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The impact of organizational trust on innovativeness at the Tehran oil refinery company

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Innovation and innovativeness have become critical issues in sustaining competitive advantage, especially in large and mature organizations. Firms can not survive without being able continuously to renew and innovate. Despite the lack of researches on the role of trust in organizational innovativeness, many studies support the assumption that high levels of trust have a positive effect on the effectiveness and quality of organizational knowledge sharing and innovativeness. Hence, this paper aims to analyze the effects of the dimensions of organizational trust on organizational innovativeness in Tehran Oil Refinery Company (TORC). Quantitative analysis is based on a survey of 15 organizational units and 210 respondents within TORC. Research findings imply that the impersonal form in particular, namely institutional trust, has an important role in determining organizational innovativeness.

Key words: Organizational trust, innovativeness, lateral trust, vertical trust, institutional trust.

INTRODUCTION

An organization's ability to innovate is recognized as one of the determinant factors for it to survive and succeed (Wang and Ahmed, 2004) and also competitive advantage (Wagner and Hansen, 2005). Schumpeter (1942) contends that firms act and react in the business environment, and in this context of action and reaction, competitive advantage is constantly created and destroyed in a continuing process of "creative destruction". Accordingly, constant innovation is necessary to maintain a competitive advantage (Wagner and Hansen, 2005). Post-industrial organizations today are knowledge-based organizations and their success and survival depend on creativity, innovation, discovery and innovativeness (Martins and Terblanche, 2003). Constant innovation allows a company to meet consumers' needs better, stay ahead of the competition, capitalize on strategic market opportunities, align organizational strengths with market opportunities (Wagner and Hansen, 2005) and have a positive influence on business performance (Panayides, 2006). A company that establishes an effective creativity and innovation process is also likely to realize the social

benefits that arise from team working and employees' motivation (McAdam and McClelland, 2002).

It seems one of the key factors that can help organizational innovativeness is employees' trust to managers as well as trust among organizational members. According to Ruppel and Harrington (2000), less monitoring and defensive behavior by managers and more employees' enthusiasm for innovation are believed to be the underlying mechanisms by which trust influences innovation. Organizational trust is important for successful socialization, cooperation and effective team-working and in the long run help to minimize risks and to decrease operating costs. In addition, trust provides a foundation for social order and contributes to improved quality of life (Lämsä and Pučėtėitė, 2006). The costs of low trust, on the contrary, can be high because of people's low commitment and unwillingness to cooperate, risks for their misbehavior, poor work quality and the need for control. Hence, low-trust societies and organizations lose opportunities to gain competitiveness in the global market (Pučėtėitė and Lämsä, 2008). Trust has also been identified as a critical factor in leadership effectiveness, employee satisfaction, commitment and performance. Furthermore, intra-organizational trust has become important in many firms where labor conflicts and

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downsizing might have resulted in decreased level of trust both between employees and in leader-employee relationships (Ellonen et al., 2008). Murphy (2002) proposes that a firm's level of innovativeness is associated with the trust strategies utilized and relied upon by the persons managing it. Trust is an important binding and bridging mechanism in social relations that facilitates information exchange and collective knowledge creation, and, trust may be associated with different forms of innovation.

Above all, a comprehensive understanding of the effect of trust on innovativeness would be valuable. Hence, with the aim of investigating relationship between dimensions of organizational trust and innovativeness, this paper attempts to answer this question: what is the relationship between organizational trust and innovativeness within TROC?

Literature review

Organizational trust

Trust is a concept that has received attention in several different areas of social science literature such as psychology, sociology, political science, economics, anthropology, history, and sociobiology (Ratnasingham, 1998). Despite the vast amount of writings on trust and its related concepts, no formal definition is evident. Barber (1983), for instance, argues that the concept of trust has become a "confusing pot-pourri" and Lewis and Weigert (1985) similarly found a "conceptual confusion" in the literature on trust (Ramo, 2004). Whilst trust is a concept in everyday colloquial use, it has proved notoriously difficult to define in the organizational literature (Connell and Mannion, 2006). Indeed, trust is a complex concept with a variety of dimensions. Despite the difficulty in defining the concept of trust, a comprehensive analysis of the literature reveals some consensus. Many researchers posit that trust is general confidence and optimism in occurring events or believing in others in the absence of compelling reasons to disbelieve (Smith and Birney, 2005). Doney and Cannon (1997) define trust as the perceived credibility and benevolence of the trustee (Yee and Yeung, 2002).

