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Organizational creativity
The components of organizational creativity in Hungary

Theses of doctoral dissertation

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1. Introduction

1.1. Topic relevance

In the series of Hungarian economic science research studies, the examination of the scope of innovation has a podium place. However, in the EU's 2013 Innovation Ranking, Hungary only got into the third quarter, in 21st position (Hollanders, EsSadki 2013). A vast number of studies set the possible and quantifiable series of reasons into their focus. Our research study is also connected to innovation, but we are mainly interested about the preceding and establishing step: *creativity*. Following the phase theory, we assume that creativity is a necessary (but not sufficient) precondition of innovation. Yet, Hungarians are a famously creative nation – and creativity as a competence is included as one the first requirements among the expectations of employers (Derecskei, Zoltayné, Nagy, 2011). If creativity (as the competence which is expected and necessary for innovation) is given, then why is that we are only in the 21st position? The reasons have to be found in organizational characteristics. In this way our focus will be directed on the examination of *organizational creativity* and on its Hungarian characteristics.

Our research thesis can be divided into a number of phases on the basis of the following figure:

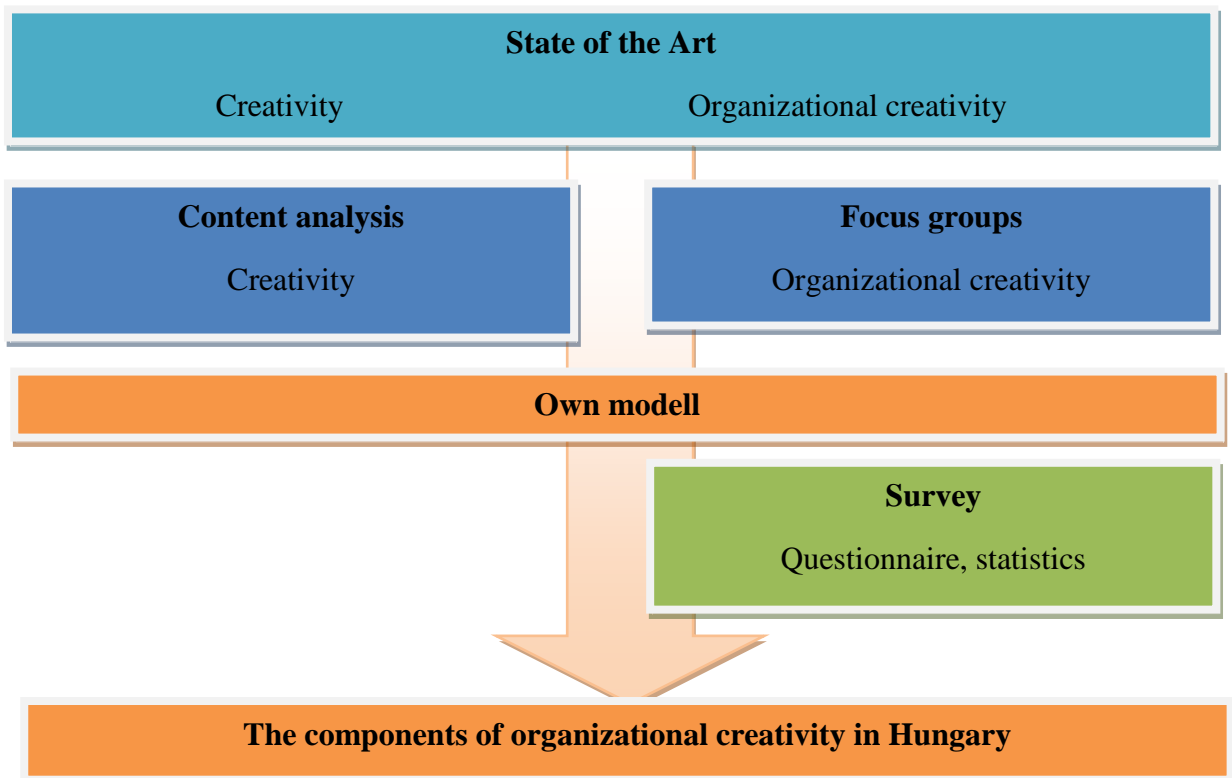


Figure 1: The Research Process

Source: *Own source*

Prior to the empirical studies we specified *the concept of creativity*, for which besides the processing of scientific literature results, we analyzed the definitions of creativity written by more than 100 HR experts, with the help of a content analysis software. Several definitions are used to describe creativity which we systematized as well. The study of creativity can be characterized with the direction of the research study's focus. This can be determined with Rhodes' (1961) *4Ps*¹. (1) Product: the research studies examining the result of creative work; (2) Personality: the studies examining the creative personality; (3) Process: the studies mapping out the mental process of creative thinking or activity (creation); its steps are given later; (4) Place / Pressure: studies introducing environmental influence, pressure.

The process of creativity can be divided *into further phases* (Wallas, 1926). We distinguished two phases: (1) *the phase of idea generation*, which includes the perception of the problem, the preparations, the latency and the enlightenment. The other one is the (2) „active” conative phase (not only cognitive). This was designated with *the realization of the idea (implementation)* phase name, and we also imply the elaboration and the realization phase in it.

Regarding the issue of *creative person (self)* and creative idea, arises the question that who or what can be considered as creative? Kaufman and Beghetto (2009) answered this question by designating the different levels of creativity. Within this categorization we also adjusted ourselves to the *Little c level* creativity given in the scientific literature of organizational creativity. According to this, creativity is present in all people and within proper environmental conditions and with motivation it appears. But on this level, domain relevant characteristics also appear, that is creativity can be related to an activity, to a domain, or in our case to the work of the individual.

