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CREATIVITY AND INNOVATIVENESS IN PUBLIC SECTOR

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Abstract
There are many factors that influence the community performance. In order to sustain competitive advantage and to increase performance, a community needs to offer high-quality products at low cost. Many firms have responded to these competitive demands by being innovative. The main objective of this paper is to better understand the innovation process and social capital in “knowledge era”. The paper specifies some competencies and values and their relationship with social interactions at work, job security and the sector where they work. We also recognized the differences between the private and the public sector.

Keywords: Public/private sector, innovativeness, autonomy,
Topic Group: Knowledge Management

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Introduction
Structures of organizational resources have shifted from material to intangible assets during the last two decades. Economists (Augier and Teece, 2005) claim that “knowledge” and “intellectual capital” are two vital and intangible assets that help organizations to create value and wealth. Drucker (1993) asserted that human knowledge leads to innovation and to “Knowledge Society.” Lin and Edvinsson (2011) also stated that “Knowledge society” is incredibly accelerating the economic and social development.

The economy is relying on knowledge-based activities much more than ever before. There are at least three, interrelated, main arguments for this: 1) the proportion of labor that handles tangible goods has become smaller than the proportion engaged in the production, distribution and processing of knowledge; 2) the share of codified knowledge and

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information in the value of many products and services is significantly increasing; 3) knowledge-intensive activities are rapidly growing (Laster, Cassiolato and Maciel, 2004). Entrepreneurial orientation which involves long-term development guidelines and vision, mission, work with customers and setting up new capacities is important. Realizing the vision of entrepreneurs can be related to knowledge creation (Cui, Zheng, 2007).

The recognition that innovation extends beyond formal R&D activities, in its turn, emphasizes the importance of also taking into account: continuous improvement in product design and quality; changes in organization and management routines; and creativity in marketing and modifications to production processes that reduce costs, increase efficiency and ensure environmental sustainability (Laster, Cassiolato and Maciel, 2004). Mytelka and Farinelli propose that innovation should then be understood as ‘the process by which firms master and implement the design and production of goods and services that are new to them, irrespective of whether or not they are new to their competitors – domestic or foreign’.

The paper is organized as follows. Firstly it introduces the reader to some basic elements and concepts that are central to understanding the approach. The main objective is to provide greater understanding of the approach as a flexible and useful conceptual framework for innovation analysis in wider society. We investigate a potential link or the impact of several factors (competition, social interaction at work, sector of employment) to the level of innovation and empirically verify the accuracy of the theoretical set of hypotheses.

**Research background and hypotheses**

Ensuring the economy’s continuing prosperity and improving productivity is a priority of government’s executives (Karchegani, Sofian and Amin, 2013). Human capital is the most important asset. Human capital includes anything associated with the people within the community. It includes elements such as employees’ tacit knowledge, skills, experience and their attitude (Bontis and Serenko, 2009). It can be seen as a primary tool for an organization to learn by influencing the ability to acquire new knowledge (Kang and Snell, 2009). Social capital has an important role in exchanging information and creating new knowledge. Social capital is a set of mostly informal institutions (social habits and norms) which affect the levels of trust, interaction and learning in a social system and cannot be accumulated in a straightforward way (Johnson and Lundvall, 1994). They suggest that social capital, together with learning processes, is the key to development strategies. Thus ‘social
capital’ is the fabric on which the complex web of human creativity and innovative capacity can develop (Johnson and Lundvall, 1994). The generation and use of knowledge and the reduction of social inequalities become connected and reciprocally indispensable. The necessary strategies will depend on the capacity for technological and social innovation – in a country, a region, a community (Laster, Cassiolato and Maciel, 2004).

Ensuring the economy’s continuing prosperity and improving productivity is a priority of government’s executives. These objectives can be met by encouraging innovation among business community (Karchegani, Sofian and Amin, 2013). In the beginning of the 21st century, studies have frequently been conducted on organizational innovation with respect to economics, strategic management, human-resource management and marketing fields. Rose, Shipp, Lal and Stone (2009) noted that innovation has been recognized as an important driver of economic growth and normally enables the organizations to offer better quality products and services at lower prices. The system of innovation may be thought of as a set of factors such as firms, other organizations and institutions that interact in the generation, diffusion and the use of new and commonly useful knowledge in the product and the process (Fischer, 2001).

