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THE ROLE OF LEADERSHIP IN DEVELOPING INNOVATIVE POTENTIAL

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Abstract

The purpose of this paper is to develop and analyze the relationship between leadership practices and conceptual innovation. Based on theoretical framework the three hypotheses have been formulated, concerning the links between creativity and innovation, knowledge sharing by a leader and innovation and trust in a leader and innovation in organization. Based on a qualitative method a questionnaire has been conducted. The data has been analyzed using t-test and one-way analysis on variance ANOVA to verify the hypothesized relations. The results of the study indicate the leadership practices that are associated with conceptual innovation.

Keywords: leadership, innovation, trust, creativity, knowledge sharing

1. Introduction

In a constantly changing economy innovation is a crucial factor facilitating economic growth. Innovation is linked with higher productivity and in effect with better performance. Additionally, innovation is a core element that helps to overcome contemporary challenges that enterprises are facing today (OECD report, 2007). By introducing new solutions such as information technologies (IT) organizations are strengthening their competitive advantage (Braha, Qineti, Serenčéš 2015; Feraru 2017; Beaver, Prince, 2002; Brem, Maier, Wimschneider, 2016). Implementation of innovative approach is a necessary condition that allows contemporary enterprises to survive (Rodrigues, Pedro, Carlos, 2010). IT branch, as a highly technological one, is especially inclined to rapid technological and market changes. Therefore, the understanding of the process strengthening innovation in IT organizations seems to be of considerable value.

Much research indicates the importance of the role of leadership in terms of improving organizational innovation (Tung, Yu, 2016; Ikeda, Marshall, Okamura, 2016; Einhaus, 2000). The literature review argues that innovative leaders influence innovation (Bossink, 2004; Lesáková, Gundová, Kráľ, Ondrušová 2017; Chen, Huang, Lin, 2017; Minh, Badir, Quang, Afsar, 2017). However, various leadership aspects have been described in different contexts.

Some important aspects facilitating innovation have been identified as: creativity (Heunks, 1998; Dahlgaard, Dahlgaard, 2009; Amabile, Pratt, 2016; Lehikoinen, Lundh, Meert, Waeingnier, Bentsen, Norbye, 2018), knowledge sharing (Lin, 2007; Liao, Fei, Chen 2007; Spencer 2003, Wang, Wang, 2012; Sáenz, Aramburu, Rivera, 2009; Kamaşak, Bulutlar, 2010)

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and trust (Clegg, Unsworth a Epitropaki, Parker, 2002; Fawcett, Jones, Fawcett 2012). Moreover, so far they have been considered separately. Combining those elements of organizational practices allows to build the consistent approach towards leadership practices that increase the companies' innovative potential. Consequently, this paper analyses the impact which creativity, knowledge sharing and trust in the leader has on the organization's ability to implement innovation. The prime objective of this research is to examine which factors of leadership: creativity, knowledge sharing and trust (independent variables) affect organizational innovation (dependent variable). The main purpose of this study is to verify which leadership practices are connected with conceptual innovation.

This paper is organized as follows: firstly, the research context and literature analysis; the second part describes the method including sampling and results; and finally the conclusions.

2. Research context

The IT sector is changing very fast with all new solutions being introduced on a daily basis. Therefore, it is an excellent branch to analyze innovation. The role of innovation is a crucial aspect of achieving competitive advantage (Mundra, Gulati, Vashisth, 2011). This role of innovation in the IT sector has been confirmed (Chen, 2004; James 2011). The IT companies are operating using various solutions and experimenting with new technologies aiming at accelerating their innovative potential and maintaining position on the market (Ye, Kankanhalli 2018). Furthermore, there is a constant necessity of modernization and improvement (Héroux, Fortin 2018). The links between innovation in IT and the company's performance have been acknowledged (Huang, Liu, 2005; Johannessen, 1994). Additionally, research indicates the importance of leadership in enabling organizational innovation in IT branch (Tung, Yu 2016). In Poland, the average real growth of IT sector has been one of the highest (between 2006 and 2014) among the EU countries (Mas, Fernández de Guevara, Robledo, López-Cobo, 2017). Hence the IT sector in Poland has been selected to examine the association between leadership and innovation.

