishingBooker, like other companies which implemented OKRs as well, used this system as a growth methodology and to stimulate highly ambitious goals. After implementing the OKR system in full, FishingBooker made a remarkable growth.

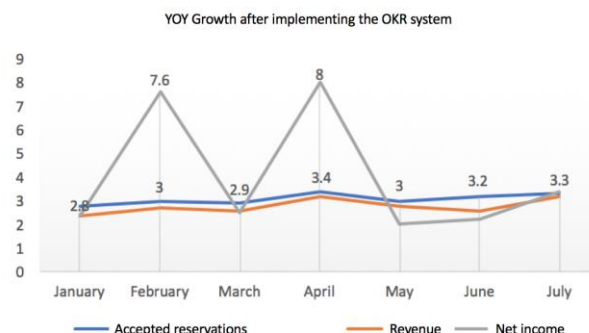


Fig 7: The growth after implementing OKR system [8]

As seen in Figure 7, aspects like accepted reservations have grown in average by 3 times year-on-year, revenue had grown by 2.8 times in average and net income in average 2.4 times, with extreme growths in February and April. Although the growth happened after the implementation of the OKR system, the author calls for additional research in the field of researching growth of the startup companies by using OKR as an official management system.

5. RESULTS AND DISCUSSION

The main purpose of this paper is to show the correlation between organizational success and employee's success in the field of OKRs, which is related to the main hypothesis H(0). Like the BSC, the OKRs are focussed on personal development and learning as well. This aspect could be seen through the activities related to priority – P2. The hypothesis H(1) implies that the number of OKRs does not have an effect on the overall success score of the company. The hypothesis H(2) implies that personal development directly affects the overall success of the company.

The research have been done during the 3 quartal period of 2017 ($p=3$), with 20 participants ($n=20$) as the variables in this example. The author collected and analysed the data using Pearson's r correlation to measure the correlation between:

- Success score of the company and personal success scores;
- Success score of the company and personal development success scores;
- Number of set OKRs and overall success score.

The principles of setting OKRs recommend setting 4-6 objectives with 3-5 key results which explain objectives better through metrics. Each of the employees had their personal OKRs for 3 periods – Q1 ($p=1$), Q2 ($p=2$) and Q3 ($p=3$).

Q1 is an exception, since the personal OKRs were directly related to overall company's OKRs. Through Pearson's r correlation, the author have measured the strenght of that relation and the impact factor of individual objectives on the general OKRs. Employees who accomplish 70% or more of their OKRs should get promoted. It is important to highlight that personal development and education objectives directly affect on total individual success score and it is one of the things that stimulate employees. On the other hand, personal development does not have a strict rule about including personal development of employees in the overall company's objectives. Since there should be 4-6 general objectives, personal development could have a minor effect on the total success score of the company.

The research have shown that 11 out of 20 employees used the proper number of objective and key results. The average number of objectives set by employees were 4.8, 3.9 and 3.15 objectives in Q1, Q2 and Q3 retrospectively.

The success score of variables consists of several objectives and the assumption is that there is the correlation between success score of each individual and the overall company's success score. 11 out of 20 employees used the proper number of objectives according to the OKRs principles (in Table 2 and Table 3, ΔQ represents the difference between no. of objectives and key results set by each individual and proposed number according to the OKRs principles).

Table 2: Number of set objectives

n	Δ Q1	Δ Q2	Δ Q3	mean (Q1-Q3)
1	3	1	-1	1.00
2	1	2	-1	0.67
3	1	1	-2	0.00
4	1	-1	-1	-0.33
5	-2	-1	0	-1.00
6	-2	-1	-1	-1.33
7	-2	-2	-2	-2.00
8	1	0	1	0.67
9	1	-1	-1	-0.33
10	2	1	-1	0.67
11	-2	0	0	-0.67
12	0	-2	0	-0.67
13	3	1	-1	1.00
14	2	1	-1	0.67
15	1	-2	-2	-1.00
16	0	1	0	0.33
17	3	-1	-1	0.33
18	1	-1	-1	-0.33
19	2	-1	-1	0.00
20	2	3	-1	1.33

Table 3: Number of set key results

n	Δ Q1	Δ Q2	Δ Q3	mean (Q1-Q3)
1	-1	-0.6	-1.33	-0.98
2	0.2	0.67	-0.33	0.18
3	-0.4	-0.4	-1.5	-0.77
4	0.4	1.3	1.3	1.00
5	0.5	1	0	0.50
6	1	0.33	-1	0.11
7	1.5	1	1	1.17
8	0.2	-0.5	-0.2	-0.17
9	1.9	2.33	0	1.41
10	0.2	-0.4	0.33	0.04
11	0.5	-0.25	-1	-0.25
12	-1	2	-1	0.00
13	4.5	-0.8	-1	0.90
14	-0.5	-0.6	-0.67	-0.59
15	0.8	0.5	-0.5	0.27
16	0.5	1.6	1	1.03
17	0	2.7	0.33	1.01
18	-0.34	0	0	-0.11
19	-0.17	0.67	0.67	0.39
20	-0.17	-1	0.67	-0.17

On the other hand, 12 out of 20 employees used the appropriate number of metrics (KRs) to measure the success. The author has tested the correlation between the proper number of OKRs and success score of the company, which has shown that the number of objectives has a medium effect on the success score with correlation coefficient $r = 0.44$. The number of KRs has a weak correlation with the success score ($r = 0.03$). Basically, the number of objectives and key results is not crucial for the success. Each organization will adopt

and modify the principles according to its vision and needs. According to the results, hypothesis H(1) is considered confirmed.

Each employee has involved personal development objectives in their quarterly OKRs. If the organization list personal development of their employees as one of the main objectives, then the success rate of personal development of each individual is directly related with the main company's objectives. However, it is assumed that organizations motivate their employees to achieve their personal development objectives at the beginning of an "OKR era" and later on give the priority P2 to personal development and focus on organizational development.

Table 4: Personal development score – Growth per quarters

n	Q2/Q1	Q2/Q3	Average success growth
1	-40%	100%	30%
2	-64%	-100%	-82%
3	142%	-21%	61%
4	0%	0%	0%
5	-1%	2%	0%
6	79%	0%	39%
7	0%	52%	26%
8	-37%	6%	-15%
9	0%	-30%	-15%
10	-63%	203%	70%
11	6%	-25%	-9%
12	40%	-10%	15%
13	0%	0%	0%
14	-25%	-20%	-23%
15	67%	-67%	0%
16	-30%	-7%	-19%
17	-39%	-28%	-33%
18	-22%	-100%	-61%
19	20%	-25%	-2%
20	-25%	11%	-7%

Only 6 out of 20 employees has recorded growth in their personal development objectives and 4 of them maintained the same level of personal development score during the 3 quartal period.

According to the hypothesis H(2), which implies that success score of the company is related with personal development success score of employees, the results have shown that the correlation is weak ($r = 0.35$). Although the correlation is not strong, this indicator depends on the company's vision and quarterly plans. If the company decides to list personal development as its key objective, then the correlation would probably be higher and vice versa. In FishingBooker, personal development directly affected the success score of each individual and affected the potential promotion of employees. However, it wasn't a key point during periods Q1-Q3.

In Q1 the personal development achievements were the highest (mean = 0.74), in Q2 slightly lower (mean = 0.66) and in Q3 the lowest in comparison to the previous two quartals (median = 0.62). By using the Pearson's r correlation per quarters, the results were 0.46, 0.42 and 0.98 retrospectively. In Q3, the correlation coefficient is the highest in comparison

to Q1 and Q2, due to both – lower personal development score and overall success score. By tracking the correlation between these two indicators, third parties could assume that the company's politics on personal development is affecting whether the personal development will have a high impact on overall company's objectives. In FishingBooker the company is stimulating individuals and their personal development by including them in the personal OKRs which could affect the potential promotion, but it does not list personal development as the company's number one priority.

Table 5: Success score – Growth per quarters

n	Q2/Q1	Q2/Q3	Average success growth
1	-11%	-13%	-12%
2	82%	-39%	21%
3	41%	-15%	13%
4	2%	-19%	-9%
5	18%	19%	18%
6	73%	20%	46%
7	100%	6%	53%
8	3%	-34%	-15%
9	-16%	-14%	-15%
10	-41%	22%	-10%
11	1%	3%	2%
12	20%	-28%	-4%
13	-9%	-22%	-15%
14	-17%	-21%	-19%
15	1%	-60%	-30%
16	5%	-28%	-11%
17	-13%	-4%	-9%
18	-4%	-7%	-5%
19	-7%	-29%	-18%
20	-5%	53%	24%
C	13%	-35%	-11%

The overall success score has been falling during the 3 quarters period. However, it is not a sign of lower performance, since one of the main principles of OKRs is setting highly ambitious objectives. In the first quartal, many organizations and individuals within organizations try to achieve 100% of the goals. It is an assumptions that the first period is the testing period for OKRs and that organizations do not set the proper OKRs. On the other hand, it is important to track the progress of individuals. Having that in mind, 7 out of 20 employees recorded the growth in their quarterly achievements. The company's success score was 0.7, 0.79 and 0.51 retrospectively.

When it comes to testing hypothesis H(0), the author has came to the following correlations:

Table 6: Multiple correlation matrix

	Average number of objectives	Average number of key results	Success Score	Personal Development Score	Company Success Score
Average number of objectives	1				
Average number of key results	0.318178826	1			
Success Score	0.440730486	0.029946294	1		
Personal Development Score	0.352048786	0.073285679	0.753982763	1	
Company Success Score	0.185301129	0.150910676	0.547956722	0.35502146	1

Personal development recorded a high correlation with personal success score ($r=0.75$), which shows the importance of personal development for the most of employees and their motivation to develop. However, the factor that personal development affects the total success score of each employee and the chance to get promoted leaves the opened question "Will employees accomplish this objective with the main motivation of boosting their total success score or with the primary motivation of developing themselves and their skills in order to provide better service for the company?"

By measuring the correlation coefficient between personal's success scores and company's success scores per quartals, the coefficient ($r=0.55$) highlights that the scores have the medium correlation. The main hypothesis is confirmed but not with a high significance. Not each personal success score will be directly listed as the company's success score (see Fig. 4). The structure of OKRs starts from the bottom. Personal success scores will form team's key results which will measure the team's success scores. Team's success scores will form company's key results used for measuring the overall success of the company. Companies chose which of the objectives have the higher priority and make bigger efforts to achieve them, which could affect on lower level of achievements for objectives listed as priority 2 (P2).

6. CONCLUSION

The concept of Strategic Goal Management (MBO) has been successfully used for years. However, with the technological revolution and the competitiveness of fast-growing (startup) companies, it became important, not just to set, track and achieve the objectives, but to set and achieve the most ambitious objectives. John Doerr has introduced OKR system as the modified MBO concept, with the bottom-up structure. There are several principles on implementing and using the OKRs which are set as a manual. In this paper the focus was on presenting the bottom-up concept of setting OKRs, but also on setting the proper number of objectives and key results which was measured through the deviation between the proposed and actually used number. Business process improvement (BPI) is also one of the factors which could foster the implementation of OKRs. Organization tend to improve their business processes based on various criteria which is more explained by Stojanović D. et al (2015). [20]

Through more frequent control and monitoring, OKRs encourage greater, by reporting on a daily and weekly basis and structuring the activities by P1 and P2, depending on the relation with the OKRs. The application of the OKR system to organizations of different sizes and structures is one of its

main advantages. Potential disadvantages are related to a human factor to manipulate OKRs in order to achieve them, by setting not that ambitious objectives. However with OKRs introduction and OKRs feedback meetings, this issue could be solved.

In the Republic of Serbia, this trend among young tech companies has also become popular. An example of the growth of one of such companies is shown in the paper. This paper gave theoretical research on benefits of OKRs system, but on the other hand gave an empirical research on how to implement OKRs and the correlation between the companies success score and personal success scores. Eventhough there are stricted principles on implementing OKRs, many companies, use this principle as a basis and modify the system according to needs of the company. The company that was analysed was FishingBooker – one of the most successful Serbian startup companies. FishingBooker uses quartal periods to set and evaluate OKRs and uses weekly reporting periods to track the progress of each individual. It was shown that employees tend to achieve their personal development objectives which have a strong correlation with their total success score. On the other hand, if personal development of employee is not the main company's objective, the correlation between these two indicators could be lower. The total success score of individual affects on overall company's success with medium correlation. This correlation coefficient could be higher if the company operates as a flat-line management. Since FishingBooker started forming teams from the beginning of 2017, personal OKRs affected directly team's OKRs and team's OKRs formed company's OKRs by using the bottom-up concept.