Summarizing the above, our *creativity work definition* is the following: Creativity is such an ability, whose results are independently created unique, new idea or ideas solving the arising problems. During our research, we examined the environmental (in the workplace environment in a narrower sense) characteristics, and correlated them with the individual characteristics, also considering the phases of creativity. That is, within the focus of our study the examination of creativity's organizational environment, the workplace process, the creative individual's and environment's relation, to simply put, organizational creativity were present. The work definition of creativity is the following: *organizational creativity* is such an ability of an organization which appeared as the result of a joint effort to solve the arising problems during work, it leads to a new and valuable idea, and influences all those environmental factors which had an effect on this process.

¹ In the dissertation we mentioned that nowadays 5P or 6P categorization are also present in scientific literature.

1.2. Theoretical models

Organizational creativity study is a relatively new direction in the science of economic psychology. Its appearance can be put to the 1990s, but previously examinations had been already performed regarding the topic of organization and creativity. The first article is related to *Woodman, Sawyer and Griffin (1993)*, here we can find the first definition, model and hypotheses, although the authors did not perform empirical studies at this point. The authors designated individual, group and organizational characteristics, which have an effect on creativity. The highest number of empirical studies can be related to *Teresa Amabile*, who however during her empirical studies mostly concentrated on individual characteristics, particularly on intrinsic motivation and its effects on creativity. Amabile's works (the most well-known: 1996) are the most referred regarding the topic, even if the author herself does not use the concept of organizational creativity. During her research she examined the work processes, workplace relations, organizational characteristics and systematized the effects of these on creativity. This way among many others, she examined the impact of leadership style, time pressure or workplace mood. *Ford (1996)* proceeded in this direction, but extended the circle of characteristics affecting the creative event to institutional and market characteristics as well, and distinguished between creative and habitual workplace tasks, too. *Drazin, Glynn and Kazanjian (1999)* complemented all this with the perspective of time.

Later, only a lesser number of complex models were created, but we can find many studies describing and examining the effect of a single environmental factor, which components we incorporated into our own model as well. We also complemented this with the content analysis of a three focus group discussion after which we created *our own model*. We incorporated the process of creativity and the environmental press effecting creativity, which we handled on the level of the individual, the individual and work characteristics, the group, the organization and the market. Later on the basis of these did we conceptualize the hypotheses of our research study.