2.1. Conceptual framework

The study addresses the issue of understanding the role of leadership in improving organizational innovative potential. Innovative leaders are creative change agents (Murphy, Murphy, 2002) who establish goals and develop a supportive atmosphere and promoting creative teams (Hunter, Cushenbery, 2011). Leadership is a crucial element in facilitating organizational cooperation and supporting innovation (Schork, 2018; Coetsee, Flood, Kilroy 2016; Hsiao, Chang, 2011; Warner, 2018; Muenjohn, McMurray, 2017). Understanding and merging the key factors affecting organizational innovation helps to develop a consistent approach towards strengthening those areas in enterprises. Based on the literature review the three dimensions that have been selected to the study are: knowledge sharing, creativity and trust. It is hard to study innovation without taking under consideration knowledge or creativity. Additionally, trust is a significant factor that enables openness among members of a given organization. All the mentioned conditions manifested themselves in organizational leadership. The role of leadership in facilitating

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innovation has been already acknowledged (Cook, 2016). However, since the innovation is vital for succeeding in a highly competitive environment such as the IT sector, the precise understanding which leadership practices are strengthening innovation require further analysis.

2.2. Innovation

Innovation has been widely analyzed as a major and one of the most important conditions that influence organizational performance (Tien, Cheng, 2017). Definitions of innovation confirm that this is a process that introduces a new way of doing things in an organization (Baregheh, Rowley, Sambrook, (2009). Innovation is about change and creation of a new outcome based on novel path and strategies (Correia de Sousa, 2006). Innovation means implementing a new condition (product, service, system, device, etc.) to the organization (Damanpour, 1992). Additionally, it can be understood as an application of significantly changed creation (Gault, 2018). There are three main areas of organizational innovation: management practice (leadership), production and external relation (Mothe, Thi, 2010). In this study the definition of innovation agrees that innovation is a process which organizes procedures focused on solving the work-related tasks by using new strategies. The novelty factor means achieving untypical and unconventional results. Innovation is a complex phenomenon, which concerns not only a company's services and products, but also the way it is operating (Loewe, Chen, 2007). A holistic approach toward innovation ensures deeper comprehension of the idea of innovation in a business enterprise.

There are number of ways of categorizing innovation. Several different factors have been selected: processes, products, positions, paradigms (Bessant Tidd, 2007), products, services, process (Oke, Burke, Myers,2007), products, processes, marketing, practices, workplace organizations and relations (OECD/Eurostat, 2005) or products, production, marketing/communication or organizational innovation (Gault, 2015). The acknowledged taxonomy describing dimensions of innovation, designed by Windrum (2008), consists of several types of innovation: services, service delivery, administrative or organizational, conceptual, policy innovation and systemic innovation.

Conceptual innovation has been defined as challenging the existing assumption concerning products or services in operation (Windrum, 2008). Therefore, conceptual innovation is a general idea that refers to the number of new concepts generated in a given organization. This approach, as an exemplification of a general indicator of innovation, will be used in this study.

Innovation is described as a new idea adding value to the company (de Sousa, 2006; Spanò, Allini, Caldarelli, Zampella, 2017). Understanding innovation as an adaptation of new pathways of dealing with organizational challenges allows one to establish innovation indicators based on the amount of new processes in a given company. In academic research, the distinction between high and low innovation is based on the difference whether some novel concept has been adopted or something has merely been improved (Baregheh, Rowley, Sambrook, Davies, 2012).

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In this study the number of new ideas developed in an organization have been used as an indicator that enables comparison of the level of organizational innovation.

2.3.Creativity and innovation

Creativity can be defined as an ingredient of innovation (Ghosh, 2015). Creativity is a necessary condition of innovation. The main difference refers to the fact that innovation implies added value and successful implementation (Shalley, Perry-Smith ,2008). Creativity itself is a necessary condition that triggers innovation. Creative employees are an essential foundation for organizational innovation (Oldham, G.R., Cummings 1996; Gumusluoglu, Ilsev 2009).