As the extension to this research, the author proposes a new research which will cover the motivation of employees during the OKRs and the length of implementation of OKRs in non-tech corporations as more complexed systems.

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CREATIVITY AND MORALITY

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Abstract. *This article stems from the desire to identify one of the permanent, and sometimes even self-destructive, dangers that threaten the creativity or originality of any scientific research, a danger described by the apparently imperceptible boundary, which however does exist in the creative act, between immorality (going even to amorality) and morality, or between ethics and lack of ethics or morality. A brief introduction includes three major questions for this minimal investigation, which can find suitable answers in global official statistics. The article then enters into a major section, that of conceptualizing creativity and the logic of information ethics, where originality beyond novelty requires validation, utility and especially morality. The authors turn to the criterion of the unique and comprehensive moral principle “Be fellowish” as appearing in the book Diversity and Morality by Ung-Il Chung / Yuichi Tei in collaboration with Shunji Mitsuyoshi. Several final remarks serve to outline a perspective situated within a relatively uncertain horizon of the parallel evolutions of creativity or originality and morality or ethics.*

Keywords: *creativity, originality, morality, ethics, information, research, Global Innovation Index (GII), World inequality report*

1. INTRODUCTION

Each researcher expresses, through the creative act, a natural desire of originality, in a personal note, benefiting from a specific dominant element, depending on his/her endowment, the accumulated experience, his/her spontaneous level of creativity, his/her intellectual manifestation, and even his/her psychic structure, which distinctively characterizes every person with real investigator skills.

One cannot speak of a universal type of scientific researcher, described as a standard creator, but rather of an almost infinite range of concrete types of researchers, described as specific individualities. What, in the final analysis, seems to be particularly important is one of the permanent and self-destructive dangers, a danger that threatens the researcher's creativity or originality, as well as that of any scientific research, imperceptibly outlined by the demarcation line between immorality (going even as far as morality) and morality, or between ethics and unethical behaviour. Exclusively deduced from the angle of personality, creativity or originality brings together features or psychological factors of a future performance to innovate, and generate unique approaches, as well as perspectives and angles that did not previously exist [1].

Starting from the excesses that are specific to concrete, peculiar approaches, the relevant and palpable criterion for evaluating creativity is often either the product of the detailed creation itself (project, invention, art object, innovation,

research report, book, article, paper, etc.), or a form of absolute synthesis that relies on spiritual continuity (theorem, lemma, method, model, etc.), which translates onto creativity, beyond its partial similarity with originality, a major element of social utility or community relevance [2,3].

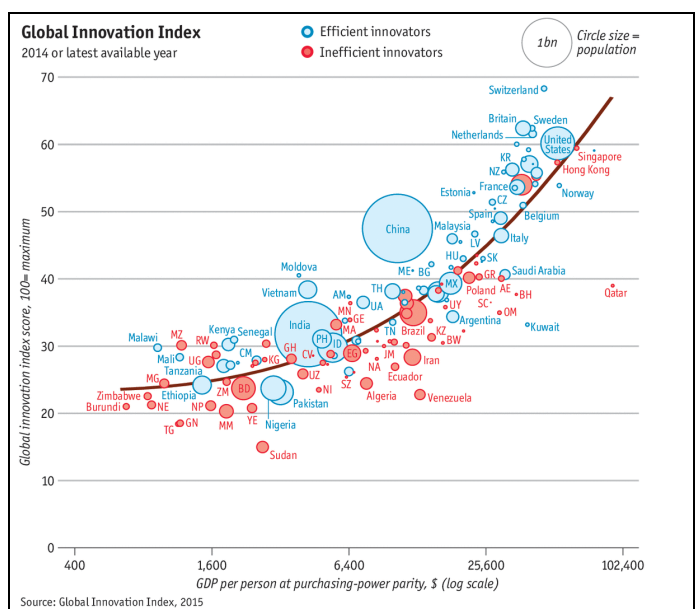
Three preliminary issues are further exposed in the form of three simple questions that open up a presentation of creativity and morality, enlightening the whole range of issues described by their evolution, and authentic thinking [4]:

a) Which are the tendencies of creativity in the structure of the world's population?

b) Is there equality or inequality of chance in the field of creativity?

c) What dominates creativity today: the culture of creativity in universities, research institutes, publishing houses and publications (valuable graduation theses, dissertations or doctoral theses, patents, or significant citations)?

The answer to the first question is provided by a study concerning the *Global Innovation Index* (GII), have redefined innovation in close connection with its usefulness of creativity [5], as a major approach, and especially with its efficiency or inefficiency, thus completing the originality with efficiency (Figure 1).

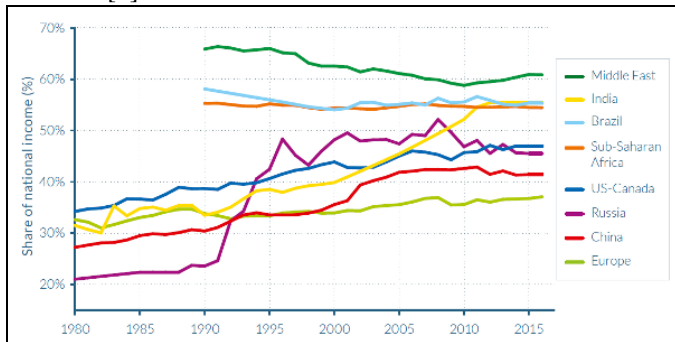


Source: Global Innovation Index (GII) Report. (2017). [online]
Available at: <https://www.globalinnovationindex.org/> [Accessed in
December 4, 2017]

Fig. 1. The duality of creativity seen from the angle of utility/inutility (efficiency/inefficiency) with an illustration centred on the Global Innovation Index (GII)

The inequality of access to creativity is globally accentuated, being caused, beyond education and resources, by the

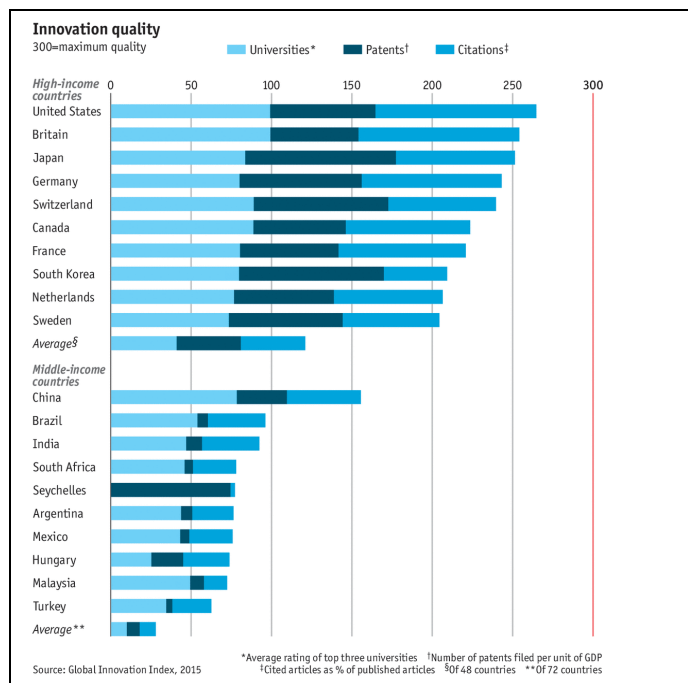
assessment and value-oriented selection of appropriate projects, etc., as well as the polarization of population incomes (Figure 2), a trend with a very significant impact on all human activities in an economy, including scientific research [6].



Source: World inequality report (2017). [online] Available at: <http://wir2018.wid.world/> [Accessed in December 3, 2017]

Fig. 2. Polarizing developments in revenue generating major access gaps in research

Institutional creativity is balanced in those nations that have a stronger economic development, a deeper academic tradition and a more accelerated scientific research. The culture of creativity in universities remains dominant where the level of economic development is low, the research institutes do not have resources within the same spatial coordinates, and their publishing houses and publications do not achieve a number of equilibrium parameters. The last question can be answered by referring to the same *Global Innovation Index* (GII) study, according to which there is a clear tendency to increase the importance and dynamics of quotations in relation to patents (Figure 3):



Source: Global Innovation Index (GII) Report. (2017). [online] Available at: <https://www.globalinnovationindex.org/> [Accessed in December 4, 2017]

Fig. 3. Structural dynamics of creativity in university-specific research, patents and quotations, exemplified by the Global Innovation Index (GII)

Therefore, the halo of creativity includes utility/usefulness or efficiency, while excluding the polarization of generic factors (as in the case of polarizing income, which does not favour its optimal evolution), and has a balancing trend between the major institutions that propagate and support it (universities, research institutes and publishing houses), in parallel with a tendency to dilate quotations/citations as a significant resultative variable, to the detriment of patents

2. CREATIVITY AND ITS PRODUCT IN RESEARCH AND THE LOGIC OF RECIPROCITY OR MORALITY

In 1937, William Allport defined creativity, in his book titled *Personality – a psychological interpretation*, as a complex concept, which cannot be strictly limited to some of its manifestations, such as skills or intelligence. From a scientific point of view, the multidimensional concept of *creativity*, once introduced into the scientific language, was associated with those people who displayed a capacity, a degree of ability and intelligence situated over the usual, average or common level [7]. Thus, a creative person was considered as “gifted with respect to the average intelligence.” [8] Moreover, a creative individual can also be described as a person who is deeply original, innovator and constantly appropriate to reality in what he/she thinks, expresses and does. Adaptation coherently describes intelligence, and involves various different target areas. Adapting to these various areas of an increasingly complex reality, leads to the finding that a creative person has to possess *multiple concrete types of intelligence, ranging from verbal-linguistic intelligence, to visual and spatial intelligence, from intelligence of the kinetic or rhythmic and musical type, to interpersonal or intrapersonal intelligence, to social intelligence, from the intelligence derived from nature that surrounds us, to academic or intellectual intelligence, complemented by the type of emotional and partnership intelligence.*

The unprecedented development of science, the explosion of information, the acceleration of the rate of discoveries and their application, the global problems that mankind faces, and the huge technological potential existing, they all offer arguments in support of the idea that traditional learning, of the *adaptation to reality type*, must also include the change of this reality, which translates the need to combine it with *innovative learning*, focusing on new types of *projective and anticipatory intelligence*, which represents the necessary and sufficient solution in this respect [9,10] In 1950 Guilford defined creativity as a result of a multi-structured and pluri-component process, under the influence of group interactions and the social context, and thus admits that a realistic content of creativity encompasses many cognitive variables such as idea fluency, originality of ideas, sensitivity to missing elements. Creativity means not just a single personal element or attitude, but a set of these elements or attitudes. Basic elements of the creativity include originality (ideas or facts) intelligence, knowledge, a specific instinct defined as creative, non-conformity, persistence etc. [11].

Complex creativity denotes, in its present sense, a transition between the classical concept, focusing on the ambivalent delineation resulting from the coexistence of originality with efficiency (creativity written with a small *c*, or everyday

creativity) and modern creativity, which involves many other factors, beyond those two elements, e.g. motivation, will-power, high level of aspiration, fame, prestige, constancy, self-reliance, etc. (creativity with capital C, or exceptional creativity) [11,12,13,14,15].

The creative process is based on, and calls for, *incubation* and inspiration or illumination, and leads to a seemingly instantaneous understanding of a problem; it includes at least three distinct elements, or three types of thinking, which are easy to identify and validate: a) *divergent thinking* (considered to be decisive in the development of creativity – it implies fluency or cognitive flexibility, which provides skills to view and accept several ideas or solutions to the same problem); b) *convergent thinking* (applying a type of inhibitory control to achieve a mental concentration and evaluation of ideas that can become solutions to the same problem); c) *analogical or associative thinking* (the ability to distinguish an original idea in terms of an already existing idea in a suggestive and intuitive manner, generating subtle connections between factors, components or entities that may or may not be correlated). [16]

The problem extracted from the range of issues specific to a research that requires a creative solution will first of all benefit from a correct formulation, being simultaneously both divergent and unique, as well as unitary, yet at the same time avoiding total convergence, and it will resort, to the extent of real possibilities, to intuition or an analogy in achieving a knowledge as simple as possible, which should be based on the most accessible transfer of the original idea in relation to the old idea.