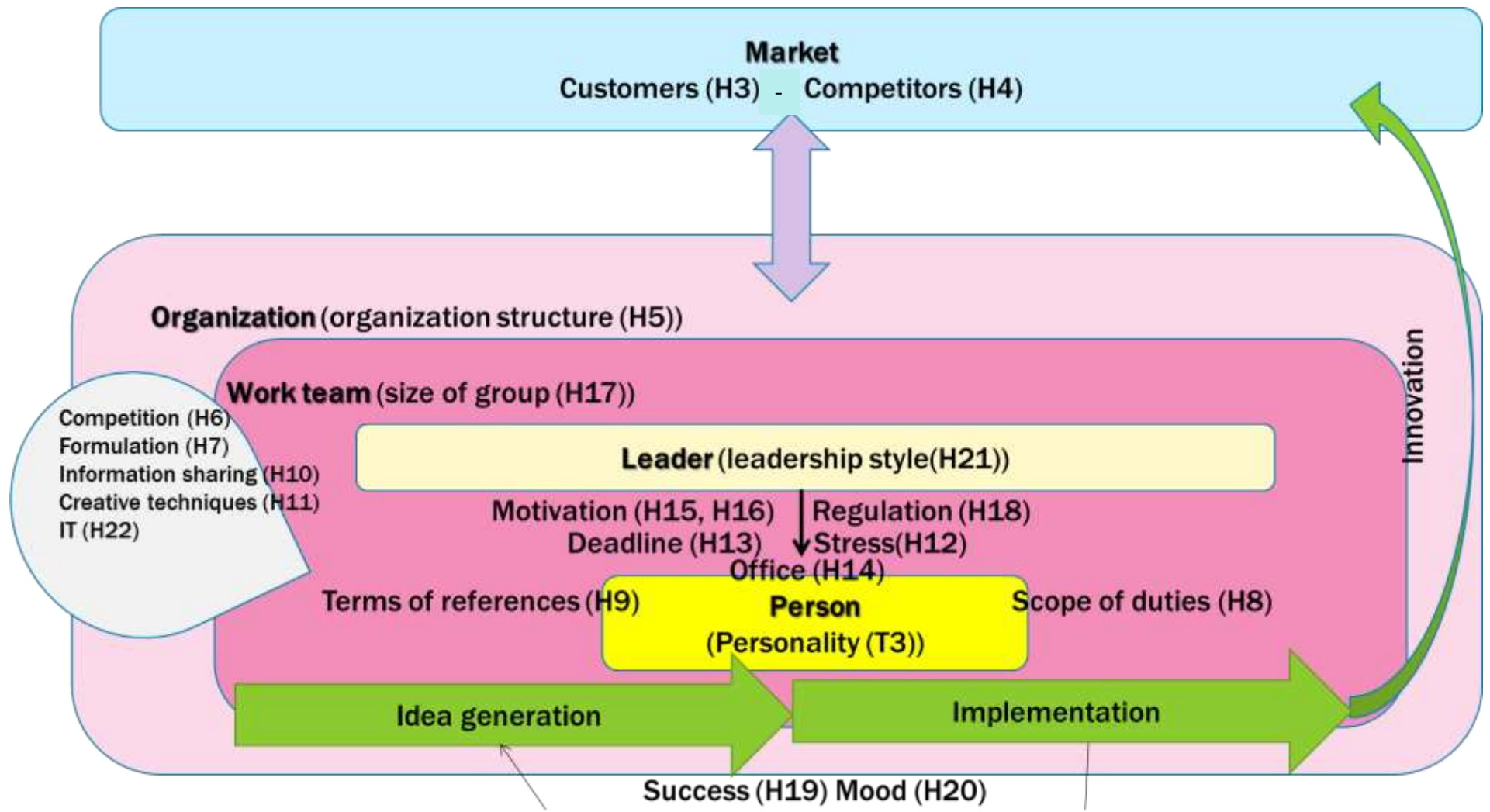


Figure 2: The model of organizational creativity
Source: *Own source*

2. The structure of the dissertation

In the *first chapter* we have analyzed the concept of creativity. We have separated creativity from innovation. The two concepts are related very closely and in our view creativity appears before the innovation process. The successful market implementation of creativity is an innovation. Although we have committed ourselves to the phase theory, the process of creativity itself can be broken into steps. The first step is often "forgotten" but creativity always starts with the acquisition of the necessary knowledge, so creativity is not the same as intelligence. It needs to be kept in mind that the process does not finish with the spectacular insight *aha*-experience, but the idea has to be elaborated and verified by the environment. This way it is not only a divergent problem-solving method, but it is more than what the measuring tests of divergent thinking can assess. Creativity in the organizational creativity is not the same as talent, nor the special *outstanding Big C Creativity* or the hobby level *mini c creativity*. In the case of an organizational creativity we meet with a *little c creativity*. However, since the levels of creativity are based on each other the transition between creativity and innovation can also be discovered here, radical innovations appear on the pro C level, which in turn would be inconceivable without the existence of a little c. On the higher levels of creativity the domain relevant type is increasingly prevalent. The organizational creativity is the ongoing form of creativity within organizational framework. Even if it can appear anywhere within the organization it is far from true that it is needed everywhere, one reason of this is that the qualification of the creative product is the responsibility of the environment and unfortunately the idea is not always good, useful or even ethical.

After defining creativity we have discussed what creativity actually is. We have put the myriad of definitions systematically into tables, but basically we have worked our way through along the classical 4P classification. We have also found results for the newly appearing fifth P, the persuasion and the commitment appeared among the definitions of our respondents as well. For the formulation of the working definition in addition to the literature, we have coded and analyzed the answer of hundred professionals (HR experts) with a content analyzing software. After this we went through the organizational creativity in the *second chapter*. In an unconventional way we did not start with the definition here either, but pointed out the *raison d'être* and the importance of the organizational creativity. The organizational creativity is a relatively new concept its origin can be connected to the result of social psychological creativity (Amabile 1996), when the focus has been extended from the Person to the Press effects. The first model and definition is connected to Woodman (1993) and his colleagues. Although the author, Amabile, who we analyzed a lot, works with the concept of organizational innovation, the term she uses rather specifies organizational creativity, than the classical organizational innovation described by OECD. Therefore we have devoted a whole subsection for the accurate separation of concepts. The classical 4P model can be discovered in the definitions of organizational creativity. Common workplace activities and the profit of innovation are the most important and we should see that they start with a little c creativity. The organizational place and the market approach of the target (result) clarify the general creativity to an organizational creativity. It is inherent in the definition that the organizational

creativity can be examined, keeping the P model in mind with the help of the component model. The impact of the person, the phases and the environment are all inherited in this and the innovation is the success of all of these. The componential theory that was originally related to the name of Amabile (1996) also dominates in the literature. We can also find models in the earlier works, the first theoretical model and the hypotheses which are based on this can be read in the work of Woodman, Sawyer and Griffin (1993). The levels and phases of creativity and those environmental elements that affect creativity in an organizational environment are included in the model. Amabile's whole scientific work is nothing but an examination of the creativity (we think that of the organizational creativity²), she also tested the model empirically; but the main focus was inside the person, mostly directed on motivation. However, Amabile perfectly systematizes the environmental effects coming from the organization that are influencing the process of creativity. Ford (1996) takes into an account that the creativity will not appear in habitual, familiar working processes. The institutional and market effects are also added to the environmental impacts in the authors work. Drazin Glynn and Kazanjian (1999) incorporate the time perspective into the model. The authors of the two latter models did not perform any empirical research. We find the introduction of time perception very important in the last model, but we did not add time as a variable to our model. In the international results we can find empirical studies mostly based on these models mainly focusing on different components. We did not choose a smaller task than we have created our own model and empirically tested it as well.

The analysis of the focus group discussions can be found in the *third chapter*. We have talked about the process of creativity in two parts (idea generation and implementation phase) and in addition to the processes taken place within the person we have focused on the environmental effects. In the *fourth chapter* in our own model in addition to the results of the literature research (and the classical Ps) those components are also involved that were revealed during the content analysis recorded during the focus group research.

In the *third chapter* before the analysis of the effects we had reviewed the international results which had investigated the components. We had started with (1) the aggregation of individual characteristics and integrated these features (in the form of self-assessment scale) into the final part of our questionnaire and compared them (using an MDS technique) with the environmental effects. The following features were included: (a) the personal psychological results describing the ideal creative person (b) the effects of the mood and the emotions, especially the humor and the game (c) and the relationship between the stress and the creativity, especially the time pressure (d) trainings (e) demographical characteristics, gender and age. Although we have analyzed these in an earlier chapter, the close relationship between the motivation and the creativity is also an individual-level characteristics. Mostly Amabile's works are focusing on the research of the intrinsic motivation, so we have presented this effect during the analysis of her model.