The concept of creativity and its relationship with innovation have been present in some academic studies (Byrne, Mumford, Barrett, Vessey, 2009; Duan, Liu, Che, 2018; Abdelrahman, ALZawati, 2017). Yet its nature and particular analysis have to be established. The important aspect in examining leadership and creativity is the distinction between a situation where the leader is creative him/herself and a situation where a leader is just developing the creativity nurturing environment. The question is whether the creative leader increases innovation or whether a leader who organizes a supportive and creative-friendly environment facilitates innovation. Hence, the two hypothesis have been considered:

H1a: There is a relationship between creativity of a leader and organizational innovation

H1b: There is a relationship between facilitating creativity by a leader and organizational innovation

2.4. Knowledge sharing

Knowledge management is another factor amplifying organizational innovation (Landry, Amara, 2001; Nonaka, Takeuchi, 1995; Collins, Smith, 2006; Armbrecht, Chapas, Chappelow, Farris, Friga, Hartz, McIlvaine, Postle, Whitwell, 2001; Lin, 2006; Block, 2012). Especially knowledge sharing has been confirmed as an intermediary that enhances innovative potential (Coppolino, Abbate, 2012). The transfer of knowledge contributes to the improvement of organizational processes (Lichtenthaler, 2005). Consequently, it has been implied that knowledge sharing is a critical aspect of innovation (Sheehan 2016; Verona, Prandelli, Sawhney, 2006). The modern paradigm of achieving competitive advantage in the knowledge-based economy is to share the knowledge rather than to protect it (Aho, Uden, 2014). Research indicates various aspects/factors influencing the willingness to share knowledge among employees. The supportive leadership is linked with the positive attitude to knowledge sharing (Taylor, Wright, 2004; MacNeil, 2004). The encouragement from management to share the knowledge is an important factor to develop a knowledge sharing culture (Lin, Lee, 2004). The previous studies suggest that leadership can enhance the willingness to share knowledge (Carmeli, Atwater, Levi, 2010; Wickramasinghe, Widyaratne, 2012). After studying the literature it seems that examination of the impact of the leader's tendencies to share knowledge has on organizational innovation requires additional verification. Moreover, the leader's attitude to knowledge sharing

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and its consequences for innovation have yet to be established. Thus the study suggest the following hypothesis:

H2: There is a relationship between knowledge sharing by a leader and organizational innovation

2.5. Trust

Research evidence point out that trust is an important facilitator to knowledge sharing and thus innovation (Chowdhury, 2005; Lin, Hung, Chen, 2009). Furthermore, the successful implementation of innovation depends on an intraorganizational trust (Kolleck, Bormann 2014). Additionally, trust has been identified as a condition that plays an important role in strengthening innovative potential (Zhang, Zhao, Lyles, 2018; Kulangara, Jackson, Prater, 2016; Dovey, 2009; Ellonen, Blomqvist, Puumalainen, 2008). The leader is responsible for maintaining the empowering condition that amplifies innovation (Ceserani, 2014). Considering trust as a core foundation for innovation, the leadership practices in this aspect need to be analyzed. Thus, the following hypothesis is suggested:

H3: There is a relationship between trust in a leader and organizational innovation

3. Research Method

3.1. Sampling

This study is based on a result from empirical research aimed at measuring the relation between the organizational level of conceptual innovation and various aspects of leadership. The list of the best IT companies operating in Poland (Computerworld TOP200, 2013) listing 302 enterprises has been used as a sample frame. The research data was collected using a questionnaire. The surveys were distributed to respondents by the author. The introduction to the questionnaire explains the purpose of the research. Confidentiality was guaranteed to the participants. The questionnaire covered 92 employees of IT organizations from the sample frame. Data were entered and coded in Excel. The profile of examined organizations is presented in table 1.

Table 1. Respondents' profile

Criteria	Total	%
gender		
female	27	29,35%
male	65	70,65%

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Total	92	100,00%
The size of company		
1-9 emloyees	11	11,96%
10-49 employees	33	35,87%
50-250 employees	26	28,26%
more than 250 employees	22	23,91%
Total	92	100,00%
Location/ Region		
Dolnośląskie	5	5,43%
Kujawsko-Pomorskie	4	4,35%
Małopolskie	7	7,61%
Mazowieckie	51	55,43%
Podkarpackie	12	13,04%
Podlaskie	3	3,26%
Pomorskie	1	1,09%
Śląskie	3	3,26%
Wielkopolskie	6	6,52%
Total	92	100,00%

Source: author

3.2. Measure

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The conceptualization of this research has been organized as follows: the dependable variable is innovation, and the independent variables are: knowledge sharing by a leader, creativity and trust.

Table 2. Research conceptualization.