Scientific research has been, and remains, dominated by the specific mystery of creativity. Thus, *incubation* is characterized by the fact that, in an unconscious manner, the researcher dilutes the intensity of thought and appeals to *intermittents, or even an apparent abandonment of the subject matters* on which the research is focused, although he/she is completely immersed in that issue. Along with incubation, *illumination* redefines itself as an instant(aneous) eruption of an idea or a solution, a hypothesis or a test, a method or a model, which are completely new and unpredictable until the moment of the eruption. Incubation and illumination have been, and remain non-standardized, uncontrolled, unrepeatable and temporally uncorrelated processes, regardless of whether they occur in the context of similar or completely different researches. [17]

Unusual, novel and unpredictable, the product of creativity has been, and continues to be, the most important criterion for assessing the value of this process, whether it be expressed in a concrete or material form (project, invention, art object, building, means of transport, etc.) or immaterial or spiritual (method, model, theorem, theory, science, etc.). The novelty of any creative product is the result of a chronological analysis, while unpredictability arises as a result of unusual, surprising, unexpected logical processes, which no one has ever thought about – that is to say, unique [18,19]

However, the success of a creative process also depends on our ability to understand when a product is for the benefit of man and humanity in general, or detrimental to them, and here comes the vital characteristic of creativity, lying at the intersection with morality and ethics, dependent in their turn on human nature and culture. In this way, creativity lends to analysis the moral dilemma of the process and its product,

focused on the researcher's honesty in relation to other research (in relation to which the results are original, or else stolen or plagiarized), and the harmless, humanitarian and protective nature (related to which the products of creativity are considered good or bad, by association with the future of the Earth and the species living on this planet, but also with respect to the future generations). Regardless of the degree of coverage of morality according to universal, social or individual moral codes, morality or ethic is the only factor that ultimately endows the research, and implicitly the researcher's creativity, with consistency.

As recently suggested by Ung-Il Chung / Yuichi Tei in collaboration with Shunji Mitsuyoshi [20], in a remarkable and maximally synthesizing manner, first of all, a revision of the moral rules of the main religions is needed in order to reach either a minimum of three common moral rules, a pure extract from the classic decalogue: "*Do not kill others; Do not steal from others; Do not deceive others*" [21], or only one rule, "Do not harm others", centred on a single, all-encompassing moral principle, "Be fellowish", which is itself ultimately structured in just two aspects: 1) "Do not harm other fellow human beings"; 2) "Think and behave in a manner similar to other fellow human beings." [21]

The vision of a morality, as defined by Professor Yuichi Tei / Ung-IL Chung, based on a unique principle that, in this way, also becomes stable in the diversity, lends invariable and shared content to all human communities, and at the same time a useful content, which we took over, with the permission of the authors of the book *Diversity and Morality*, in this article dedicated to researchers. "Be fellowish", as soon as it is thus generalized and validated for the entire community of researchers, represents the moral principle of a future human society whose creativity will survive regardless of global economic, social and religious changes.

3.SOME FINAL REMARKS

Human conscience has created science and provided the necessary continuity for creativity, which paradoxically and together seem to act in order to exclude primordial conscience. The researches of modern science can have a valuable contribution, in the context of respecting morality, restricted to basic laws, thus contributing to the salvation of both the conscience of humanity, and to the individual's conscience.

In the twenty-first century, the complex conceptualization of creativity, which takes a two-fold support on efficient originality and generalized morality, can widen the already varied typology of the intelligence specific to the creative act with yet another form beyond the academic, emotional and partnership intelligence, to which an exceptional future can be foreseen, i.e. "existential intelligence". It substantially enhances the sometimes empathetic, and sometimes anticipatory character of effective creativity and originality in scientific research (whose applicability is economic, social, etc.), valuing a particular talent, a particularly rare ability, i.e. to respond convincingly to the most delicate questions of team members, the local, regional, international, or global community concerning the approach, the meanings and the impact of their common work, while cultivating the sense of common affiliation, and at the same time praising the individuality of the researcher.

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TITLES OF ARTICLES OR BOOKS VERSUS REFERENCES. A SURVEY AMONG STUDENTS

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Abstract. *The theme of the article is an apparently conflict-oriented one, describing a state of antinomy between titles of book or articles and references, in accordance with a survey conducted on a sample of 60 students, a guided or subjective sampling technique based on volunteering. The article begins with the structure of classical references and some expected trends in the dynamics of the references of some modern researches, emphasizing a number of its peculiar traits that delineate trans-, inter-, cross- and multidisciplinary research. The first section, which is predominantly methodological, is dedicated to sampling and questionnaires, in an attempt to anticipate some conceptual ambiguities, but also some nuanced differences between graduating students and MA students. The major section, whose content explores the results and generates significant discussion, reveals a diminution in the importance of titles within the broader content of the references. Some final remarks on the future of titles of articles and books in bibliographic references lists, optimistically close the paper, and assess the tendency to diversify the typology of bibliographic sources.*

Keywords: *standardization, e-book, wikipedia, title, abstract, keywords, references, survey, ambiguity, scientific research.*

1. INTRODUCTION

The structure of an article or book is becoming more and more standardized in modern scientific research. From the elements of an article, initially those defining the title, the abstract, the keywords, continuing with the sections that are usually part of the standard, such as the introduction, literature review, methodology, results and discussion, conclusions, references, acknowledgements, etc. – everything has become a repetitive pattern of writing, a template at first glance.

The process of standardizing a modern article continues inside the sections to gradually achieve a final drafting of the research, in a standard manner that facilitates quick access to results, and especially the possibility of generating easy-to-process databases for prospective researchers. The standardization process has also created virtual books, which seem to have a separate, well-defined future, by the name of e-books, already able to take over the place held by classical books, primarily thanks to the ease of accessing and archiving, complete reading, and subsequent selective re-reading, which gives it a nomadic character, in the profound sense that Jacques Attali foresaw in the future [1].

The new e-book has been renamed continuously in multiple forms since its emergence, after some as a *device* in 1949 (which was the presentation made to the *Enciclopedia Mecanică*, the work of Angela Ruiz Robles), after other

authors as an indexing system (in the *Index Thomisticus*, the paper to Roberto Busa, which appeared in late 1949, and completed as late as 1970), or as *designing complex editing and access-through-reading systems* (Doug Engelbart and Andries van Dam during the 1960s), and more notably as an invention [2,3], made by Michael Hart (1971); the proof of that multiplication of meanings was the very forms of editing, e-book, to ebook, eBook, Ebook, e-Book, e-journal, e-edition, or digital book, whence, by extension, the reading devices, too, have more and more distinctive or specific names: e-readers, ebook device or eReaders. [4] After nearly half a century, E-books benefit from a specific conceptualization, which manages to highlight the universality of access, and increases its importance as well as the novelty of this type of book, “*composed in or converted to digital format for display on a computer screen or handheld device*” [5], thus defining a major conflict with the classical book, and even “*the possibility of the disappearance of print books, dominated by fetishism, fears about the end of humanism and ideas of techno-fundamentalist progress*” [6,7].

The classical type of references, very much like a number of trends in the dynamics of the references of modern research, along with the title, abstract, keywords and even the wikipaedia (wikipaedia, hmolpaedia, etc.), emphasize some of the peculiarities of the published research, and therefore limit the trans-, inter-, cross- and multidisciplinary researches from isolated or uni-disciplinary investigation. References, which have become integrated and integrative living archives, are subsequently turned, from the last element of an article or book, into the first element in the pursuit of a future research, along with the title and keywords, which have in the meantime become access-keys to referential archives. The abstract always represents more than a useful summary, and becomes the main element of selecting or removing an article, or books, from an initial list of theoretical research resources. The wikipedias, through their inter-woven fabric of words, which act as a network node of related meanings or inter- and transdisciplinary intersections, generate a necessary background in multidisciplinary research, and tend to transform, in the future, into the complex solution of maximum access to bibliographic resources or active references.

2. TITLES VS REFERENCES: A SURVEY AMONG STUDENTS

In this article, the question that triggered the investigation is related to the perception of the importance of the title of an article or book, and its potential confusion with the bibliographic reference in the undergraduate student's, doctoral student's, or researcher's thinking. In order to investigate the actual beginning of the activity of any

potential researcher it is then normal to target the quality of a student first, and the general question (concretely nuanced by means of several questions, detailed in a minimal questionnaire in an inquiry) can only be put into the library: *Is there a real conflict or ambiguity between the title of the article or that of the book and the concept of the reference generated by them, in the thinking of the students who undertake their specific research (papers, bachelor theses, MA dissertations)?*

The first problem in starting the investigation is a predominantly methodological one, which is devoted to sampling and questioning, in an attempt to anticipate and quantify the dimensions of a possible conceptual conflict, or a conceptual ambiguity, and also a few more or less significant differences that are structurally nuanced.

In the category of references in modern research, the titles of articles and books increasingly give up some of the share they traditionally had, in classical researches, but especially in trans-, inter-, cross- and multidisciplinary research, in favour of a general category called *other types of reference sources*. This initial class extends both quantitatively and qualitatively, generating ever new positions generated by the technological and instrumental change of scientific research. In particular, the other-types-of-references class includes: printed versions or electronic versions of Parliament's deeds, legislation (official documents, codes of good practice) and government and institutional publications, annual reports, archive materials, standards, papers presented at conferences, reports organizations, theses and dissertations, course materials and lectures, interviews, press releases, whether printed or online, dictionary references, computer software, use of electronic sources, website, publications available on websites, blogs, social networks, youtube, etc. [8].

In the context of an investigation on the conflicting state holding between the title of a classical reference and an extended modern reference, within the dynamic and also ambiguous environment of overlapping traditional sources (article, book) and other modern sources (increasing significantly, in both number and weight, within the overall context of references), a selective research was planned for a period of only three days in the library space of the university [9,10,11]. The sampling was conducted in keeping with a guided selection method focused on the technique of volunteering, which eventually led to a sample of 60 students (including those in the master's degree programme), who formulated some interesting opinions for a large population; the research was clearly a preliminary one, which can vie with some hypotheses, worthy to be tested in larger researches, including their necessary representativeness. The main questions determine the importance of the bibliographic references, quantitating the titles or works quoted, the quotations extracted, the optimal percentage of citations (figure 1)

1. How important are references / bibliographies, according with a 1 to 10 scale, in the writing of the paper (report, project, graduation thesis, dissertation, article/paper)?
2. How many titles do you quote or use on average in the bibliography of a:
a) report or essay; b) project; c) graduation thesis; d) dissertation; e) article/paper
3. Are you accustomed to quoting passages extracted from

other papers or bibliographic references in your work? YES NO
4. How many citations do you use from the bibliographic references in your paper?
a) report or essay; b) project; c) graduation thesis; d) dissertation; e) article/paper.
5. Can one write a paper without using references / bibliography? YES/NO
6. What is the optimal percentage of citations in scientific papers?
a) Less than 10%; b) 10-20%; c) 20-30%; d) 30-40%; e) 40-50%.

Source: questionnaire made by authors

Fig. 1 Synthetic summary of the main questions asked in the survey questionnaire

Note there are also two questions (3 and 5) intended to filter respondents and identify extreme behaviour.

3. RESULTS AND DISCUSSION

The major section of this article, perceived through the views of the respondents, and then processed and presented through indicators or represented through graphs, explores the results and generates some relevant discussions. Thus, the structure of the respondents – which is relatively homogeneous, and slightly dominated by the female gender (58.33%), and there is a much more pronounced domination of students at their first faculty (68.33%, and 93.33%, respectively), including the students attending the second faculty – quantifies the importance of references/bibliographies according to an average grade of 9.15 on a scale of 1 to 10. As can be seen in Figure 2, there is a consensus as to the major role of references / bibliographies in the full realization, and up to writing the results of a research, being structured in a decreasing manner, as nearly half of the respondents noted with 10, i.e. gave maximum assessment (48,33%), a quarter decreasing by one point, and a little over one fifth went down two points (totalling almost 95% of the 60 respondents).