² The author herself does not use the term, but her results are classified to organizational creativity everywhere. One major reason is that the author did her empirical research in workplaces.

Then we moved on to (2) the relationship between the person and the work. Although in the literature we can mostly find evidence to prove in which job positions the creativity may and should take place, in this case we were mostly interested in that how does the characteristics and the scope of authority (and the knowledge of this scope) can affect the creativity regardless of the job position. According to our result the characteristics of the job may influence creativity, but it is more important if the employee is aware of the scope of his job position, of his responsibilities and of his authority. In this part we have briefly mentioned the relationship between creativity and ergonomics because we have assumed that the place of work also affects the organizational creativity.

In the third (3) part we went through the effects that occur within the work group and affect organizational creativity. First, we examined the effect of leadership style. There is a wide literature about the impact of management style on creativity. In our empirical analysis we had used the classical Lewini triple classification. The results lead to the conclusion that under a democratic leadership style a proper degree and form of information sharing is ensured. In this part we took a look at the effects of the working group on creativity. Amongst the characteristics of the working group we looked at the prevailing mood and the competition within the group and we discussed the information sharing as well. In the questionnaire study described in the *fifth chapter* we have ranked quantitatively the potential sources of information. The order confirms Ford's model, according to it the organizational creativity is not trapped within the organization, the critique of the partners and the customers is the second most important source of ideas. We found out from the articles of Judit Rimler (2005) that information technology can influence creativity. This can be described with numbers at two points. Our respondents marked the Internet as the most important source of inspiration and the introduction of IT innovations had a mild stimulant effect on creativity.

In the fourth (4) subsection we went through the following organizational characteristics: the impact of the organizational culture, creativity stimulating organizational structure and company size. The latter two are related on their own, since divisional disaggregation is not expected from a small business with a couple of people. Besides the organization's structural and hierarchical division the competition / rivalry within it is also important. We also discussed the literature analysis of informal relation effects, it is true that we did not make a social web inside the organization but we have looked at the effects of the organizational communication during our empirical research studies.

In line with Ford's model we have also studied the effects of external market relationships (5). The external market influences, like the knowledge of the competitors and of the customer base can be found in the fifth subsection. During our literature analysis we discussed the cultural influences as well (6), but we did not make practical cross-cultural comparisons. Our hypotheses were also grouped according to the above. Our empirical research studies were focusing on the opinion of current Hungarian workers, so in the *third chapter* we asked them in the form of focus group discussions.

The closure of the *fourth chapter* is our own theoretical model in which we have described the process of organizational creativity, its levels, actors and effecting components, keeping in mind the P classification of creativity.

In the third and the *fifth chapter* we have systematized our empirical research. We have used three types of research methods: (1) we got the concept of creativity by a software content analysis of one hundred professionals' definitions (2) the components and characteristics involved into our theoretical model have been systematized by a three focus group discussions (with annotation method) (3) finally we wrote down our theoretical model with numbers using questionnaire technique (survey). Thanks to our previous careful planning we could take our quantitative data in a representative sample. However the distribution of the sample did not prove normal in all cases so we have mostly worked with non-parametric tests. We put our theoretical model into three main hypotheses, in the first main hypotheses (T1) the process of organizational creativity has been proved, in the second main hypotheses (T2) we have tested the individual places, we gave their effects with stimulating, inhibiting and U-shaped relations. Since we have assumed that not all characteristics have influence on organizational creativity, we have only included those whose effects are proved (in a literature or in a related qualitative analysis), but we have found results even between the measured factors that can't be significantly proved. A number of factors took place in the mentioned T2 hypothesis that are grouped based on the literature review then we have tested the group with a help of principal theory analysis. In the third main hypothesis (T3) we have compared the relationship of the person and the press.

3. The research question and the hypotheses

3.1. Research question

Our main research question originates from the work definition of organizational creativity itself, our objective is the investigation of factors and influences effecting organizational creativity. We measure which factors' effect is perceived by the respondents (and of what direction, amount could this effect be attributed to a single attribute) regarding organizational creativity. Since the process of creativity can be divided into phases, we assume that the intensity of certain factors' effect differs depending on the phases. Our research specimen is the employee working within organizational frameworks, whose personality must be taken into consideration, so the factors influencing organizational creativity will be matched to personality traits characterizing the creative person.

Altogether our most important question can be approached from the classic 4Ps direction of creativity research:

- Environmental characteristics (Press): *Which organizational factors effect can be perceived regarding organizational creativity* (regarding the employee's perception of creativity)?
- Phases of creativity (Process): *Does the investigated factor's influence differ in the starting (idea generation) and concluding (realization) phases of creativity?*

- Personal characteristics (Person): *Will the present Hungarian creative employees and the workplaces enabling creativity find each other?*
- During the evaluation of creativity's result (Product), we only ranked the idea and the conditions required for its realization.

We further divided and complemented the main research question, but we proceeded primarily along three main hypotheses.

3.2. Hypotheses

The T1 main hypothesis refers to the phases of creativity. *We assumed that the effect of certain factors is of differing amounts, but of different directions in the measured two phases.* This main hypothesis is the combination of two subhypotheses from which the second was proved, that is, the effect of measured factors has the identical direction in both phases of creativity. The first hypothesis, for which we assumed a difference regarding the amount of the effect, was only significant in the case of four examined factors: (1) regarding the knowledge of customers, (2) considering the conscious regulation of creativity, (3) concerning the regulation within the organization and (4) regarding the number of instructions. We can declare that within these cases the measured factor influences idea generation to a different extent than its realization.