Variable		**Dimension of variable**	**Research questions**	**Theoretical framework**
Dependent variable	1. innovation	Conceptual innovation	RQ: Are leadership practices related with organizational innovation (OI)?	Cook, 2016; Schork, 2018; Coetsee, Flood, Kilroy 2016; Hsiao, Chang, 2011; Warner, 2018; Muenjohn, McMurray, 2017, Tung, Yu 2016
Independent variable	2. creativity	2. creativity of a leader 2.b facilitating creativity by a leader	RQ1a. Is there a relationship between creativity of a leader and OI? RQ 1b. Is there a relationship between facilitating creativity by a leader and OI?	Oldham, G.R., Cummings 1996; Gumusluoglu, Ilsev 2009; yrne, Mumford, Barrett, Vessey, 2009; Duan, Liu, Che, 2018; Abdelrahman, ALZawati, 2017
	3. knowledge sharing	knowledge sharing by a leader	RQ 2. Is there a relationship between knowledge sharing by a leader and OI?	Aho, Uden, 2014; Sheehan 2016; Verona, Prandelli, Sawhney, 2006;
	4. trust	trusting a leader	RQ 3. Is there a relationship between trust in a leader and OI?	Zhang, Zhao, Lyles, 2018; Kulangara, Jackson, Prater, 2016; Dovey, 2009; Ellonen, Blomqvist, Puumalainen, 2008

Source: author

In order to measure the conceptual innovation of an organization as well as independent variables (creativity, knowledge sharing and trust), the respondents were asked to evaluate the

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statements referring to the level of new ideas generated in their company, trust, knowledge sharing and creativity. The questionnaire used 5-point Likert scale (where were used for expressing 1- strongly disagree and 5- strongly agree).

3.3.Results

In order to verify the research hypothesis the analysis using t-test and a one-way between subjects ANOVA using *Bonferroni correction (Armstrong, 2014) were conducted. All results were organized depending on the Innovation level. There were three groups: low, medium and high levels of innovation.*

H1a: There is a relationship between creativity of a leader and organizational innovation

In order to test the H1a hypothesis the Pearson correlation and ANOVA analysis were conducted. However, that test did not demonstrate the statistically significant relations between creativity of a leader and organizational innovation.

H1b: There is a relationship between facilitating creativity by a leader and organizational innovation

Aiming at verifying the H1b hypothesis the series of tests have been carried out. The descriptive statistics for low, medium and high level of facilitating creativity by a leader are presented in the table 3. The low level of leader supporting creative was associated with the lowest average innovation (M=3,71). The group where a leader was facilitating creativity at high level was characterized by higher innovation (M=4,1).

Table 3. Descriptive statistics of a Leader facilitating creativity.

Innovation	N	M	SD	Skew	Kurtosis
low level	27	3,52	0,84	-0,09	-0,28
medium level	33	3,79	0,64	-1,26	2,51
high level	32	4,10	0,71	-0,15	-0,97

Variance comparison test confirms that there was a significant effect of the leader encouragement to be creative on the organizational innovation at the $p<.05$ level for the three conditions [$f(2, 89)= 4,41$, $p=0.01$]. The companies where the leader supports creativity have higher innovation than these where the leader does not foster creativity.

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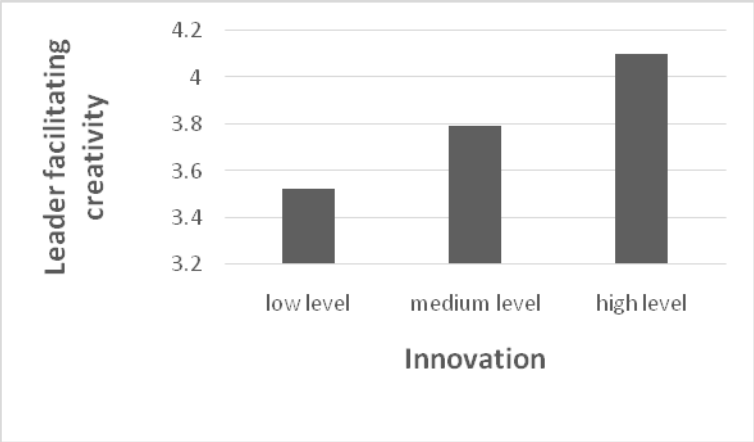

Figure 1. The innovation depending on leader facilitating creativity.