Creativity and innovation are inevitably linked to entrepreneurship. Entrepreneurship is creating and building something of value from practically nothing (Timmons, 1994). Our argument in this paper is that creativity is the genesis of entrepreneurial activity (Meyer, 1999).Csikszentmihali (1996) defines creativity as both a complex social process and an individual activity. In the first instance, his research points out that creativity “arises from the synergy of many sources and not from the mind of a single person.” But the environment and context of creativity can either unleash or stifle individual creativity. Thus, changing environmental contexts and problem solving structures can either enhance or truncate individual and group creativity (Csikszentmihali, 1996). Entrepreneurial attitudes and behaviours are critical for new ventures to facilitate the utilization of new and existing knowledge to discover market opportunities (Wiklund, Shepherd, 2003).

Innovativeness is defined as a successful generation, development and implementation of new and novel ideas, which introduce new products, processes and/or strategies to a company or enhance current products, processes and/or strategies leading to commercial success and possible marketing leadership and the creation of value for shareholders, driving economic growth and improving the standard of living (Katz, 2007). Innovations include the integration process of creative knowledge. The
innovation process involves a series of stages from the idea of the invention, through the presentation of the product/service development, production and conquest of use. Grant (1996), Spender (1996) and Teece (2000) observed the correlation between innovation and creating knowledge through the collection and its use in the enterprise.

Knowledge and innovation are widely considered as a key prerequisite for achieving organizational competitiveness and sustained long-term wealth in an increasingly volatile business environment (Esterhuizen, Schutte and Toit, 2011). Organization learning correlates with entrepreneurial orientation (Vidic, 2013), improves the innovation process and its effectiveness (Huang and Wang, 2011) and competitive advantage (Barsh, 2007).

Innovation occurs through the interaction between people. We investigated factors that influence the innovation process in the public as well as in the private sector. The purpose of the study was to determine whether there are statistically significant differences between public and private sectors towards the innovation process, in the context of organizational culture that encourages innovation: social interactions at work, involvement in introducing innovations and job security.

Hypothesis 1: There is a statistically significant positive correlation between the level of innovation in organization and social interactions at work.
Hypothesis 2: There is a statistically significant positive correlation among involvement in the introduction of innovations in the organization and the competencies achieved.
Hypothesis 3: There is a statistically significant negative correlation between job security and innovation involvement.
Hypothesis 4: There are statistically significant differences depending on the degree of innovativeness between different professional groups within the public sector.

Research design and methods
A method of data processing. The data was obtained with the help of a questionnaire. We used descriptive methods, factor and correlation analysis and analysis of variance, Tukey test and Cronbach coefficient to process the collected data.
Any statistically significant conclusions were accepted at 5 % level of risk.

Sample selection and data collection
A sample framework was graduates who finished their studies in Slovenia in 2002/2003. We used data from 1351 respondents (441 men and 905 women). The age structure is: 503 respondents are younger than 30, 609 are between 31 and 40 years old, 188 are between 41 and 50 years old, 51 respondents are over 50 years old. Most of them (811) work in a public sector, 37 respondents are employed in the private non-profit sector, and 476 in the private sector. According to their profession, the most dominant members of the group are professors, lecturers at secondary schools and primary school teachers (382), managers (347), engineers and architects (282), doctors (132), officials in public administration (106) and lawyers (103).

The questionnaire study (HEGESCO project, 2009) used a standard questionnaire of 11 sets of questions; 1) Study program in which you graduated in 2002/2003; 2) Other education and related experience; 3) Transition from study to work; 4) First job after graduation; 5) Employment history and current situation; 6) Current work; 7) Work organization; 8) Competencies and knowledge management; 9) Evaluation of the study program; 10) Values and orientation; 11) About yourself; From the point of view of this research paper we chose several questions mainly from the next two sets of question: Competencies and knowledge management; Values and orientation. The respondents were asked to what extent they agree with the statements above. They had to assess their agreement on a seven and five-point Likert scale. Competencies were measured by the seven-point scale, where 1 means "very low" and 7 means "very high" from the aspect of own level and required level in current work. Values and orientation were measured from the importance and applied to the current work view. Likert scale five-point was used where 1 means "not at all" and 5 means "very important".