During the T2 main hypothesis, we examined those environmental factors influencing creativity, which on one hand were proved within scientific literature, on the other hand were crystallized during our focus group discussions. We categorized the hypotheses running from H3 to H22 into the second main hypothesis. We assume three kinds of correlations at the effects practiced on organizational creativity of measured components (a) stimulating, positive effects (b) inhibitory, negative effects (c) U shaped correlation. We divided the environmental effects into levels, we separated the market level, and after that we examined the group level within the organizational level, emphasizing the leader and the resources, turning toward work specific characteristics and the individual's level. The grouping was tested with the help of main component analysis. The hypotheses were summarized in the following table.

| Hypotheses | Research objective | Most significant scientific literature background³ | Was the hypothesis confirmed? (Accepted or Rejected) | Result |
|---|--|--|---|---|
| Market level | | | | |
| H3: The knowledge of customers stimulates creativity better. | External market (knowledge of customers) | Ford (1996) | yes | Positive effect |
| H4: The knowledge of competition stimulates creativity. | External market (knowledge of competition) | Ford (1996) | yes | Positive effect |
| Organization level | | | | |
| H5: Those organizations which are less hierarchic and are more flat stimulate creativity to a higher amount. | Organizational form | Damanpour and Aravind (2012) | yes | In the case of a flat, less hierarchic shape a positive effect |
| Group level | | | | |
| H6: Strong competition within an organization limits creativity. | Competition | Amabile (1996) | no (due to a definition error) | No clear data |
| H7: Strong regulation within the organization limits creativity. | Regulation | Amabile (1996) | yes | Negative effect |
| H15: The shape and direction of motivational tools influence creativity. | Motivation | Amabile (1997) | yes | Depending on the shape and direction (positive effect in case of positive moral and material tools) |
| H17: The size of direct work group influences creativity. | Group | Damanpour and Aravind (2012) | yes | U shape correlation (the effect of a smaller 5-10 person group is positive) |
| H18: The increasing number of instructions limits creativity. | Number of Tasks (formulation) | Amabile (1996) | yes | Negative effect |
| H19: The feeling of joint success increases creativity. | Mood, joint success | Amabile (1996) | yes | Positive effect |
| H20: The mood within the work group has an effect concerning the birth of creative ideas and their realization. | Mood | Amabile and Kramer (2011) | yes | Depending on the mood (the effect of friendly, confidential mood is positive) |

³ Results of scientific literature related to certain factors were elaborated in detail and exhaustively in the dissertation, here we only highlighted the names of the most important authors.

| Leader | | | | |
|--|----------------------------------|--|---|---|
| H21: The style of the direct leader has an influence on creativity. | Leadership style | Amabile et al. (2004) | yes | Depending on leadership style (positive in the case of democratic style) |
| Resources | | | | |
| H10: The form of information sharing influences creativity. | Sharing of Information | Zhou (2008) | yes | Positive effect depending on the form in the case of discussions, meetings and primarily formal two way communication |
| H22: Where they better work toward the introduction of IT innovations, there will be a stimulating effect on creativity. | IT, as a resource | Rimler (2005) | yes | Positive effect |
| Work characteristics | | | | |
| H8: The clear knowledge of responsibilities stimulates creativity. | Scope of duties | Oldham and Baer (2012) | yes | Positive effect |
| H9: A clear scope of authorities helps creativity. | Authority Terms of references | Oldham and Baer (2012) | yes | Positive effect |
| H14: The location of workplace has an effect on creativity. | Workplace location | Kao (1999) | yes | Positive depending on location, in the case of a personal closed office or of work performed from home |
| Person / Individual | | | | |
| H11: The conscious stimulation of creativity increases creativity. | Trainings | Talbot (1993), Sternberg and Lubart (2007) | yes | Positive effect, the effect of brainstorming and PR tools are the strongest |
| H12: Stress limits the creation and realization of creative ideas. | Stress | Amabile (2002) | yes | U shape correlation |
| H13: A stricter deadline limits creativity to a higher extent. | Time pressure (stressor) | Paletz (2012) | partially (only related to the first phase) | U shape correlation |
| H16: The more customized the respondents feel the applied motivational tools, the more their creativity is stimulated. | Intrinsic motivation | Amabile (2007) | yes | Positive effect |

Table 1: The summary of T2's subhypotheses
Source: *Own source*

In T3 main hypothesis we examined the relation of the individual and the environment. We assumed that *creative individuals would choose such a workplace where the space is insured for their creativity*. In this hypothesis we found a statistically proved tight correlation.

We didn't formulate a separate hypothesis *regarding the result of creativity (product)*, but we performed exploratory investigations here as well. We asked the target group to arrange the possible idea sources into series. In the first place the Internet was indicated; afterwards external market information and directly the suggestions of employees working in the field were chosen. We inquired that with a new idea, what is the basis for the judgment of its utility, and scientific proof and personal conviction were marked as first. Similarly, personal characteristics were prevailing, when we asked the respondents to rank the conditions required for the realization of the idea. Determination and perseverance preceded the capital conditions.

Altogether we can gain a picture about *what kind is the ideal environment stimulating ideal creativity and the creative colleagues working in it*.