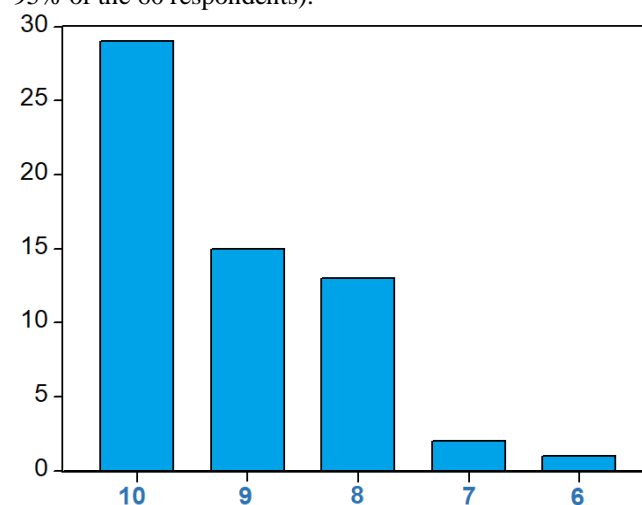


Fig. 2 Distribution of respondents according to the importance given to references / bibliographies

Identifying the hierarchy of the main types of papers written by students in terms of the number of titles cited according to

the opinions in Figure 3 is relevant, yet the average number of citations per category of papers is below the expectations/normal requirements.

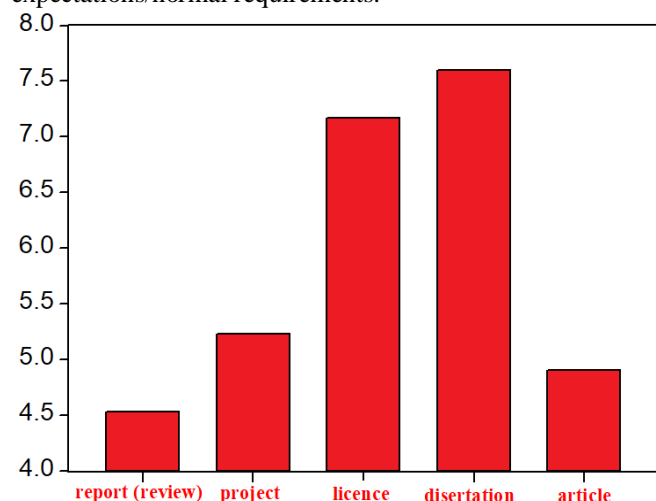


Fig. 3. The average number of titles cited in the students' usual papers

Except for a slight distortion in favour of projects in relation to the articles, the hierarchy described by the respondent students can be easily validated, but the average number per type of research opens the hypothesis of a conflict or ambiguity of meanings between the classically cited titles of papers (articles, books) and references in the modern sense, including the ever-expanding category of *other types of reference sources*. Regardless of whether the conflict is more true in relation to the ambiguity of meanings, or vice versa, a diminution is virtually certified of the importance of classically cited titles as part of the extended content of the references.

The habit of quoting passages extracted from other papers or bibliographic references in the papers written by students covers 95% of the respondents. In terms of the number of citations used in bibliographical references in the text of a research paper, the students maintain the hierarchies, except in dissertations, where values relatively increase, including the average ones, yet they do not cover the minimum requirements in the guides for graduation theses, dissertations, etc. (Figure 4)

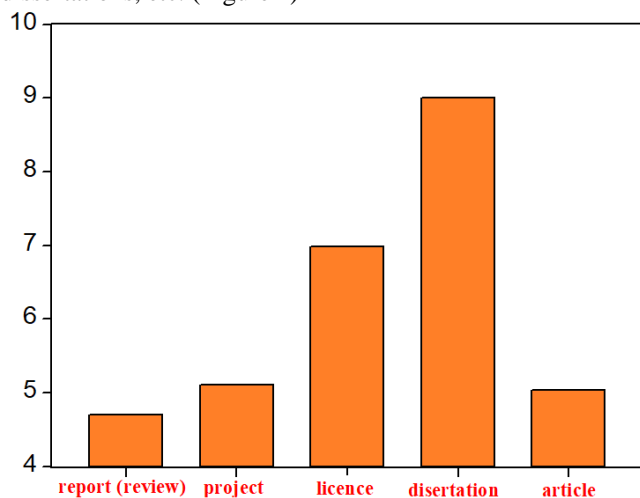


Fig. 4 The average number of citations used in bibliographic references in the texts of student research papers

The students' views concerning the existence of research papers or work involving a self-directed investigation without the contribution of citations describe a slightly more pronounced optimum than the classical Paretian one, i.e. 15/85 instead of 20/80 (meaning that 15% believe that research can also be done without having recourse to references). In the evaluation of the optimal percentage of citations (Figure 5), the structure of respondents remains equally balanced, and dominated by the intervals of 20-30% (41.67%) and 30-40% (35%). This broader spectrum shows that the faculties and study programmes the students belong to also cover a larger space, which is in fact between 20 and 40%, the average being placed slightly below 30%, although a punctual inference is not true in this case, but rather one focused on a well-defined range of values.

An analysis of extreme trends shows that the number of those who believe that the optimal percentage of citations relative to the full text of the paper should be within the 40-50% area is 8 times that of those who place it in the minimum range 0-10%.

Relatively homogeneous, the sample taken candidly conveys, through its opinions, an uneasy, painful reality, i.e. the underestimation of cited titles, and even citations or references, as proof of the fact that some references related to their presence on the Internet remain unclear and uncited.

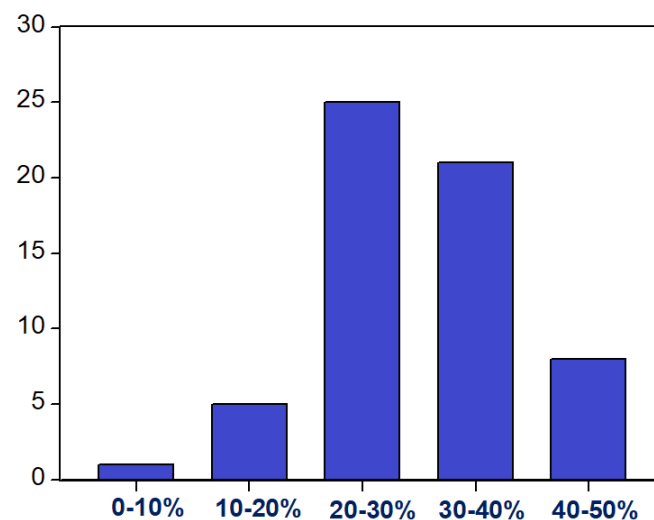


Fig. 5. The distribution of options per percentage intervals of citations in relation to the full text of the students' papers

4. SOME FINAL REMARKS

Some final remarks regarding the future of titles of articles and books as part of the bibliographic references lists optimistically close the present article, and appreciate the tendency to diversify the typology of bibliographic sources, while nevertheless finding remarking a number of issues that require further research on the subject:

- there is not yet a potential conflict between the concepts of titles cited and references, but it appears as ominously possible in the near future, in the absence of clearer explanations given by teachers, bachelor tutors, dissertation coordinators, etc. ;

- one can evidently identify an ambiguity between the titles cited and the references, in parallel with a clear ignorance of

how to use, and especially how to cite, other sources other than the classical ones (articles/papers and books);

- there is a clear similarity between the citation and the work cited in references/bibliography, although a graduating thesis or a dissertation makes it possible to mention, at the end, papers (articles or books) that were not cited, but contributed to the authors' opinions;

- there is a certain *decrease in the importance of the titles cited in the extended content of the references / bibliographies*;

Finally, it can be remarked, as a suitable solution to a comparatively worrying conflict situation, which can be possibly due to ambiguities of the meanings or conceptual significations of the research, introducing, in the compulsory disciplines, a study discipline devoted to scientific documentation, organizing and realizing, implicitly writing the results of a scientific applied research, without ignoring the sincerity of students' answers, which demonstrates their lack of information in the field of scientific documentation for the bachelor and dissertation examinations, as well as in the elaboration of any type of scientific paper.

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SOME OF THE MOST CITED RESEARCH IN THE LAST CENTURY

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Abstract. The content of this article describes and analyzes two famous lists of the most prestigious research papers of the last century starting from databases and citations of WoS or Thomson Reuters, which in the meantime has become Clarivate Analytics and Google Academic (Google Scholar). If the first list is dominated by articles, in the second one books have an important place. Two findings are relevant: the continuity over time of the biology dominance together with the other bio-sciences (Biology lab technique and Bioinformatics) over a period of more than half a century, and the tendency to increase the article quotations in relation to the books.

Keywords: citations, Google Scholar, Web of Science, research

1. INTRODUCTION

Three questions can best open this work:

- What are the most quoted articles and books in the last century?
- What are the research areas most often quoted as references and cited with the greatest prospects in modern trans-, inter-, cros- and multidisciplinary research?
- Does the article or book become the most important source of quotation and research in the modern list of internal or final references?

There are differences between mass research (Google scholar or Google academic done by professors, students, master students etc) and the elite research (ISI magazines indexed in the Web of Science, currently Clarivate Analytics), such that starting from an article published in october 2014 in Nature magazine [1], we aim to highlight the most quoted

scientific papers in the Web of Science (WoS) and Google Scholar (S) databases.

The number of quotations is considered “a proper indicator of the quality and relevance of the article as well as of the scientific level of the researcher’s work productivity. The higher the interest in a particular research problem, the more the number of those who quote it as a relevant source of information is increasing” [2].

A large number of quotations is a confirmation that the work has an impact on the scientific or the academic community.

Our study analyzes the list of the first 100 works quoted in the Web of Science (WoS) [3] and Google Scholar (GS) [4], available from the Nature magazine website.

An investigation of great interest is related to the scientific field of belonging of the most quoted 100 papers according to the lists (WoS and GS)

2. WEB OF SCIENCE / CLARIVATE ANALYTICS LIST

Web of Science Core Collections has indexed 11.9 million documents from 251 scientific categories from 2010 to 2014 [5]. This list includes mainly research in the fields of pure sciences, engineering and medicine, while humanities or social sciences are less to be found.

The analysis of this list has highlighted, first of all the structure of the most quoted papers by field. The WoS list with the most quoted 101 papers comprises 10 domains, of which Biology lab technique is distinguished by 39 papers, followed by Physical chemistry with 16 papers, as can be seen in Table 1.

Table 1 Domain break down of the most quoted papers in the WoS list

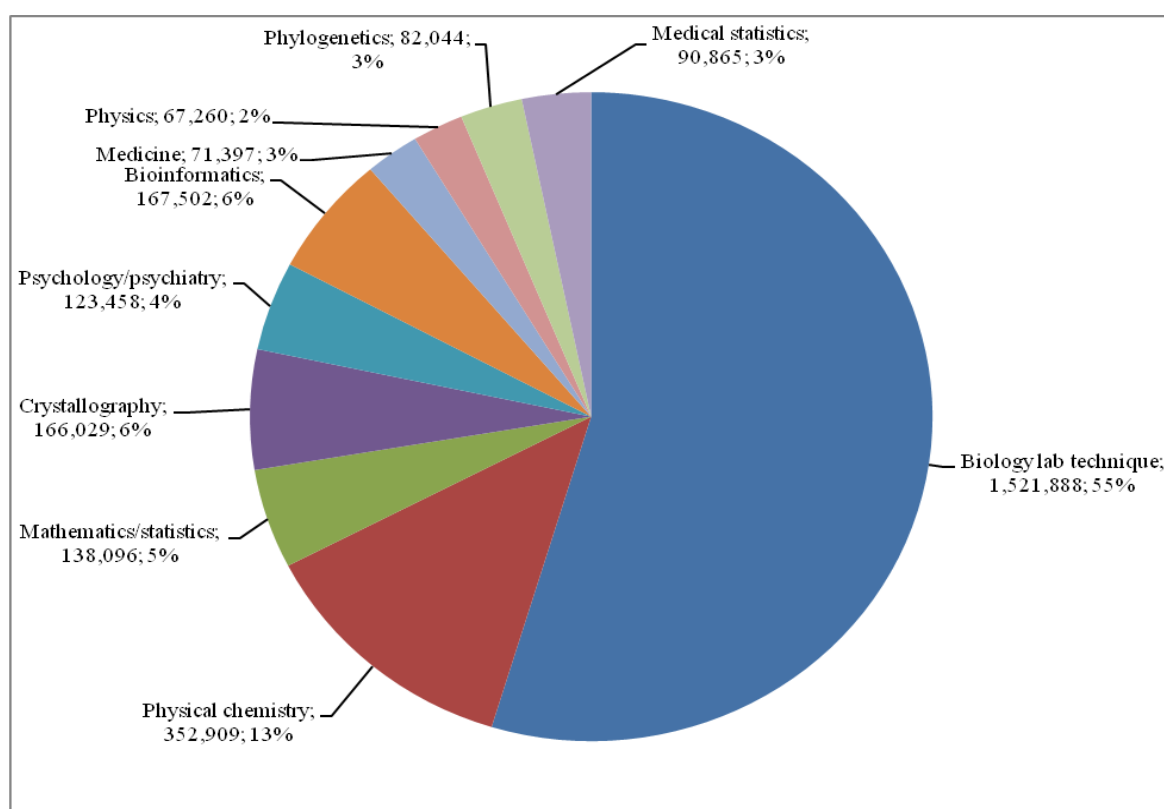
Subject	Sum of times cited	Count of subject	Best ranked of each subject		
			Times cited	Title	Year
Biology lab technique	1,521,888	39	305,148	<i>Protein measurement with the folin phenol reagent.</i>	1951
Physical chemistry	352,909	16	46,702	<i>Development of the Colle-Salvetti correlation-energy formula into a functional of the electron density.</i>	1988
Mathematics/statistics	138,096	9	18,203	<i>Fuzzy sets.</i>	1965
Crystallography	166,029	9	37,978	<i>A short history of SHELX.</i>	2008
Psychology/psychiatry	123,458	6	34,532	<i>"Mini-mental state": A practical method for grading cognitive state of patients for clinician.</i>	1975
Bioinformatics	167,502	6	40,289	<i>Clustal W: improving the sensitivity of progressive multiple sequence alignment through sequence weighting, position-specific gap penalties and weight matrix choice.</i>	1994