*Additionally, post hoc comparisons based on the t Test with Bonferroni correction show that t*here was a significant differentiation in the results for low level of leader's creativity facilitation (M=3,52, SD=0,84) and high levels of creativity facilitating leader (M=4,10, SD= 0,71) in the condition of innovation; t (56) = -2,71, p=0,004. The tests confirmed that there is a statistically significant difference between the group where leader is supporting creativity at the low and high level in terms of innovation.

These organizations, characterized by high level of creativity encouraging practices, have a higher degree of innovation. Summarizing, the analysis supports the assumption that leadership practices facilitating creativity increase the conceptual innovation in the examined IT organizations.

H2: There is a relationship between knowledge sharing by a leader and organizational innovation

The next step was to verify the dependence of innovation on knowledge sharing by a leader. To assess the level of knowledge sharing by a leader the responses have been organized in 3 main categories: low, medium and high level of knowledge sharing based on respondent answers.

The descriptive statistics are described in the table 4.

Table 4. Descriptive statistics of a variable: Knowledge sharing

Innovation	N	M	SD	Skew	Kutosis
low level	27	3,62	0,74	-0,48	0,25

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medium level	33	3,87	0,73	-0,78	1,20
high level	32	4,06	0,71	-0,09	-0,94

It is noticeable that in the organizations where leader has a low level of knowledge sharing the average innovation is lower (M=3,62) in comparison to those companies where the leader promotes knowledge sharing at a high level (M=4,06)

A one-way between subjects ANOVA was conducted to compare the effect of knowledge sharing leader on innovation. Variance analysis compare the situation when there is low, medium and high level of knowledge sharing. There was a significant effect of knowledge sharing by a leader on innovation at the p<.05 level for the three conditions [F(2, 89) =3,09, p = 0,08].

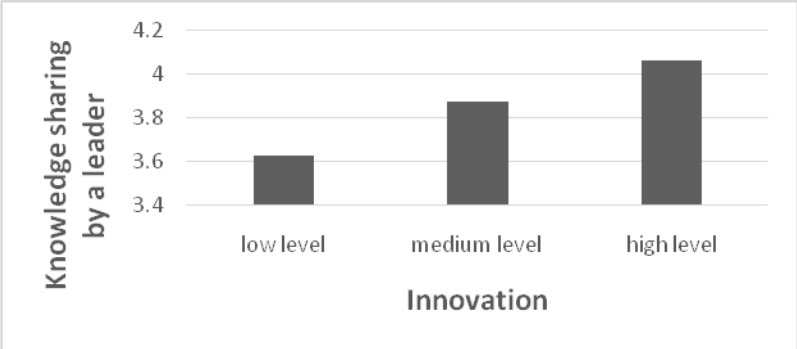

Figure 2. *The innovation depending on* the level of knowledge sharing by a leader

Organizations where leaders shared knowledge at a high level were distinguished by a higher innovation.

Multiply t-test *with Bonferroni correction* confirms these significant differences. *Post hoc t Test indicated that there* was a significant difference in the scores for Iow level of knowledge sharing by a leader m (3,62), sd (0,74) and high level of knowledge sharing by a leader (m 4,06) sd (0,71) in relation to innovation; *t (57) = -2,27 , p=0,01*.

Taken together, these results suggest that high levels of knowledge sharing by a leader do have an effect on organizational innovation.

H3: There is a relationship between trusting a leader and an organizational innovation

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The last part of the results focused on the relation between trust and innovation.

The descriptive statistics illustrate (table 5) the distinction between different levels of innovation depending on trust in a leader.

Table 5. descriptive statistics of Trust in a Leader

Innovation	N	M	SD	Skew	Kutosis
low level	27	3,42	0,95	-0,07	-0,82
medium level	33	3,63	0,83	-0,60	-0,05
high level	32	3,94	0,76	-0,36	0,03

The low level of innovation was associated with lower level of trust in a leader (M=3,42) in comparison to high level of innovation with a higher trust in leader (M=3,94).

A one-way between subjects Anova carried out to compare the effect that trust in a leader has on innovation. The analysis of variance confirmed that there are links between the level of trust toward the leader and innovation at the $p<.05$ level for the three conditions [$f(2, 88)=3,20$, $p=0.04$].