**Analysis and results**

The survey was conducted at the University of Ljubljana. The data from returned questionnaires was first entered into the database at UL and then a descriptive analysis was performed using the statistical software package Statistical Analyses Software (SAS).

As we examine creativity and innovation through the achieved level of competence in terms of sector of work, we have studied the particular factors that are specific to the public sector, such as greater job security, lack of involvement in innovation and lack of innovative thinking with the search for new ideas because of precise determination and predictability of procedures which is known for organizations in the public sector. In examining the collaborative climate in the public sector as a prerequisite
for knowledge management, Sveiby (2000) found out that the public sector employees are rated at a lower collaborative climate than employees in the private sector. Lack of innovation, finding new ideas, greater job security and lack of competition are factors that we have selected for the research according to the classical model of bureaucratic organization (Weber) and the criticism of it. Results of the research tell us that, for example, job security is the reason why employees in the public sector are less involved in innovation, and whether the ability to search for new ideas varies with employees according to the sector of their work. By researching the mutual interdependence of the variables we wish to demonstrate that the reason for lower innovation achieved competencies and creative and innovative thinking is not located in the sector of work. We believe that the key to greater activation of tacit knowledge is in the proper management of the organization.

Nonaka and Takeuchi (1995) believe that the main mode of transmission of tacit knowledge is communication - social interaction at work. In terms of organization, we therefore examined innovation and social interaction, and their interactions, as well as the relationship between social interactions and employee satisfaction - which also means upgrading the research by authors such as Granovetter (1973), Nonaka and Takeuchi (1995). We also examined whether there are differences in the extent of social interactions according to the sector of work. These differences could also explain the lower level of innovation organization.

On the other side, we studied the interaction between the competencies and the existence of market competition and job security in the public sector. Selected factors are those that represent a significant difference compared to the private sector. From the perspective of "generally known" differences between the public and private sectors, we also examined the interconnectedness between sectors of work and the following variables: the ability of new ideas among employees, innovation and the extent of social interaction.

Therefore, only those variables that are specific to the public sector were excluded from an extensive questionnaire and compared to the ones in the private sector. We used factor analysis from the set of Knowledge management and competencies and got 3 types of competencies. We will focus only on one type of competency, which is relevant for our research - business competencies. Business competencies have been named those competencies which are in the business world important for successful work.
First, we want to disclose the business competencies between the observed variables in the set of Competencies and Knowledge Management in the questionnaire. The data used for the purposes of the survey were willing to factor analysis. The results of the factor analysis (the expected competencies) are as follows on Table 1.

Table 1: Factor analysis of competences

<table>
<thead>
<tr>
<th>Business competencies</th>
<th>Mastery and analytical competencies</th>
<th>Multicultural competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery of your own field or discipline</td>
<td>.</td>
<td>0.56311</td>
</tr>
<tr>
<td>Knowledge of other fields or disciplines</td>
<td>.</td>
<td>0.45701</td>
</tr>
<tr>
<td>Analytical thinking</td>
<td>.</td>
<td>0.65260</td>
</tr>
<tr>
<td>Ability to rapidly acquire new knowledge</td>
<td>.</td>
<td>0.74974</td>
</tr>
<tr>
<td>Ability to negotiate effectively</td>
<td>0.39453</td>
<td>.</td>
</tr>
<tr>
<td>Ability to perform well under pressure</td>
<td>0.47054</td>
<td>.</td>
</tr>
<tr>
<td>Alertness to new opportunities</td>
<td>0.43216</td>
<td>.</td>
</tr>
<tr>
<td>Ability to coordinate activities</td>
<td>0.62410</td>
<td>.</td>
</tr>
<tr>
<td>Ability to use time efficiently</td>
<td>0.56421</td>
<td>.</td>
</tr>
<tr>
<td>Ability to work productively with others</td>
<td>0.61261</td>
<td>.</td>
</tr>
<tr>
<td>Ability to mobilize capacities of others</td>
<td>0.74963</td>
<td>.</td>
</tr>
<tr>
<td>Ability to make your meaning clear to others</td>
<td>0.69667</td>
<td>.</td>
</tr>
<tr>
<td>Ability to assert your authority</td>
<td>0.74771</td>
<td>.</td>
</tr>
<tr>
<td>Ability to use computers and the Internet</td>
<td>.</td>
<td>0.65889</td>
</tr>
<tr>
<td>Ability to come up with new ideas and</td>
<td>.</td>
<td>0.57658</td>
</tr>
</tbody>
</table>
Based on a large number of observed variables, among which there is a positive correlation the following business competencies factor was determined (Cronbach's alpha coefficient = 0.88). We used this correlation between selected variables to test hypothesis.