Subject	Sum of times cited	Count of subject	Best ranked of each subject		
			Times cited	Title	Year
Medicine	71,397	5	17,220	<i>Clinical diagnosis of Alzheimer's disease: Report of the NINCDS-ADRDA Work Group under the auspices of Department of Health and Human Services Task Force on Alzheimer's Disease.</i>	1984
Physics	67,260	4	22,899	<i>Helical microtubules of graphitic carbon.</i>	1991
Phylogenetics	82,044	4	30,176	<i>The neighbor-joining method: A new method for reconstructing phylogenetic trees.</i>	1987
Medical statistics	90,865	3	38,600	<i>Nonparametric estimation from incomplete observations.</i>	1958

The total number of quotations of the Top 101 WoS papers is 2,781,448 of which 1,521,888 are for the Biology lab technique which is best represented in the WoS list and in terms of the number of quotations, 55%, followed by Physical chemistry, with 13%.

The result of the distribution of the number of quotations in the 10 fields is shown below.

Fig. 1 Field distribution of quotations from the WoS list



Source: realised by authors from [Web of Science top 100.xls](#) and [Google Scholar Top 100.xls](#) [online]

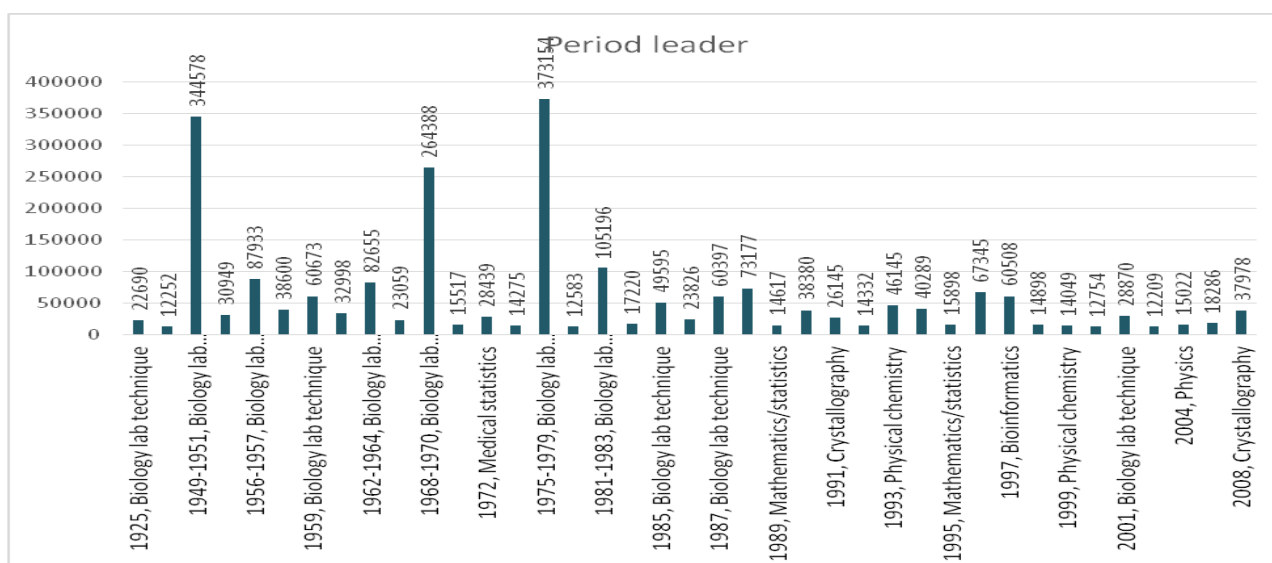
From Fig. 1 the dominant structure (55%) is represented by papers in biology and derived biosciences (including laboratory biology or specific techniques) according to the WoS list. The paper with the highest number of quotations (305,148) in WoS is Protein measurement with the folin phenol reagent, published in 1951 by the Journal of Biological Chemistry, owned and published by the American Society for Biochemistry and Molecular Biology, Inc.

Figure 2 shows that over a period of over 80 years (1925 – 2005) Biology together with the other biosciences (Biology

lab technique and Bioinformatics) chronologically dominate the volume of quotations with a number of 54 years.

On the second place, until the end of the 20th century, we have Mathematics / Statistics followed by Physical chemistry (including Physics).

Fig. 2 Analysis of the quotations dominant subject between 1925 - 2005



Source: realized by authors after [Web of Science top 100.xls](#) and [Google Scholar Top 100.xls](#) [online]

3. GOOGLE SCHOLAR LIST

Google Scholar is “a free online academic search engine that uses automated software to extract citations from on-line digital publications and combines it with data provided by some publishers”. [6]

Other authors [7] emphasize the fact that „the free availability of GS allows for a democratization of citation analysis as it provides every academic with access to citation data regardless of their institution’s financial means”.

The Google Scholar List (Google Academic) of the top 100 most quoted research includes 64 books and 36 papers. The analysis of papers compared to the structure of the quotations reveals some relatively contradictory aspects from the structural and chronological point of view, especially on the long term. Thus, in figure no. 3 it is found that in the first 100 quoted research the books dominate with a percentage of 64%, but in the number of quotations their structural dominance decreases to 59%.

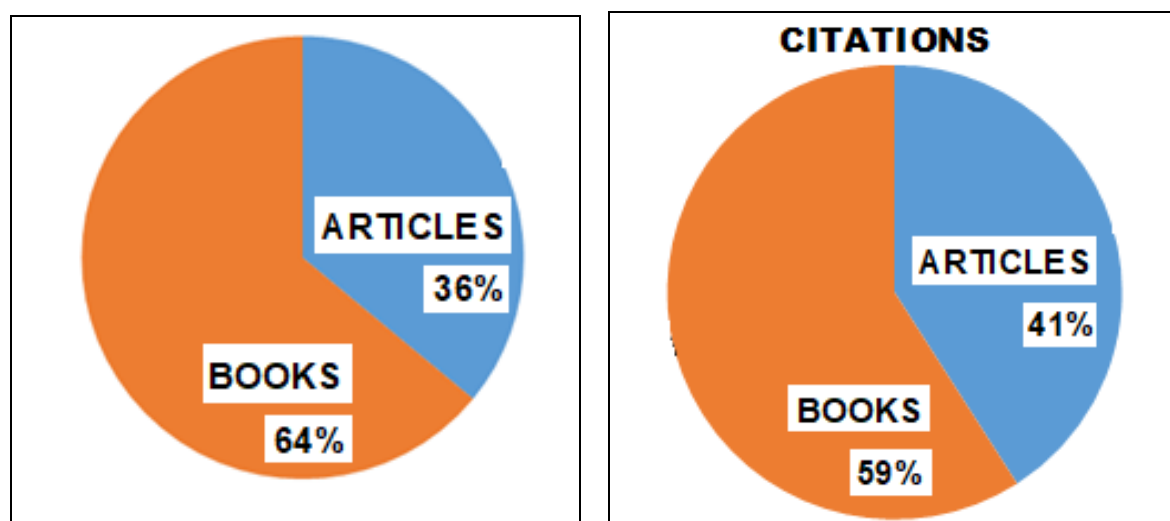


Fig. 3 Emphasizing the position of articles in the confrontation between the number of papers and quotations

Table 2 lists the oldest 5 books or articles found among the top 100 most quoted papers of GS.

Table 2 Top 5 oldest papers in GS

Rank	Authors	Title	Year	Number of Citations	Book / Article
80	Smith, A. & Nicholson, J. S.	<i>An inquiry into the nature and causes of the Wealth of Nations</i>	1887	33,435	Book
9	Shannon, C. E.	<i>A mathematical theory of communication</i>	1948	69,273	Article
52	Feller, W.	<i>An introduction to probability theory and its applications</i>	1950	42,290	Book
2	Lowry, O. H., Rosebrough, N. J., Farr, A. L. & Randall, R. J.	<i>Protein measurement with the folin phenol reagent.</i>	1951	192,710	Article
34	Greene, W. H.	<i>Econometric analysis</i>	1951	48,100	Book

The article with the highest number of quotations in Google Scholar (223,131) is Cleavage of structural proteins during the assembly of the head of bacteriophage T4, published in 1970 by the prestigious Nature magazine. This is followed by Protein measurement with the folin phenol reagent, with 192,710 quotations (the same article we have

found in the top Web of Science list). In the top 100 of the most quoted 100 papers in Google Scholar there is a book from 1887, authored by the well known Scottish economist Adam Smith and Joseph Shield Nicholson, *An inquiry into the nature and causes of the Wealth of Nations*).

We note the presence of a book of *Econometric analysis* in this list, that was published later (the 8th edition in 2017).

4. A “CONFRONTATION” OF THE TWO LISTS (WoS / GS) PER INTERVALS OF TIME

We also took into consideration the emphasis of the most quoted papers according to the time of their publication, spread over time periods. The data in Table 3 together with Figures 4 and 5 illustrate this aspect.

Table 3 Number of papers from the top of the two lists, spread on time intervals

Time interval	Number of research in WoS top	Number of research in GS top
Before 1970	25	28
Between 1971 - 1990	52	48
Between 1991 - 2000	20	21
Between 2001 - 2010	3	3
After 2011	0	0

Regardless of the top 100 most quoted papers (Web of Science or Google Scholar), their dominant structure belongs to the period between 1971 – 1990, although it was expected that the larger and older period 1887 – 1970 would have a significantly higher share, after which the quote speed decreases decade after decade with all the improvements brought by modern technology in the system of quotations and references on the Internet.

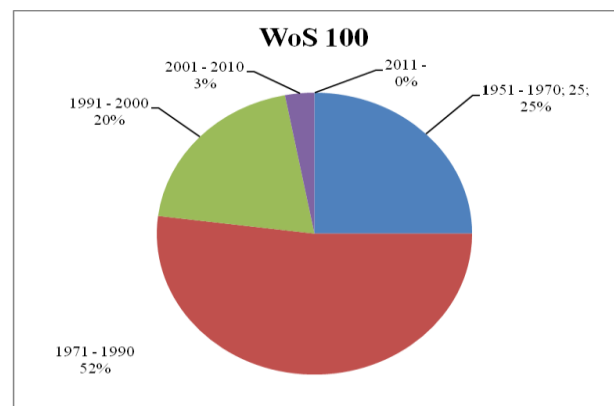


Fig. 4 Structure by time periods of articles in the WoS top

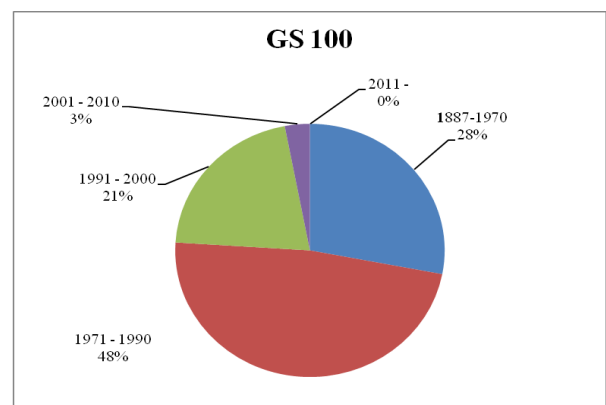


Fig. 5 Structure by time periods of articles in the GS top

In both lists, the period 1971 – 1990 has the main weight, while the recent research (after 2000) are being poorly represented.