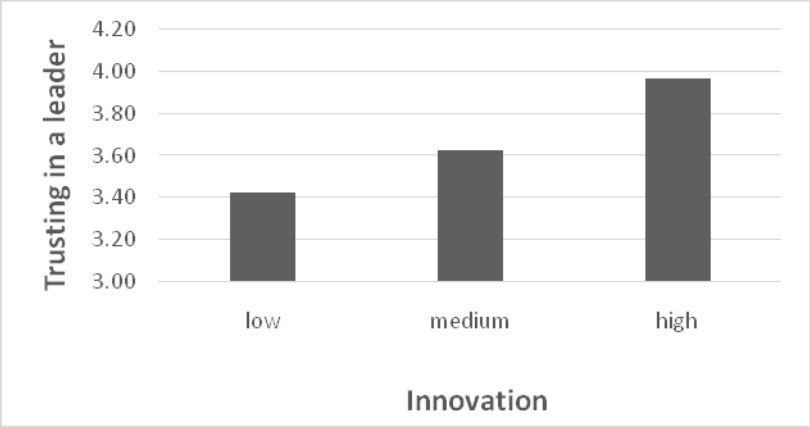

Figure 3. *The innovation depending on trust in a leader.*

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In organizations where a leader was not trusted, the degree of overall innovation was lower in comparison to those where employees trusted a leader.

*Further post hoc comparisons using the t Test with Bonferroni with a*djusted alpha levels of .0125 per test (standard 0,05 alpha divided by number of tests: 4)

confirm these results. The t-test correction indicates that the high and low degree of trust in a leader significantly distinct the innovation level t(48)=-2,38, p=001. *The low degree of trust in a leader (M=3,77, SD=0,80) and high degree of trust toward supervisor (M=4,1, SD=0,78) vary the level of innovation. This findings support the hypothesis that innovation is related to the trust towards a leader.*

In conclusion, the described findings indicate that there is a significant relationship between leadership practices and innovation. The hypothesized relation between leadership aspects affecting the degree of conceptual innovation has been confirmed. The study established links between leadership and innovation. Table 3 illustrates the results of conducted verification.

Table 3. The result of research analysis.

	Hypotheses	**The result of a verification**
H1a	There is a relationship between creativity of a leader and organizational innovation	**denied**
H1b	There is a relationship between facilitating creativity by a leader and organizational innovation	**confirmed**
H2	There is a relationship between knowledge sharing by a leader and organizational innovation	**confirmed**
H3	There is a relationship between trust in a leader and an organizational innovation	**confirmed**

The outcomes reveal that leadership practices can improve organizational innovation. Knowledge sharing practices performed by a leader lead to higher innovation. Additionally, the trust towards a leader is an important condition that impacts conceptual innovation. Moreover, creativity is a significant aspect affecting innovation. The study implies that a leader does not have to be creative her/himself, but in order to strengthen innovation should facilitate creativity among their subordinates. Conceptual innovation in the examined organizations results from

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certain leadership practices. It appears that the trustworthiness of a leader, her/his willingness to share knowledge as well as support and encouragement for creativity are the basis for innovation.

4. Conclusions

This study analyses the core aspects that relate to leadership and influence on innovation. The paper answered the research question and verified the mutual dependence between innovation and leadership in IT organizations. Considering leadership practices as a significant aspect of strengthening innovation, the discussed study provides some applicable conclusions. Firstly, the tests confirmed the relationship between creativity, knowledge sharing, trust and innovation. Secondly, this paper integrates various leadership practices and examines their association with organizational innovation. It combines the approaches toward leaders' behaviour that fosters innovation and provides guidance for business practitioners. Thirdly, it states that innovation depends on leadership. These results are consistent with the findings of numerous scholars (von Stamm, 2009; Bel, 2010)

In conclusion the leadership practices that support conceptual innovation in the examined IT organizations are:

1. Facilitating creativity by encouraging new ideas and out of the box thinking

2. Enhancing knowledge transfer in a team by sharing knowledge by a leader

3. Developing the sense of trust in the organization and becoming trusted by subordinates.

These results could be used by managers to nurture the innovation-oriented approach.

Finally, these findings indicate that particular practices do amplify innovation and as such can be used as activators that trigger desired employee attitudes. Trusted leaders that share knowledge and support creativity stimulate innovation in organizations.

5. Discussion

Even though the presented results indicate some interesting points, one has to recognize the limitation of the study. The first is related to the innovation measurement. Choosing only one aspect allows the proper focus; however, further empirical research would be useful to analyze other types of innovation. Additionally, perspective research should be conducted in different sectors.

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