**Descriptive analysis**

Table 2: Descriptive analysis of business competencies, social interactions, level of innovation, involvement in introducing innovation, job security.

<table>
<thead>
<tr>
<th>Carried variable</th>
<th>N</th>
<th>Avg.</th>
<th>Std. dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business competencies (actual)</td>
<td>1282</td>
<td>5.37</td>
<td>0.80</td>
<td>2.18</td>
<td>7.0</td>
</tr>
<tr>
<td>Business competencies (expected)</td>
<td>1275</td>
<td>5.49</td>
<td>0.98</td>
<td>1.27</td>
<td>7.0</td>
</tr>
</tbody>
</table>
The results of the relationship between the level of innovation in an organization in the field of products and services and social interactions at work (Table 3)

Table 3: Relationship between the level of innovation and social interactions at work

| Level of innovation | Social interaction at work | p>|.025 |
|---------------------|---------------------------|------|
| Social interaction at work | 0.06 | |
| Social interaction at work | p>.025 | |

The results of the relationship between involvement in innovation in the organization and achieved competencies (Table 4).

Table 4: Relationship between involvement in innovation in the organization and achieved competencies

<table>
<thead>
<tr>
<th>Business competence (actual)</th>
<th>Involvement in introducing innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement in introducing innovation</td>
<td>-0.03</td>
</tr>
</tbody>
</table>

Results show a significant negative relationship between job security and involvement in innovation:

Table 5: Relationship between job security and involvement in innovation

<table>
<thead>
<tr>
<th>Job security</th>
<th>Involvement in introducing innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement in introducing innovation</td>
<td>0.00802</td>
</tr>
</tbody>
</table>

Tukey’s test. Tukey's test compares the means of every treatment to the means of every other treatment; that is, it applies simultaneously to the set of all pair wise comparisons

\[ \mu_i - \mu_j \]
and identifies any difference between two means that is greater than the expected standard error. The confidence coefficient for the set, when all sample sizes are equal, is exactly $1 - \alpha$. For unequal sample sizes, the confidence coefficient is greater than $1 - \alpha$. In other words, the Tukey method is conservative when there is unequal sample size.

There are statistically significant differences by sector of work in the innovation organizations in the field of products and services ($F=22.66$, $p<.0001$). Where there are statistically significant differences, Tukey's test has also been used, which showed exactly which sectors or between which groups those differences actually exist. Test stems from the fact that the higher the number of groups (sectors) is, the difference between the two extreme samples is greater than the lesser, if the difference at a given $\alpha$ is proved. In this case $\alpha$ is 0.05. Tukey's test showed that there were statistically significant differences between the private non-profit and public sectors (1.221) and between private profit and public sectors (0.730).

### Table 5: Differences by sector of work in the innovation organizations in the field

<table>
<thead>
<tr>
<th></th>
<th>Avg.</th>
<th>Std.</th>
<th>Stat. significant differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Public</td>
<td>3.0756</td>
<td>1.2389</td>
<td>1-2, 1-3</td>
</tr>
<tr>
<td>2 Private N</td>
<td>3.765</td>
<td>0.9230</td>
<td></td>
</tr>
<tr>
<td>3 Private P</td>
<td>3.6237</td>
<td>1.098</td>
<td></td>
</tr>
<tr>
<td>4 Other</td>
<td>3.624</td>
<td>1.014</td>
<td></td>
</tr>
</tbody>
</table>