Characteristic of the organization:

- the organization is imbued with a transparent, flat, less hierarchic or friendly, confidential mood
- the size of work groups is average, they are characterized by non-isolated lonely employees and not too big groups (team work)
- they ensure private personal space (enclosed office) and there is a possibility for work performed at home
- they seek to implement IT innovations and to consciously stimulate creativity
- there are rules and deadlines, which can be complied with and followed
- competence-based (customized) and emphatically positive motivational tools are applied
- discussions are frequent and are characterized by a two-way communication
- the feeling of joint success and joint work within the group are present.
- Unfortunately, it was statistically proved that the proportion of non-creative companies is higher in the government sector than in the competitive sector.
- The environment of creative companies is much more eventful, competitors are present and their employees know the market.

Characteristic of employees:

- the employees know the market (both the company's customers and the competition)
- the colleagues are aware of their tasks and of their related responsibilities
- they share information between each other, this way the competition within the group is not typical,
- they are aware of the joint success,
- unequivocal, two way, open communication is characteristic and the employees receive a achievable amount of instructions from their leaders who primarily follow a democratic leadership style
- they feel the amount of stress motivating, since they are still able to handle its level.
- In the case of employees we couldn't show unequivocal significant differences regarding creative and non-creative employees.

During the investigation of T3 main hypothesis it was proved that the above two find each other since the chance of finding a creative employee on a creative workplace is twice as high, than finding a non-creative individual.

4. Methodology

As the first major problem was the definition of the main definitions, we have started with *qualitative analysis*. In order to refine the definition of creativity we have asked 111 HR experts to define creativity. The survey was conducted online in a self-fill form. After cleaning the answers we have systematized and then coded them with three⁴ different techniques. In this paper we have processed an automatical and an interpretation based open coding results. For this research we have used NVivo 1.9 *content analysis software*, so following the factor analysis, we were able to handle the most important terms together using dendograms. Another qualitative technique, the focus group discussion helped us to clarify those workplace and work-related characteristics which effect on creativity is perceived by the respondents. The *focus group discussions* were conducted in two stages, during the selection of the respondents we attempted to create an appropriate target group (using a filter questionnaire). During the interview we have used special projection techniques; the analysis was performed with text mining (NVivo 9.1) and with memo writing method. The qualitative method helped us to use an appropriate language in the questionnaire. The query of the questionnaire has been done after an extensive testing in an online pilot format. The *sample selection* has been done by a quota; from 629 responses we could process 572. We have extended the target group to all of Hungary, but we did not segment the sample by regions. The sample represents the present Hungarian labor market in most aspects, it was only under-

⁴ As only the open coding can be connected to this research, the results of the closed coding can be found in the study of Derecskei, Nagy, Zoltayné (2011) listed between the publications.

or over-represented in a few aspects (for example: a division by age or educational attainment). Here however, there was only a very minor difference or the given variable was not significant for the purpose of the research so no correction weights were applied. We have analyzed the resulting data in two ways: (1). Our descriptive statistical data indicate the working place of the subjects, thus illustrating the typical Hungarian working environment. (2). By analyzing the relationships between the variables we get an explanation for the logical connections of the underlying phenomenon. Since the data did not show a normal distribution during hypothesis testing we did non parametric tests (Kruskal – Wallis and Mann - Whitney) and for the stochastic connections we mostly used Gamma index. We have compressed the characteristics within the T2 using principal component analysis. Since we have used a five-step differential scale after the data transformation we plotted the results on a radar chart or on a histogram for an easier illustration and in the case of an MDS in a two dimensional coordinate system. For the analysis we used MSEXcel version 2007 and IBM SPSS version 19.

5. Results

Our answers given to the research question can be summarized within the following. The first question was:

Which organizational factors' (Place) effects do the respondents perceive regarding the organizational creativity (regarding the employee's perceptions of creativity)?

Following the scientific literature analyses and focus group discussions, we numeralized all in all 20 effects.

| Characteristics/Effect | Stimulates | Inhibits | U shaped correlation |
|--|--|---|--|
| Individual and work (Amabile's theory) | <ul style="list-style-type: none"> – unequivocal knowledge of responsibilities and authorities (H8 and H9) – personal workspace (H14) – customized motivation (H16) – the conscious stimulation of creativity (H11) | | <ul style="list-style-type: none"> – The amount of stress (H12) – deadlines* (H13) |
| Group (Woodman model) | <ul style="list-style-type: none"> – two-way communication (H10) – feeling of joint success (H19) – friendly, confidential mood (H20) – democratic leadership style (H21) – IT innovations (H22) – positive motivation (H15) | <ul style="list-style-type: none"> – competition within the group* (H6) – excessive regulation (H7) | <ul style="list-style-type: none"> – Group size (H18) |
| Organization (Woodman model) | <ul style="list-style-type: none"> – flat organizational size (H5) | <ul style="list-style-type: none"> – hierarchic organizational form* (H5) | |
| Market (Ford's theory) | <ul style="list-style-type: none"> – the knowledge of customers and competition (H3 and H4) | | |

* Non-significant statistical correlation ($p = 0,05$)

Table 2: The summary of factors influencing organizational creativity
Source: *Own source*

The second question related to the phases of creativity (Process): *Does the effect of the examined factor differ within the starting (idea generation) and final (realization) phases of creativity?* Each respondent's characteristic effect is of identical direction in both phases, but only in four cases did we find statistically proved variations in the amount of phases depending on the given phases. These were the following: (1) at those who know the customer base, the effect exercised on the creativity of customer knowledge is stronger in the phase of idea generating (2) excessive regulation within the organization limits realization to a higher extent than ideas (3) techniques stimulating creativity have a stronger influence at the birth of ideas (4) the high number of instructions is stronger during the realization phase.