Kramer (1999) argued that trust conceptualization can be placed into two broad perspectives. The first perspective conceptualizes trust as a psychological state, highlighting concerns over uncertainty, vulnerability and risk. The second perspective presents trust as a choice that is either calculative and rational or social and relationally based (Gill, 2007).

Research indicates that as trust increases, social complexity in organizations falls. Moreover, trust increases strategic flexibility and supports greater organizational adaptability. Hence, levels of trust among organizational members assist in determining the effectiveness of

collective action at both interpersonal and institutional levels (Smith and Birney, 2005). Whilst trust is difficult and time-intensive to create, it can be easily and quickly destroyed. Thus, the building of intra – and inter-organizational trust requires broad relational vigilance, openness, commitment and respect – attributes that few firms seem to be able to successfully manage or even endure (Dovey, 2009).

Siakas and Siakas (2008) argued that the trust building mechanism in organizations stems from the internal (organizational culture) and external (national culture) environments of organization. Therefore, organizational behavior, including trust relationships, is strongly influenced by the organizational context (that is, the national culture). This is so because organizations do not live in isolation; they affect and are affected by the values of the culture in which they exist. Trust is culturally embedded (Siakas et al., 2006). For example, a participative organizational culture can facilitate trust among its members. This influence could be direct, but it can also occur through indirect and complex processes where intermediate variables are involved. Considering this second option, organizational culture impacts on other variables (e.g. procedural justice), which, in turn, have an effect on trust. In fact, a strong organizational culture with shared beliefs and values could be considered as a precursor of consensual trust attitudes (Martínez-Tur and Peiró, 2009).

Research on trust has identified an abundance of dimensions of interpersonal trust, such as integrity, competence, consistency, loyalty and openness (Butler and Cantrell, 1984; Robbins, 2003), ability, benevolence, and integrity (Mayer et al., 1995; Lee, 2004), intention and ability (Cook and Wall, 1980; Deutsch, 1960), competence and motive (Kee and Knox, 1970), and ability, benevolence, integrity and predictability (Dietz and Hartog, 2006). This study concerns both the interpersonal and impersonal types of organizational trust. Interpersonal trust could be further broken down into two dimensions: lateral trust, which refers to trust within employees, and vertical trust, which, on the other hand, refers to trust between employees and leaders. It may be competence-, benevolence-, or reliability-based (Ellonen et al., 2008). Trust between individuals/groups within an organization (lateral trust) is a highly important ingredient in the long-term stability of the organization and the well-being of its members (Bao et al., 2004). Trust in supervisor (vertical trust) is the willingness of a subordinate to be vulnerable to the actions of his or her supervisor whose behavior and actions he or she cannot control (Tan and Tan, 2000).

Similar to Ellonen et al. (2008), we have called the impersonal type of organizational trust as institutional trust. Impersonal trust has been studied very little in the organizational context. Procedural justice, in the form of fair HR processes, for example, has been positively associated with employee attitudes such as commitment to

the organization. This institutional trust could be characterized as the trust of its members in the organization's vision and strategy, its technological and commercial competence, its fair processes and structures, as well as its HR policies (Ellonen et al., 2008).

Organizational innovativeness

Nowadays, businesses are not just facing challenges from cost to quality. While an immutable product specification no longer promises a gain in most consumer markets, gaining customer loyalty is a great challenge. In order to satisfy their customer's unlimited expectations, companies need to orientate themselves to their customer's wants (Wong and Chin, 2007). Therefore, becoming an innovative organization is a mean to compete in this dynamic and changing business environment.

The existing literature on organizational innovation is diverse and scattered. Different areas of research are developing their own approaches to try and understand the complex phenomenon of organizational innovation.

A first literature strand focuses on the identification of the structural characteristics of an innovative organization and its effect on product and technical process innovations.

A second literature strand – theories of organizational change and development – aims to analyze and understand how organizations change.

A third strand of literature focuses on how organizational innovations emerge, develop and grow at the micro-level within the organization.

All this research approaches understand organizational innovation either as a necessary adaptation to the introduction of new technologies, or as a precondition for successful product or technical process innovations (Armbruster et al., 2008).