5. CONCLUSIONS

In both WoS and GS tops, the first three papers based on the quotations number are represented by articles in the field of biology research, the only ones with over 100.000 quotations (the first one having over 300.000 quotations in WoS) published in 1951, 1972 and 1976.

The first positions in the two lists are occupied by the same paper, but reversed: the first ranked in WoS (Protein measurement with the folin phenol reagent) is found in the second position in the GS rankings while the paper with the highest number of quotations in GS (Cleavage of structural proteins during the assembly of the head of bacteriophage T4) is the second in the WoS list.

What's next? We propose further in – depth studies (Data mining) for:

- highlighting the words most commonly found in the WOS100 and GS100 titles
- highlighting the weight of fundamental scientific areas and new areas
- highlighting geographic areas (GIS) of authors vs. Publications (magazines / publishers)

The two lists of the most quoted research papers of the last century (Web of Science and Google Scholar) highlighted some distinct and relatively surprising aspects.

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HOLDING THE HOUSE OF CARDS TOGETHER: POSSIBLE PITFALLS WITH SELF-ORGANIZING TEAMS IN ORGANIZATIONS

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Abstract: *Self-organizing teams are becoming increasingly popular in recent years, especially in the most advanced industries, such as in software development companies and other organizations within the tech industry. There is an increased interest of researchers and academics, and so far, numerous positive effects of self-organizing teams have been identified and presented by various authors. Fragility of systems with self-organizing teams are not yet fully explored nor specifically addressed in the literature. Issues and challenges do appear sporadically, disconnectedly scattered across various papers that predominantly focus on positive results of self-organizing teams. This paper examines the most common problems and pitfalls identified within the existing literature, by reviewing the most relevant works within this topic. Ten most commonly found and repeated pitfalls of self-organizing teams are identified. It has been found that the ten pitfalls mostly affect work efficiency and employees' satisfaction. Furthermore, it has been found that the communication is a key piece of the puzzle, as it connects and affects all aspects of an organization. Finally, even though the described pitfalls are not mutually compared in order to determine how much impact each individual of them has, this is certainly a possibility for more detailed research in the future.*

Keywords: *self-organizing teams, employee satisfaction, efficiency, communication, organizations.*

1. INTRODUCTION

Different working groups such as committees, councils and task forces are not necessarily teams and they do not become teams simple because someone calls them "teams" [1]. In compare to working groups, teams require both individual and mutual accountability, sharing of information and they rely on group discussion, debate and decision which in addition makes possible performance output greater than the sum of all the individual performance outputs of team members [1] This relates to quote from Aristotel, who lived in 4th century BC, that "*the whole is greater than the sum of its parts*", in this case team and teamwork represents the whole. As noticed by Tannebaum et al [2] highly quoted definitions of teams, such as the ones from Salas et al [3], Kozlovski et al [4] or Katzenbach and Smith [1] presumes that all teams share some common characteristics such as stable membership, common goals, predefined roles and tasks, and in some cases one location.

Recently there have been many changes concerning how teams are organized and how they are operating. For example, we now have much more use of temporary teams, usually when they have a task of developing new product or service. Team members are not always on the same location, often not in the same country, and they are successfully operating as virtual teams. One can be member of multiple teams, sharing

its time evenly or unevenly between different teams. There are three big changes that are affecting the nature of teams and the environment in which they operate: (1) dynamic composition of teams, (b) use of technology and distance and (c) empowerment and de-layering [2]. Depending on who has the authority for the following four functions: 1. execute the work, 2. monitor and manage the work process, 3. design the performing unit and arrange for needed organizational supports for the work, and 4. set direction for the team; Hackman [5] identified four levels of increasing team self-management. First level is traditional manager-led team, where team members' duty is just to execute the work, everything else is performed by the manager. Second level is self-managing team, where team members have also responsibility for organizing their work and for monitoring and managing their performance. Third level is self-designing team, team members have freedom to choose and change the design and structure of their team. These self-designing teams are also called self-selecting [6], because they can select their members. Finally, most autonomous teams are self-governing teams; they have responsibility for all four of the major functions. Terms of self-managing teams and self-organizing teams are often use as equivalent. Appelo [6] argue that "self-organizing" is more adequate term, because "self-managing" term is more closer to the description of self-governing teams. He also suggests avoiding the term "self-managing team" because it is misleading. Authors agree that the use of "self-organizing" term is more appropriate. Following this analogy, we can add that self-designing teams and self-governing teams are also self-organizing teams but with additional autonomies.

This paper focus is on challenges in implementing self-organizing teams in organizations and their possible pitfalls. In the opinion of the author, implementing self-organizing teams in organizations can be the driver of positive effects in all organizations, but the path to their successful implementation is complex and more difficult in compare to classical manager-led teams [7].

Research on self-organizing teams have provided a lot of positive results such as high productivity and effectiveness [8]–[17]; quality of output [8], [18]; customer service [18], [19]; safety [8]–[10]; job satisfaction [18], [20]–[24]; organizational commitment [6], [21]; adaptability [14], [16], [25], [26]; and success of innovative process [7], [16], [23], [27]–[29]. Beside the long list of positive effects, fragility of systems with self-organizing teams are not yet fully explored nor specifically addressed in the literature. Issues and challenges do appear, but they are scattered across various papers that predominantly focus on positive results of self-organizing teams.

In a survey conducted on a relevant sample in the Republic of Serbia, we found that software development companies very often have at least some type of self-organizing teams. On the other side of the spectrum, are public companies and

governmental institutions have close to zero. In software development companies, worldwide, most popular methodology for development of software is Scrum methodology, which is used by more than 60% of companies [30]. Main characteristics of Scrum methodology are incremental software development and cross-functional self-organizing teams [31]. Besides Scrum methodology, there are also organizational models based on the self-organizing teams. Some of these models are highly structured with precise rules and roles and with interconnected autonomous teams like Holacracy [32], or complex hybrid model with mix of functional and cross-functional teams [6] like the one used by Spotify company [33]. Other models are more simpler and involve functioning of multiple self-organizing teams that are mutually independent, such as the award-winning model used by the Dutch company Buurtzorg [34]. Self-organizing teams are not reserved only for industries that feature rapid technology advances, excellent examples can be found among organizations involved in education, automotive industry, clothing, tomato production, media, consulting, production, production of electricity, metal and hydraulic components, and even in the patients home care as well as the mental health care institutions [18].

If an organization decides to introduce self-organizing teams in its structure or to empower its already existing teams, great care must be put in preparation and implementation [35]. Implementation of self-organizing teams is very complex and its success depends on number of elements. Most common mistake is believing that employees can just shift from working in traditional hierarchical organizations to some type of self-organizing, without training and preparation [18]. Providing trainings and coaching for employees is very important. Additionally, for most people, the more time they spent in hierarchical organizations the more training they will need. However, for some excessive training would not be enough. Not all people can successfully function in situation where they act without an approval from “above” or with increase responsibilities [6]. After couple of months from implementing Holacracy model in Zappos.com, online shoe and clothing retailer with more than 1,500 employees, 18% of employees decided to accept the offered severance packages “for whom self-management was not a good fit – or who wished to leave for any other reason” [36]. Middle managers are also not very supporting in introducing self-organizing because it is usually followed with loosing a part of their authority or sometimes loosing their position when flattening down the organizational structure. Appelo [6] suggests two dimensional empowerment model for self-organizing teams which includes: 1. Maturity level (low, moderate or high) and 2. Authority level (tell, sell, consult, agree, advise, inquire and delegate). This model can be used to analyze and establish different amount of empowerment for different tasks.

The goal of this article is not to cast vote for or against introducing self-organizing teams in organizations, but to share some of the challenges and possible pitfalls in implementing self-organizing teams in organizations. We did a literature review using most popular academic search engines and found ten most commonly identified and repeated pitfalls of self-organizing teams across the existing literature. They have been analyzed each one against the specific aspect and context it can possibly affect or endanger.

2. POSSIBLE PITFALLS WITH SELF-ORGANIZING TEAMS IN ORGANIZATIONS

In this article, we did not measure which pitfall is more crucial than the other. However, one of them has separated from others as the most important because it connects all other factors.

2.1 Goals

It is a responsibility of organization’s management to develop the vision and mission of the organization, as well as for setting goals, but it is necessary to give freedom to self-organizing teams to independently develop their own mission and corresponding set of values, in order to achieve the set goals [6]. It is very important that all team members have the same understanding of the team’s mission, even as important as having a mission at all [7], [25]. Setting up challenging goals but for which the perception is that they are realistic and feasible is a powerful motivator, and defining clear expectations of performance increases employee satisfaction during the work process [37], [38]. When team members actively participate in the goal setting process, the team is more committed to team goals and acts as a more homogeneous entity [20], [25], [39]–[42].

2.2 Leadership

Pearce and Sims [12] found that shared leadership is an important predictor of team effectiveness and that willingness to make it a part of conscious strategy will lead to improvement of team effectiveness. There are four different sources of team leadership, depending whether the leader/s is/are formal or informal, or whether he/they is/are internal or external, and regardless of the source, leadership is focused on satisfying team needs with the goal of enhancing team effectiveness [25]. In self-organizing teams leadership is internal and informal because leadership responsibilities are shared among the team members [43]. In order to develop high levels of mutual influence and sharing of leadership responsibilities, self-organizing team has to have clear and unifying direction, strong sense of interpersonal support, and a high level of voice and involvement within the team [19]. Combination of knowledge, talents and interests of several people will certainly increase the success of the team as more resources are dedicated to the management function [44], because one manager, no matter how smart and capable, cannot be right all the time [45]. In order to succeed in the distribution of leadership, it is necessary for the team members to have a strong sense of mutual support and equal status in the team [19]. In compare with traditional manager-led teams, teams with shared leadership have more complex environment and because of that communication is much more important [44]. One alternative is rotating the function of a leader among the members, such teams have achieved a higher level of communication and cooperation, and these relations further contribute to improvement of team’s results [46].

2.3 Transparency

Transparency in organizations means sharing of all internal information among all employees, from business results, plans, decisions, to the salaries of all employees. Depending on the level of transparency. Transparency does not mean that these information will be available to stakeholders outside the organization. Laloux [18] points out three main reasons for total transparency in organizations with self-organizing teams. First, when there are no hierarchies and superiors, the self-managing teams must have all the information available in order to be able to make the best decisions. Secondly, any information that is not public will cause suspicion. Third, as long as there are people who know something, while others in the same organization do not know it, there will be some kind of hierarchy. Additionally, enabling unlimited access to information for all team members improves team performance [47]. Using some of the software solutions for team communications can help provide greater transparency followed with possibilities to control other team members [2]. One of the possible solutions for large companies is developing its own intranet or social network, which can be used for all communication and to provide employees with all available information from performance data to financial information, following the “no secrets” formula [48].

2.4 Conflicts

The quality of interpersonal relationships is undoubtedly one of the cornerstones of any environment where more than one person, let alone whole teams, is in charge of making decisions and managing and carrying out relevant activities. Being unavoidable in any interpersonal relationship, we would argue that conflicts should not be automatically seen as negative, which seems to be frequent tendency. They should rather be assessed based on their type and the way they are managed by participants, as well as on the possible outcome such conflicts can produce. Appelbaum et al. [24] divide conflicts within self-organizing teams into two main categories: negative or dysfunctional conflicts, driven by emotions and affective reactions, negatively impacts teams' creativity and quality of work on the one side, and positive or functional conflicts, motivated by a challenge of one's existing attitudes on the other. The latter is seen by the authors as a bust to the effectiveness of the team by drawing their attention to what really matters, such as key activities or important issues that need to be solved. In addition, negative conflicts can lead to a decline in confidence and autonomy, as well as increased control [14], [26]. Increased stress among team members negatively affects quality and amount of communication within the team [47].

2.5 Trust

Self-organizing teams can be defined as groups of interdependent individuals that can self-regulate on relatively whole tasks [49]. Having this in mind, issues of trust and autonomy are of primary importance [50]. If the level of trust is low, team members will waste their energy and time on their own protection and checking of others, instead of cooperating with other members without delay [47]. When there is a lack of trust, team members will not be willing to

share information, especially if there is a possibility or fear, that others will consider them incompetent [23]. Trust is a prerequisite for shared or rotating leadership, sincere feedbacks and communication in general. On the other hand, high level of trust between team members can lead absence of control in self-organizing teams [50].