We inquired about individual characteristics in the third case (Person): *Do nowadays Hungarian creative employees and workplaces offering space for creativity find each other?* In this case we could not solve the problem of the chicken-or-the-egg, but with the help of the MDS technique we complied individual characteristics with workplace characteristics in this way we could map out the creative individual and the creative workplace and the relation between them. On the basis of our results the chance that a creative employee would work in a creative workplace rather than a non-creative employee is two and a half times higher.

During the evaluation of creativity's result (Product) we ranked the possible sources of ideas and all those conditions which are necessary for the creation of the idea or its realization. On the basis of these, Ford's extended model was justified, since next to the Internet, external market relations and internal communication are the most frequent sources of ideas. An idea can become successful if it associates with individual commitment as well (according to Amabile's and Simonton's theory) and is also proved by professional perspectives. In the series of resources necessary for realization, material conditions were pushed back to fourth position. The respondents judged perseverance and proper communication more important than the capital.

Certain subchapters can be categorized around a single issue. Here we go through in certain chapters for which question and what kind of answers do we receive

1. The concept definition of creativity used by economic experts

What is creativity?

The work definition chosen by us is the complementation of the frequently used Sternberg, Lubart (2007) type definition. According to this creativity is an ability whose results are the unique new idea or ideas independently created for the arising problems.

In what kind of form do we use it in the territory of economic sciences?

The research of creativity used in psychology rather focuses on capital letter creativity (identifiable with genius - talent), while the concept used in organizational creativity is directed on everyday (not hobby level) creativity. In both cases the direction of research is extended to the direction describable with 4 (or 5) Ps. Out of these we focused on the 3 P (and to the newly introduced 5th P), as on the process of organizational creativity (process), the characteristics of individual creativity (person) and the environmental

effects (press), along with confidence and commitment (persuasion). The result of creativity (product) and its evaluation were pushed forward to the innovation part.

How can we delimit this definition from the surrounding partner definitions (like innovation, intelligence, talent, etc.)?

In psychology the separation of creativity and intelligence is emphatic; especially the differentiation between these two territories is what leads to the research of creativity. In economic sciences it is more significant that creativity should be separated from the concept of innovation. We did this with a detailed literary analysis and we categorized ourselves only among those we designated as phase theoretical viewpoints, that is, we identified creativity as a preceding rather than a compulsory step prior to innovation.

2. The concept of organizational creativity

What organizational creativity exactly is?

Organizational creativity is the extension of the above general (used by economic experts) creativity concept (or of its specification) within organizational frameworks. That is, here the problem can be related to the work, and the solution can not only appear on the individual level, and it is significantly influenced by the effects arriving from the organizational environment. To us, organizational creativity is no more than a new and valuable (useful) idea which is the result of a joint effort, accomplished with regard the problems arising during the work, considering the influential factors and the summary of their effects. In the definition, the result of creativity (product) was also included, but here we were thinking about the idea and not the product innovated for the final market.

Where and how can it be used?

The much emphasized significance of innovation is indisputable; nevertheless we think that in the step prior to the innovation, a lot depends on the environment, how it stimulates the individual and how it accepts the birth of new ideas. Of course, it is an important question and the problem is shown in many innovation research studies that mostly due to the lack of sources are why innovation is falling behind in Hungary. But according to us the main problem is rooted in a much earlier phase, because organizational culture and leadership style frequently kills or rarefies the ideas and in lack of useful, good ideas the innovation process cannot even start. Regarding the innovation we understand not only the radical changes, but all those innovations which are useful and help the advancement from the perspective of the work. This way organizational creativity (whose result can be organizational innovation as well) similarly to organizational innovation may appear and have an effect in any territory of the organization.

3. Environmental factors influencing organizational creativity

Which are those organizational environmental factors that influence creativity? An effect of which direction is presumable? In which phase of the creativity do they play a role?

Most studies investigating organizational creativity focus on a single component or on its effect. A relatively low number of such studies were created which handles the whole model or investigates it empirically as well, beyond the modeling. But in the case of organizational creativity we must consider the phases of creativity too, and the characteristics within the individual must be complemented by the nature of the work, group characteristics, with organizational and external market influences as well. The direction of these effects cannot be always clearly given (stimulating or inhibiting, linear) because for example in case of stressors we have to calculate a U shaped or inverted U shaped (changing depending on the perceived quantity of the stressor) effect.

4. The situation in Hungary

Do Hungarian employees experience the presence and significance of creativity in the organization? By which environmental factors and from what direction do they feel their creativity influenced by?

The qualitative studies help in focusing on what and how to ask. In the absence of national results, in the first round we were curious about the underlying attitudes, correlations. Here, it was proved that the process of creativity has to be divided to phases: after its birth, the idea is separated from its realization; and regarding the internal individual characteristics sometimes external organizational characteristics have a bigger influence on workplace creativity. Following the focus group discussions, we summarized those attributes whose influence exercised on creativity are perceived by the respondents. We may separate the following levels: (1) individual characteristics (2) work characteristics (3) group characteristics, here leadership behavior and motivation system have emphasized roles (4) organizational characteristics (5) market characteristics. We have quantified the perceived direction and amount of the effects during the questionnaire survey.

5. The proportion and rate of all these in Hungary

The effect of which factors influencing organizational creativity can be considered significant in Hungary? Of what direction and amount do the respondents evaluate the factors influencing creativity? In which phase are these effects significant?