**Verification of hypotheses**

**Hypothesis 1:** There is a statistically significant positive correlation between the level of innovation in an organization in the field of products and services and social interactions at work. Based on the results obtained, the hypothesis is rejected. This means that the level of innovation in an organization in the field of products and services is not statistically significantly associated with social interactions at work in the organization. And vice versa - the extent of social interactions at work is not related to the achievement of innovation in an organization in the field of products and services. The importance of social interaction is associated with the process of knowledge transfer within the organization. A greater extent of social interaction does not imply a higher level of innovation organization. Even though it is recognized that social interactions have an important role in the activation and transfer of
tacit knowledge, we cannot confirm the relationship between social interaction and innovation because of reported slight statistical significance

**Hypothesis 2**: There is a statistically significant positive correlation among involvement in the introduction of innovations in the organization and competencies achieved. The hypothesis cannot be completely accepted because it relates to the integration of involvement in introducing innovation and achieved business competencies. It may be noted that the inclusion of introducing innovation is not related to the degree of achievement of competences, as well as to achieve competence does not affect the inclusion of introducing innovation. Involvement in the introduction of innovations in the organization does not necessarily mean achieved higher competences - the level of involvement in the introduction of innovations depends on the functioning of the organization and opinions, how much innovation is at all necessary for the successful operation of the organization.

**Hypothesis 3**: There is a statistically significant negative correlation between job security and involvement in innovation. This hypothesis is rejected because the results obtained showed no statistical significant relationship, which confirms that the inclusion of introducing innovations associated with employment security as well as job security is not associated with involvement in innovation. This means that the mere job security does not affect the integration of employee innovation.

**Hypothesis 4**: There are statistically significant differences by sector of work in the innovation organizations in the field of products and services. When examining this hypothesis, we worked according to the sector to determine whether there are statistically significant differences in the level of innovation organizations in the field of products and services. In the innovation organizations in the field of products and services there exists (F=22.66, p=< .0001) statistically significant differences by sector of work.

The hypothesis can be accepted in such extent that it relates to innovation organizations in the field of products and services and the differences between the public and the private sector and between the public sector and the private profit sector. We note that, given the presence of competition, the need for activation of tacit knowledge and transfer of knowledge occurred in the service of public sector organizations. However, the financing of the state public sector organizations that provide function services and protection in the case of inadequate management. Therefore, it is necessary to stimulate the
activation of knowledge and innovation organizations in this part of the public sector. According to our results we have found that there are statistically significant differences in the degree of innovation. The lowest estimated level of innovation was found at a group of officers, while teachers and doctors reach a higher level of innovation. Depending on the performance features that teachers and doctors require adaptation to day-to-day challenges.

**Discussion and conclusion**

In this study we examined the factors that have an impact on innovation in the organization following the existing professional literature. In doing so, we found that the extent of social interaction isn't associated with a significant degree of innovation. This means that simply by increasing the amount of social interaction we will not achieve higher levels of innovation, but should be more substantive to changes in the nature (or concrete organizational measures). It is, however, required to considerate: social interaction and even in social networks are, in our opinion significantly associated with the innovation process in organization, which concretely means that with the increasing volume of social interactions we increase the knowledge transfer between employees.

By studying the differences between occupational groups within the public sector, as well as the correlation of specific professional groups from the private sector, we have confirmed significant differences in the following factors: degree of innovation, the extent of social interaction and achieved competency.

Factors that are particularly characteristic for the public sector and distinguish the public sector from the private, are, according to the existing literature, job security, involvement in innovation, degree of innovation. We came to the conclusion, that these factors are not central to the issue of creativity and innovation management in organizations. The key factor is appropriate management which enables and encourages creativity and innovation in organization.

This leads us to the important conclusion that it is most important to train the management to encourage creativity and innovation among the employees and in the organization. We have to realize that the higher level of creativity and innovation in the public sector can lead to the development of organization, higher quality and streamlining organization. We point out the importance of an entrepreneurial mindset that we also need to take in the service of the public sector. We have focused on factors following existing literature, factors according to
which the private sector differs from the public sector in the field of innovation. According to the analysis of the research it can be concluded that the most important factor affecting innovation in public sector organizations is the appropriate management. Encouraging innovation in public sector organizations can also mean greater efficiency – for organizations and for the state, and therefore this should be a strategic direction of governance for managers of public organizations to gain adequate leadership skills that encourage innovation.

**Resources**


Chou, S. W., & He, M. Y. (2004). Knowledge management: the distinctive role of knowledge