Through innovation, organizations diversify and adapt, and even rejuvenate or reinvent to fit the changing condition of the technology and the market. A true innovative firm must be embedded of a strong culture that stimulates the engagement in innovative behavior (Santos-Vijande and Álvarez-González, 2007). This proclivity to innovation is referred to in this study as "innovativeness". Panayides (2006) argued that a key factor in the success of firms is the extent of their innovation capability also referred to in the literature as innovativeness and defined as cultural readiness and appreciation for innovation. Innovativeness is the notion of openness to new ideas as an aspect of a firm's culture. Innovativeness of the culture is a major of organizations toward innovation (Lee and Tsai, 2005).

Innovativeness is determined by "whether the members of an organization are willing to consider the adoption of or are resistant to innovation". Thus, innovativeness is an organizational culture that encourages employees to be innovative and indicates an organization's receptiveness to pursue the development of new products or process. Innovativeness implies a firm being proactive by

exploring new opportunities rather than merely exploiting current strengths (Santos-Vijande and Álvarez-González, 2007).

Innovation may be present in various forms, such as product or process innovation, radical or incremental innovation, administrative or technological innovation (cooper, 1998). After introducing some classifications of innovation and innovativeness, Wang and Ahmed (2004) identified five main areas that determine an organization's overall innovativeness: product innovativeness, market innovativeness, process innovativeness, behavioral innovativeness, and strategic innovativeness. they defined organizational innovativeness as "an organization's overall innovative capability of introducing new products to the market, or opening up new markets, through combining strategic orientation with innovate behavior and process" (Wang and Ahmed, 2004, p. 304). This definition is the base of this research on organizational innovativeness and we attempt to analyze the effect of dimensions of organizational trust on innovativeness with this classification.

The role of organizational trust in innovativeness

Empirical on the role of trust in organizational innovativeness is rather scarce (Ellonen et al., 2008). However, some studies such as Ruppel and Harrington (2000) and Ellonen et al. (2008) supported the relationship between trust and innovation. Since trust was defined to be the willingness to assume risk, increasing trust will heighten employees' willingness to take risks and will lead to greater creativity and innovativeness. Thus, establishment of trust within the organization is a worthwhile effort in organizations where innovation is desired (Ruppel and Harrington, 2000). Herting (2002) proposes that trust may be an important underlying factor in the encouragement of innovation adoption in hospitals. He believes that the strength of innovation is closely tied with the benefits of collaboration, teaming and social interaction. Thus, in an innovative organization where information is freely shared, there is high level of trust, and everyone is bound together by a deep understanding of and commitment to organization goals.

An increasing reliance on or use of social relations corresponds to an increase in a firm's level of innovation. It appears that social relations facilitate the innovation process by providing access to greater resource and more diverse sources of information. Trust is a key component of these relationships (Murphy, 2002).

People are more likely to make efforts to innovate (by creating ideas and helping implement them) when they hold expectancies of reasonable and positive responses by others (Clegg et al., 2002, p. 410), because that innovation requires expectancy of reasonable and positive reactions by others in response to individual innovation attempts. Trust has been described as a fundamental ingredient for collaboration among organizations (Lewicki

et al., 1998), so, employees' trust can be causally related to collaborative climates that encourage innovation (Ruppel and Harrington, 2000). Therefore, we propose the first hypothesis:

H₁: Lateral trust is positively related to innovativeness.

Trust in supervisor is positively correlated with a subordinate's innovative behavior (Ellonen et al., 2008, p.165). Kanter (1984) argued that innovating companies provide the freedom to act, which arouses the desire to act. He associated innovation with "benign neglect" of managers who allowed subordinates to experiment. According to Chandler (2000), the uncertainty and complexity inherent in innovation suggest that employee's trust in management is central to the development of an innovation-supportive culture because trust enables people to take risks without fear of or undue penalty for failure.

A subordinate who trusts his or her supervisor will be more likely to develop novel and useful ideas, as he or she feels safe in exploring new ways of doing things. Such employees also know that they can rely on the supervisor for guidance and support. When subordinates trust their supervisor, the supervisor may reciprocate by giving them greater latitude in decision making, thus allowing subordinates to experiment with new ways of doing their work and leading to possible innovative behaviors (Tan and Tan, 2000). Therefore, leader's reliability supports employee efforts at behavioral innovativeness, which measures receptivity to new idea and innovation (Ellonen et al., 2008). Hence, we set the second hypothesis in this research:

H₂: Vertical trust is positively related to innovativeness

In this research, impersonal dimension of trust added to interpersonal dimensions and named institutional trust, provides more comprehensive understanding of organizational trust. Ellonen et al. (2008) believed that this aspect of trust may well assume increasing significance given the fact that bureaucratic organizational structures no longer support knowledge work demanding intrapreneurship, local decision-making and speed of action. As bureaucracies fail, network types of organization become increasingly important. In a global and highly competitive environment interpersonal and social trust, whether lateral or vertical, may also fail, which could result in organizational inefficiency. In the future, organizations will not be able to rely solely on interpersonal trust and will require complementary mechanisms that support knowledge creation and transfer. The focus will no longer be on the particular and the social, but more on the universal and the role of institutional trust is therefore likely to be complementary to that of interpersonal organizational trust (Ellonen et al., 2008). Therefore we propose the following hypothesis:

H₃: Institutional trust is positively related to innovativeness.

METHODOLOGY

Used methodology in this research is descriptive in correlation branch and survey method. In terms of objectives, it is an applied one since its findings can be utilized by managers, decision-makers and planners. Its population consists of the employees (725) Tehran Oil Refinery Company. 210 employees were selected as sample. By a stratified random sampling method, questionnaires were distributed among the employees of 15 organizational units at Tehran Oil Refinery Company.

Measurements

We used previously published scales to collect relevant data for the study. The items of questionnaire concerned lateral, vertical and institutional trust as independent variables, and organizational innovativeness as a dependent variable. We used a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) for all items.

Independent variable: Organizational trust

In this study, organizational trust was measured based on three dimensions, namely lateral trust, vertical trust and institutional trust. Those dimensions were tapped with scales adapted from the measures developed by Ellonen et al. (2008).

Lateral trust: lateral trust measure included fifteen-items that measured the extent of trust within employees. A sample item for this scale is "the action and behavior of the employees in this organizational unit are always consistent". Scores could range from 1 to 5, with 5 indicating that employees trust in together perfectly. Cronbach's α for this scale was 0.863.

Vertical trust: vertical trust measure included fifteen-items that assess the extent of trust between employees and leaders. A sample item for this scale is "In general, most leaders in this organizational unit keep their promises". Scores could range from 1 to 5, with 5 indicating that employees trust in their supervisor completely. Cronbach's α for this scale was 0.937.

Institutional trust: institutional trust was measured by using nineteen-item measure to assess structural assurance and situational normality e.g. trust in organization's strategy, HR politics and technology. A sample item for this scale is "I am aware of the strategy of this organizational unit". Cronbach's α for this scale was 0.951.

Dependent variable: Organizational innovativeness

To assess organizational innovativeness, we used recent developed scale by Ellonen et al. (2008) in order to measure product innovativeness (five items), behavioral innovativeness (five items), process innovativeness (three items) and strategic innovativeness (three items). Examples of the items are, in respective order, "In new product and service introductions, this organizational unit is often first-to-market". "Individuals who do things in a different way are accepted and tolerated in this unit". "This organizational unit improves its business processes constantly". "The managers of this organizational unit are willing to take risks to seize and explore "chancy" growth opportunities".

Table 1. Means, Standard Deviations, Correlations, and Reliabilities of Study Variables.

Variable	M	SD	1	2	3	4	5	6	7
1. lateral trust	2.95	0.59	(0.863)	-	-	-	-	-	-
2. vertical trust	2.69	0.76	0.713**	(0.937)	-	-	-	-	-
3. institutional trust	2.71	0.78	0.700**	0.900**	(0.951)	-	-	-	-
4. product innovativeness	2.50	0.80	0.520**	0.633**	0.724**	(0.903)	-	-	-
5. behavioral innovativeness	2.66	0.85	0.622**	0.808**	0.824**	0.742**	(0.857)	-	-
6. process innovativeness	2.67	0.85	0.659**	0.846**	0.825**	0.730**	0.804**	(0.842)	-
7. strategic innovativeness	2.56	0.80	0.621**	0.715**	0.679**	0.537**	0.641**	0.777**	(0.517)

Alpha values are shown in parentheses on the diagonal; **. Correlation is significant at the 0.01 level (2-tailed).

Table 2. The summary of regression model.

Model	R	R ²	Adjusted R ²	Std. error of the estimate
1	0.889 ^a	0.790	0.789	0.33705
2	0.894 ^b	0.800	0.798	0.32994

^a. predictors: (Constant), institutional trust

^b. predictors: (Constant), institutional trust, vertical trust

Cronbach's α for these scales in our study were 0.903, 0.857, 0.842 and 0.517, respectively.