It is difficult to answer this quite complex question shortly, since the answers form a large part of the thesis. Our models give a shortened answer which can be seen on Figure 1. Here we treated the organization on several levels and divided the organizational creativity manifesting within it into phases. We condensed all those environmental (and to a small part factors within the individual) factors into our model and later into the questionnaire as well, which can have an effect on organizational creativity and are describable with a straight, reverse or U shaped curve. We gave a summarizing table in

Table 1 and 2 about the numerical components. Here can be seen those results which assign the amount and direction of the effects. During our empirical research studies we sought to achieve a representative sample and accomplished this successfully from many perspectives, so we can gain a picture about all those present Hungarian workforce market characteristics which can be related to organizational creativity. Unfortunately, we face negative experiences in many places, but it can be said that most of the respondents, considering at least one perspective, (given their effect as positive or negative) perceive the organizational level presence of creativity. During the questionnaire survey, we returned to the questions posed in the previous point and ranked the possible sources of ideas or those factors which can be influential regarding the birth and realization of the idea. Here it was also proved that organizational creativity cannot be handled in an isolated way, the Internet and the criticisms of foreign market have an overwhelming idea source strength. It is interesting that individual characteristics have overwritten the effect of organizational factors in the phase of idea realization. While during the birth of the idea the environmental effects were more significant, at the realization individual characteristics (the above 5th P) came to the first place (not to mention that environmental effects are not to be neglected!).

Are the creative employees and the creative workplace able to find each other?

With the help of the MDS technique we examined the correlations between individual and organizational characteristics, the obtained results corresponding with the contents of the scientific literature. With the scaling of organizational factors the attributes (significant variations) of the creative and non-creative company took shape. In the case of individual characteristics we did not succeed in separating the factors characterizing the two groups so sharply. On the basis of comparing the individual and the organizational factors, it can be said that a creative individual can be found rather than a non-creative individual in a creative workplace twice as probable.

6. Conclusion

Besides that, we have written the dissertation with the required demanding scientific care, it was also our goal that the obtained results provide a useful assistance to practitioners as well. The practical benefits of the organizational creativity have been proved in our last main hypothesis (T3), as we have seen creative jobs and creative employees occur together. Not pushing the chicken-and-egg problem now, we have to admit that the presence of creativity is experienced in an appropriate (organizational) environment. The company's management team has to be aware of the conditions that make up a supportive press. In addition they have to be aware with the personality characteristics of creativity so this way they can achieve the desired effect during the selection of the staff and during future encouragements. In addition, this research paints a general picture about the companies (due to the descriptive statistics based on a large number of those filling the answers) also the market knowledge can provide a clearer picture to the leaders about their staff. During the analysis of the concept of creativity we have mentioned that unfortunately the result or the process of creativity is not always ethical. Here we again call an attention to the fact that although we think leaders

should be creative, but not at any price. Even if the target group's opinion was that the rules hold back creativity, some degree of regulation is needed. Only by knowing these can we avoid harmful creativity.

We have mentioned in several places that we could find only a small number of Hungarian materials linked to the subject. We have tried to process and organize all of the (highly relevant) international literature and to evaluate the organizational creativity with different methods on high numbered representative sample that reflects today's realistic Hungarian economy. So we hope that this detailed work will fill in the gap in the list of the Hungarian materials.

7. Limitation

It became visible that we will have to change the excipients of empirical studies in the future. The changes could improve the quality of the answers and could lead to more accurate statistical results, but at the same time in longitudinal comparisons attention has to be paid to all changes. We asked a huge number of questions from our respondents, among which questions there were more complex and there were overlaps as well. This way the respondents got very tired and were bored of the great deal of clicking, which lead to many neutral answers, too. The application of a five grade scale seemed to be logical, it facilitates and makes the completion more understandable, but at the same time it makes evaluation more difficult. Analysis caused a problem in many places due to the application of complex questions, in such case it is difficult to see to which characteristics the answer can be connected. We have also found a definition problem as well when our key variable (competition or rivalry) is not properly defined, so the results are not unequivocal either. In the future the effect of multicollinearity has to be eliminated, too, since in the case of simultaneously influencing factors it occurred that by extinguishing each other's effect, they covered the actually existing significant correlations. From another point of view the high number of neutral answers justifies Ford's theory, according to which there is no need space or possibility for creativity everywhere. This way during the future studies, the habitual (mostly operative) tasks have to be separated from new challenges. In the knowledge of all these we can start or rather we can continue our studies in the future.

The gradually appearing scientific literature's results may lead us to see clearly not only the given components but the correlations between them. The application of a multiform empirical methodology also helps to achieve this. As we have already written, one of the thesis' future extension can be the further statistical analysis of the results recorded so far during which we examine the stochastic relations existing between the running components of the second main hypothesis, examining the issue of multicollinearity as well. In this way with different kinds of path method analyses the outlined model could be refined. However, the proof of the pudding is in the eating. Basically, the results resting on the introspections of the respondents could be tested according to a well planned experimental design on a well chosen sample in the form of laboratory experiments.

The extension of research studies in space and time would offer a possibility for us to test the applied guides and questionnaire as well. Of course, prior to the comparison we must correct the experienced mistakes. Longitudinal studies (the time-series investigations of results recorded in given points of time) would help us to introduce the time perspective which has been already outlined on a theoretical plain in Drazin, Glynn and Kazanjian's (1999) model. The spatial extension of the studies could offer possibility to intercultural comparisons described in the theoretical part. We think that it would be worth to preserve the curve of the research, but according to our experience a study applying such detailed and multiple methodologies is a task which requires a lot of time, instrument and manpower. Similarly to CIS research studies measuring companies' innovations, we would conceptualize a light questionnaire which would measure the key components in shorter time periods and we would leave a longer time span between the full (covering the full research process) surveys.

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