2.6 Control

When there is shared or rotated leadership, organizations must establish clear processes and instructions for measuring performance that will almost certainly differ from traditional approaches [2]. In traditional bureaucratic organization, employees must come to work in due time, because it is defined with internal documents or because their manager requires it from them, but within self-organizing teams “employees might come to work on time because their peers now have the authority to demand the workers' willing compliance” [14]. In a research done by Langfred [50] results shown that if a self-organizing team has high levels of individual autonomy, some monitoring of individual team members needs to be in place if process loss and coordination errors are to be avoided, because self-organizing team members may choose not to monitor one another when the level of trust is high. Interestingly, when comparing self-organizing team with manager led teams, monitoring is dropping more rapidly as trust increase. It is crucial to find some balance in monitoring and trust. Once the monitoring is lost in self-organizing team, it is much harder to properly introduce it again, because teams with high cohesiveness and trust have powerful influence on team members to conform to the groupthink [50]–[52]. Therefore, high trust cannot result in completely removing the monitoring process, especially when there is a high individual autonomy. In efficient self-organizing teams, members are focused on monitoring for problems, they try to act on them as soon as they appear, because big problems usually started as small problems and it is easier to fix them in the beginning [6], [43].

2.7 Balance

Team behavior and performance is a function of characteristics and attributes of the team members and how those characteristics and attributes are distributed within the team [4], [25], [53], [54]. Having a well-balanced team have proven to be a one of the key component to team success but it is not always easy to find the right balance. For different situation there is a need for different kind of balance, for example when task interdependence is high it is better to have demographically diverse team, but when task interdependence is low the opposite is much better [25], [55]. Belbin [56] researched how likely was that high-intellect teams would succeed where teams with lower intellect would not, but outcome of the research did not support his idea. Instead, having a balance mix of different people was proven to be more important and will lead to greater team successes. In case of tasks that are not routine, expertise diversity is more likely to lead to better performance [57]. Van Der Vegt and Bunderson, found that under the right conditions, expertise diversity can be a key activator of intra-team learning and thereby promote overall team effectiveness [58].

2.8 Learning

In order to quickly and accurately adapt to changes in their environment, self-organizing teams should allocate a lot of their focus on learning. With great autonomy, comes great responsibility. Self-organizing teams have responsibility to actively invest time and effort for learning and trainings. More experienced teams learn from their experience. In their extensive research on teams, Day, Gronn, and Salas [44] have come up with four interesting conclusions. First, the characteristics of team members' personalities are important: if in one team, there are team members who are high on Agreeableness, one of the five main personality trait [59], that will affect level of learning. More team members who are high on Agreeableness means a lower level of learning. Second, the structure is important: teams whose members often work in pairs learn more than teams in which this is not the case. Third, workload: if teams have the same workload distribution they will learn more in compare to uneven distribution. Fourth, "truth supported wins": in order for team to learn, it is necessary that more than one person receive the same information or to discover the truth [43]. The mutual knowledge sharing further contributes to improving team learning, improving team performance, creating shared mental models and allowing better coordination among team members [60].

2.9 Location

The development of technology has enabled forming of teams of culturally and geographically diverse employees from any point of the Earth's globe, also technology has enabled people to be involved in the work of multiple teams at the same time, the only condition is that they have access to the Internet [2]. Virtual teams were formed, where team members use technology to communicate with each other via video or audio call, or via message exchange. They now have options to store and share data in cloud, making it available for viewing or editing simultaneously by all team members in any moment. Additionally, with instant messaging, asking for and getting input in seconds, even after the regular working hours can produce information overload [2]. Researchers argue that virtual teams are no match with traditional (face-to-face) teams [61], but with technological advancements use of virtual teams continues to rise [62]. Main difference, regarding the location of team members, is the quality and richness of communication, even if team members use video calling for all of theirs communication, a big part of nonverbal communication is lost in the process. With emails and instant messaging it is even worse, and people often use emoticons to avoid misinterpretation. In his famous series of research, Mehrabian [63] found that communication is only 7% verbal, while 93% is nonverbal, like facial expressions, gestures, posture, proximity, tone of voice, pitch, etc. In similar experiments, Birdwhistell [64] found that the ratio is 35% and 75%, but either way nonverbal communication carries a lot more information in compare to verbal communication. It is no surprise that productivity is higher when all team-members are collocated [65], for self-organizing teams doing software development it is suggested to sit in the same room in order to get the best results [6], [23], [66]. Team members with closer interaction distance are

more likely to mutually communicate and achieve interconnection compared to geographically dislocated members of the team.

2.10 Communication

Communication is a transversal component of particular importance because it links and impacts all of the previously described pitfalls [23]. Communication is essential for the timely availability of information. The frequency of interaction within the team is perhaps the most important variable affecting the performance of the team, regardless of the type of team [67]. When teams have problems in communication, they will probably have problems coordinating their work, which leads to decline in efficiency and effectiveness [23], [68]. When creating new teams, putting too much effort in finding team members who have high level of complementing technical skills is not a good strategy if you ignore their interpersonal skills like active listening, helpful criticism, objectivity, recognizing the interests and achievements of others, etc [1]. Interpersonal skills are foundation for achieving common understanding and effective communication [1]. The communication is found to be an essential component in majority of studies on self-organizing teams, yet in practice companies usually rarely invest enough resources in training of peoples' communication skills. Research have found that teams who had some kind of communications trainings perform better than the one without any kind of communications trainings [47], [69].

3. CONCLUSION

In our work, we manage to identify ten possible pitfalls regarding the implementation and work of self-organizing teams in organizations. They are: Goals, Leadership, Transparency, Conflicts, Trust, Control, Balance, Learning, Location and Communication. These pitfalls are not the only one that can influence the success of self-organizing teams, but they are the most common. We found that communication is a key component and it is connected with all aspects of organization, including all other identified pitfalls. We believe that even if all pitfalls are avoided and self-organizing team is set to go, quality of communication will have the biggest impact on its fate. Will it blossom in glory or perish in oblivion. In practice, although there is no clear distinction between successful and unsuccessful self-organizing teams, small number of self-organizing teams fulfill their full potential. Suggestions for further research would be to try to determine performance indicators regarding these possible pitfalls and try to measure their impact in compare to each other. Other suggestions would be to research possible strategies and actions that can develop and foster communication within self-organizing teams. Self-organizing teams are not for every organization and not for all individuals, neither are teams. In one interesting research it is found that people who prefer working in teams also have greater job satisfaction than those who are more into lone crusading [70]. If some of the coworkers have a problem in their daily work they will also have problems in self-organizing teams [23], because self-organizing is not solution for problems. Prerequisite for implementation of self-

organizing teams are desire and willingness of decision-makers and stakeholders to make the necessary organizational changes. For some, this means also paradigm shifting, changing perception of employees from negative to positive, like drifting from Theory X to Theory Y [71]. In order to achieve this, stakeholders need to be familiar with all the benefits of self-organizing teams, but also of with possible pitfalls. In fast changing industries, stakeholders usually do not have enough patients to wait for promised benefits so they give up to quickly. Self-organized teams can bring a lot of benefits for organizations but the system is fragile and must be taken with care, also benefits comes slow and than faster and faster, so patience is important [6]. Most important benefits are efficiency and employee happiness. They are in strong correlation, because focusing on increasing employees' happiness will lead to increase in productivity [72]. Currently, majority of self-organizing teams can be found in software development companies, but we believe that organizations from other industries could also benefit with implementation of self-organizing teams.

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PERSONALITY TRAITS AS THE REFERENCE FOR GAMING MOTIVATION AND GAMIFICATION

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Abstract. Gamification is one of the most resounding words in the world for the past 10 years. From its implementation in education, medicine, fitness and various research that showed excellent results in terms of using gamified platforms in these spheres, the interest for this “discipline” spread to all spheres of life. Currently, large focus is placed on various fields of management – HR, marketing and organization. To what degree can gamification help management and organization, education and teachers? This paper shows recent literature on the subject of gamification, and a research started in order to better understand the correlation between types of personalities and the preferences of gamified elements. Maybe the key to motivation lies in gamified elements customized by personality traits.

Keywords: *gamification, gamified elements, management, motivation, Big Five personality traits, personality dimensions, Bartle’s taxonomy of player types*

1. INTRODUCTION

Games were part of our culture since the dawn of history, and they take on multiple socially useful roles: they represent tools for fun, imaginative ways to develop human relations, physical exercises and, even, tools for survival (we may all remember the gladiator games of ancient Rome). Games have their own language, set of rules and outcomes known only to those who play the game. In his book “Homo Ludens”, the historian Johan Huizinga even claims that games are older than culture itself, given that culture implies human society, and animals hadn’t waited for man to teach them how to play (Huizinga, 1944).

Over the last 50 years, with the appearance of video, and later, computer games, the gaming industry has grown into one of the largest industries of the world. Many authors highlight the multidimensionality of video games, and one paragraph in particular describes it best: “Video games are a legitimate artistic medium, subject to modification and reconstructing the context in manufacturing a specific experience for the player/user/audience and political acting by underlining certain social problems. Games are a high-tech medium that enhances the aesthetic potential of audio-visual performances with each new commercial game, and includes more complex narratives and characters/avatars.” (Maravic, 2011, p.93).

It is estimated that the global games market will be worth 128.6 billion dollars by the year 2020¹. Given this massive expansion and high impact on the global economic market, one can see the increase of interest in this medium. During the last few years, in the beginning of the 21st century, video

games have become the object of research as new media and have gained interest from theorists and explorers, who have decided to overcome the patronizing tone towards video games and consider them increasingly worth exploring (Maravic, 2014, p. 263). In the sea of different directions gaming and gaming industry research went, *gamification* stands out the most.

There is no single definition for the term gamification, but we will mention a few of the most popular, as a way to emphasize its main aspects. Gamification can be defined as “use of game elements in non-game context” (Deterding, Khaled, Nacke, 2011). Also, Deterding gives a broader definition specifying that gamification is a selective incorporation of game elements into an interactive system without the end goal of developing a game (Deterding, 2012). Furthermore, gamification is defined as a “process of enhancing a service with the possibility of adding game-like experience to create a greater value for the user” (Huotari&Hamari, 2012-19). This can be achieved by using game design elements – like scoring – in non-game contexts and situations (Deterding et al, 2011).

2. GAMIFICATION ON THE RISE

If we take a look at the interest shown for gamification among scientists and researchers in the last 5 years, we will observe a constant growth. By searching the most popular scientific databases from 2012 to 2017 (in conclusion with September), a stable growth of gamification based thesis is noticed (each paper with the term “gamification” mentioned in it).

By comparing the results gained through empirical research these last few years, a conclusion can be drawn – gamification certainly shows positive effects and benefits. For the purpose of this paper it is interesting to mention that success of gamification can depend on several factors, including user motivation and the nature of the gamified system (Hamari, Koivisto, Sarsa, 2014).

From an educational perspective, gamification can motivate since it puts “players” in the centre of the system, and gives them a chance to be autonomous and have control, all the while having fun.

¹ According to research done by organizations Newzoo and their Global Games Market Report.

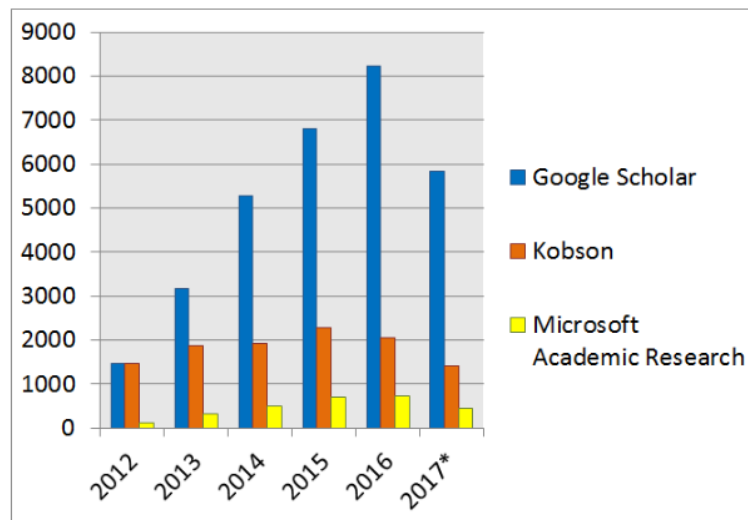


Chart 1. Search through databases of scientific papers for the term “gamification“

3. PERSONALITY AND ITS TRAITS

Just like with gamification and other terms intrinsically connected to our motivation, personality is hard to easily define. Many psychologists gave their versions depending on their scope of interest. However, given that the focus of our paper is on specific, game-loving, individuals, we will take into consideration one of the founders of psychology of the individual, Gordon Allport, who notes: „Personality is the dynamic organization within the individual of those psychophysical systems that determine his characteristic behaviour and thought“ (Allport, 1961, p.28). Within this organization Allport proposes over 4000 personality traits to define an individual and determine his behaviour (Allport 1961).

However, most contemporary psychologists agree that this list is too comprehensive, and that main personality traits that define our actions can be divided into 5 categories. These five basic dimensions are commonly referred to as The Big Five personality traits (The Big Five). Evidence of this theory has been growing for many years, beginning with the research

of D. W. Fiske (1949) and later expanded upon by other researchers including Norman (1967), Smith (1967), Goldberg (1981), and McCrae & Costa (1987) (as summarized by Goldberg, 1993). McCrae and his colleagues have also found that the big five traits are also remarkably universal. Their study examined people from more than 50 different cultures and found that the five dimensions could be accurately used to describe personality.

Before we specify each of these five personality traits, it is important to emphasize that each trait represents two sides of the trait spectrum (for example, extreme extraversion and extreme introversion). Although there is still some consensus to be met regarding the names of the Big Five, all researchers agree on their significance. The names most commonly used nowadays are:

1. Extraversion
2. Agreeableness
3. Conscientiousness
4. Neuroticism
5. Openness to experience

Table 1
Examples of Adjectives, Q-Sort Items, and Questionnaire Scales Defining the Five Factors

Factor		Factor definers		
Name	Number	Adjectives ^a	Q-sort items ^b	Scales ^c
Extraversion (E)	I	Active	Talkative	Warmth
		Assertive	Skilled in play, humor	Gregariousness
		Energetic	Rapid personal tempo	Assertiveness
		Enthusiastic	Facially, gesturally expressive	Activity
		Outgoing	Behaves assertively	Excitement Seeking
Agreeableness (A)	II	Talkative	Gregarious	Positive Emotions
		Appreciative	Not critical, skeptical	Trust
		Forgiving	Behaves in giving way	Straightforwardness
		Generous	Sympathetic, considerate	Altruism
		Kind	Arouses liking	Compliance
Conscientiousness (C)	III	Sympathetic	Warm, compassionate	Modesty
		Trusting	Basically trustful	Tender-Mindedness
		Efficient	Dependable, responsible	Competence
		Organized	Productive	Order
		Planful	Able to delay gratification	Dutifulness
Neuroticism (N)	-IV	Reliable	Not self-indulgent	Achievement Striving
		Responsible	Behaves ethically	Self-Discipline
		Thorough	Has high aspiration level	Deliberation
		Anxious	Thin-skinned	Anxiety
		Self-pitying	Brittle ego defenses	Hostility
Openness (O)	V	Tense	Self-defeating	Depression
		Touchy	Basically anxious	Self-Consciousness
		Unstable	Concerned with adequacy	Impulsiveness
		Worrying	Fluctuating moods	Vulnerability
		Artistic	Wide range of interests	Fantasy
		Curious	Introspective	Aesthetics
		Imaginative	Unusual thought processes	Feelings
		Insightful	Values intellectual matters	Actions
		Original	Judges in unconventional terms	Ideas
		Wide interests	Aesthetically reactive	Values

a. Adjective Check List items defining the factor in a study of 280 men and women rated by 10 psychologists serving as observers during an assessment weekend at the Institute of Personality Assessment and Research (John, 1989a).

b. California Q-Set items from self-sorts by 403 men and women in the Baltimore Longitudinal Study of Aging (McCrae, Costa, & Busch, 1986).

c. Revised NEO Personality Inventory facet scales from self-reports by 1,539 adult men and women (Costa, McCrae, & Dye, 1991).

Table 1. Examples of Adjectives, Q-sort Items and Questionnaire Scales Defining the Five Factors (McCrae, Oliver, 1992, p.178-179).

4. THE BIG FIVE AND MOTIVATION

The question of motivation has long intrigued scientists throughout the years – whether it is a question of motivation to learn new things, study, go to work or participate in team exercises. Ever since Maslow's theory of needs (1943), we have tried to decipher what it is that moves an individual towards action. With the fame of the Big Five traits theory, many psychologists turned toward exploring the connection between these traits and motivation. Judge and associates give an excellent overview of research and meta-analysis (Judge, Heller, Mount, 2002). They have discovered that three of the five traits have a significant relation with job satisfaction, and our motivation to work. There was also other research showing that openness, extraversion and conscientiousness predicted motivation to learn. In addition, motivation to learn was positively related to objectively assessed development activity.

In other words, our personality traits can affect our motivation to learn or participate in team efforts. Given that computer games are comprised of elements that require constant learning and participation, and that the motivation for gamers to enter a game and plays for various hours is unwavering, it is clear why the subject of this paper is motivation through games, and more, through gamified elements.

Moreover, this paper proposes that personality traits influence our gaming experience, just as they influence our action and reactions in everyday life. Given that, it is interesting to see which traits influence which gaming elements, and what could we take away from this experience.

5. INDIVIDUALS AS GAMERS – QUESTIONNAIRE

For the purpose of this paper, a questionnaire was designed, comprising of 143 questions, based on previous research. The questionnaire is self-reflecting and anonymous for all respondents. It is designed with three major parts:

1. Demographic data for each respondent (sex, age, time spent in game playing and favourite type of game).

2. Standardized personality test HEXACO-PI-R, first developed in 2000, and revised in 2007. The test counts 100 questions measuring 6 personality dimensions (as opposed to the five factor models) – Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, Openness to experience (Ashton & Lee, 2007).

3. Test about Gamer's motivation and habits, developed in 2006 by Nick Yee. The test was translated into Serbian and modified to count 40 questions which monitor three dimensions of gaming experience – success, socialization and immersion – that is, three types of players according to Bartle: *the ones chasing success, social players and explorers* (Yee, 2007).

The purpose of the questionnaire was to get information about the way we group types of personalities and the way we group types of players. Additional research could show if the connection between standardized personality traits and player types can be implemented on students and employees.

6. METHOD

Statistical analysis of the questionnaire included descriptive analysis of the sample, testing the significance of difference in variables between men and women and the correlation

between variables connected to gaming motivation and personality traits. Descriptive statistics encompassed determining the mean value and standard variations (SD) for parametric data and frequencies and percentage for categorical data. The significance of the difference is determined with T test for parametric data and Chi-Squared test for categorical data. Correlation analysis included calculating Pearson or Spearman correlation coefficients.

7. RESULTS AND DISCUSSION

The sample consisted of 294 respondents – 174 male (59.2%) and 120 female (40.8%). The biggest percentage of respondents fits the age group of 21-3 years old (Chart 2). Also, the biggest percentage (37.1%) reported spending 2-4 hours per day playing games (Chart 3).

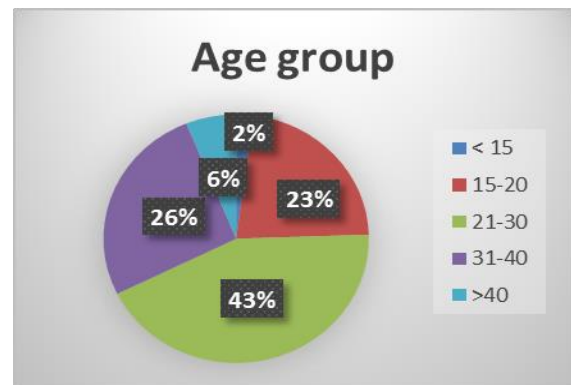


Chart 2. Age group of respondents



Chart 3. Reported hours spent playing games

Further, favourite type of game is shown in Chart 4, with RPG (Role-Playing Games) as leading game type favored by the respondents.

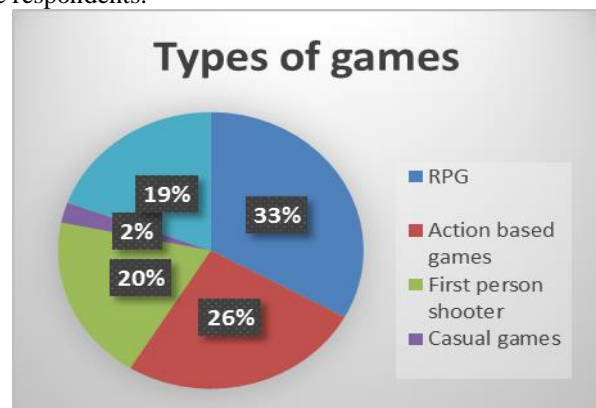


Chart 4. Types of games preferred by respondents

Mean values and standard deviation (SD) of variables connected to personality and gaming motivation are shown in Table 2.

	Mean value	SD
Honesty/Humility	3.4221	0.69499
Emotionality	3.3180	0.81321
Extraversion	3.1352	0.70690
Agreeableness	2.8223	0.62066
Conscientiousness	3.5731	0.60194
Openness	3.7647	0.58829
Success	3.2585	0.59101
Socialization	2.8314	0.73176
Immersion	2.9970	0.64825

Table 2. Mean values and SD for variables

Given the noted differences in tested variables between men and women (Table 3) further correlation were controlled for sex.

	Sex	Mean value	SD	p
Honesty/Humility	female	3.5021	0.68320	0.101
	male	3.3669	0.69963	
Emotionality	female	3.3563	0.82799	0.504
	male	3.2917	0.80420	
Extraversion	female	3.0927	0.79928	0.393
	male	3.1645	0.63622	
Agreeableness	female	2.7948	0.61367	0.529
	male	2.8412	0.62650	
Conscientiousness	female	3.6073	0.64195	0.420
	male	3.5496	0.57342	
Openness**	female	4.0063	0.51119	0.000
	male	3.5981	0.58136	
Success	female	3.2725	0.55296	0.737
	male	3.2489	0.61728	
Socialization *	female	2.9484	0.78062	0.023
	male	2.7508	0.68681	0.000
Immersion **	female	3.2080	0.59807	

*p<0,05

**p<0,01

Table 3. Differences in sex.

Finally, correlation analysis has shown promising results of the research. Table 6 shows correlation coefficients (controlled by sex) between different aspects of gaming motivation and personality traits. The most significant correlation is shown between success and the personality trait honesty/humility (negative correlation). Statistically significant correlations are evidenced between success and these dimensions: emotionality, agreeableness and openness.

When it comes to socialization, it can be mentioned that there is a small, but statistically important positive correlation with extraversion (especially in females). Also, immersion

has shown significant negative correlation with honesty/humility and emotionality.

Furthermore, statistical analysis has uncovered positive correlation between aspects of motivation itself, the most significant one being the correlation between success and immersion.

What this questionnaire aimed to show is that there are certain correlations between personality traits and gamer types. If we know that, for example, extroverts react highly positively on social elements of the game (such as teamwork and chat rooms), we can use that knowledge to provide them this type of stimulation in non-game context, such as a classroom or place of work.

On the other hand, if the great desire and need to succeed in a game and be number one can negatively influence ethics and morality of a player, which means that we shouldn't put much emphasis on winning – it is important to build upon the socializing and fun-inducing elements of the gamified process.

8. CONCLUSION

Gamification is undeniably a new trend already proven itself across different industries as a highly useful tool to motivate users. Apart from that, gamification has found its place and justification for use in education improvement, medicine, sports and HR. Now, it is time to view it as a tool to better understand each individual and their motivation in order to customize approach for various uses.

This research has shown that certain personality traits bear statistically significant connection to specific motivations of game players. It is especially interesting to observe the negative connection between the motivations to succeed in games with humility/honesty as a trait, as well as the negative connection of immersion in game with the same trait. In other words, players most motivated to succeed and most motivated to explore are the ones with lowest scores on the humility/honesty trait. This can have significant implications for the use of gamification in the classroom or workplace, all the while warning us of the potential ethical and moral aspects of the phenomena.

With this in mind, this paper would suggest further analysis of the individual motivated by different needs, which can be awoken with the use of different gamified elements.

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	Honesty/ Humility	Emotionality	Extraversion	Agreeableness	Conscientiousness	Openness	Success	Socialization	Immersion
Success	-0.354**	-0.195**	0.028	-0.185**	-0.017	-0.161*	1.000	0.350**	0.502**
Socialization	-0.044	0.063	0.166**	0.108	-0.104	-0.008	0.350**	1.000	0.441**
Immersion	-0.237**	-0.182*	-0.065	-0.102	-0.073	0.050	0.502**	0.441**	1.000

*p<0,05

**p<0,01

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