RESULTS

Table 1 shows the correlation matrix and descriptive statistics for the research variables in the model. Data from Spearman's correlation test show that in 99% as confidence level, every dimension of innovativeness correlates statistically and significantly with the three dimensions of organizational trust. This indicates that organizational trust and innovativeness have interconnections. The values of correlations range from 0.52 to 0.90 with the mean being 0.715. The correlations in Table 1 provide an initial test of the research hypotheses. For a much stronger test, the hypotheses will be tested using multiple linear regressions.

The results of a multiple linear regression through stepwise method indicated that the role of institutional trust in clarifying innovativeness variance is stronger than other trust dimensions. What obtains from the summary of regression model is that among organizational trust various dimensions, initially institutional trust and then vertical trust are entered into the model. In the first stage in which only institutional trust variable is entered, its correlation ratio with innovativeness variable (R) is 0.889 and in the second step in which vertical trust is added, correlation ratio of both independent variables (institutional trust and vertical trust) to innovativeness is 0.894. Also, in the first step, $R^2 = 0.79$. It means that 79% of innovativeness changes are clarified by institutional trust. By adding vertical trust to regression model in the second step, the R-Squared increases to 0.80. It means that 80%

of innovativeness changes are clarified by two institutional trust and vertical trust and remained 20% is related to other factors not covered by this research. Table 2 indicates this situation. One can say that among three independent variables of lateral trust, vertical trust and institutional trust (Figures 1 and 2), institutional trust variable has higher priority to impact on innovativeness followed by vertical trust. The share of lateral trust is negligible.

Table 3 which is known as coefficients table reports parameter estimates, standard deviation of parameter estimates, standardized regression parameter estimates model, testing statistic and the significance level of parameter estimates in each stage of stepwise regression and in relation with any regression model parameters.

In the meantime, the results of enter regression method indicated that lateral trust has no significant relationship with any dimension of innovativeness, therefore, the first research hypothesis is rejected.

The second hypothesis, on the other hand, is supported. Vertical trust has positive relation with behavioral ($\beta = 0.194$, $p < 0.05$), strategic ($\beta = 0.0387$, $p < 0.05$) and process ($\beta = 0.394$, $p < 0.05$) innovativeness and has negative relation with innovativeness in product ($\beta = -0.277$, $p < 0.05$).

The third hypothesis proposed that institutional trust is positively related to organizational innovativeness. Institutional trust has positive relation with all dimensions of innovativeness. Hence, the third hypothesis is also supported. The coefficients of institutional trust for innovativeness in product, behavior, strategy and process are 0.985, 0.657, 0.259 and 0.459, respectively.

In addition, it became clear that, trust independent

Table 3. Coefficients table.

Model	Unstandardized coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.356	0.083		4.270	0.000
Institutional	0.828	0.030	0.889	28.000	0.000
(Constant)	0.287	0.085		3.392	0.001
Institutional	0.640	0.066	0.687	9.688	0.000
vertical	0.215	0.068	0.225	3.172	0.002

*Significant at 0.05

Table 4. The regression models

		Dependent variables							
		Product innovativeness		Behavioral innovativeness		Strategic innovativeness		Process innovativeness	
		Adj. R ² =0.584		Adj. R ² =0.638		Adj. R ² =0.540		Adj. R ² =0.748	
		T	Beta	T	Beta	T	Beta	T	Beta
Independent variable	Lateral trust	0.462	0.031	-0.130	-0.008	1.981	0.139	0.917	0.084
	Vertical trust	-2.624*	-0.277	2.105*	0.194	3.491*	0.387	4.798*	0.394
	Institutional trust	9.432*	0.985	7.207*	0.657	2.357*	0.259	5.638*	0.459

*Significant at 0.05.

variable (both interpersonal and impersonal) has the highest impact on process innovativeness (with Adjusted R Square as 0.748) and it has the lowest impact on strategic innovativeness (with Adjusted R Square as 0.540). Table 4 shows the findings in detailed.

Conclusion

In this paper, we have analyzed the effects of both interpersonal and impersonal organizational trust on various dimensions of organizational innovativeness in Tehran Oil Refinery Company. The results of hypotheses test showed that lateral trust has no significant relationship with any dimensions of innovativeness, while vertical and institutional trust have a positive relationship with organizational innovativeness. Therefore, an organization which paid attention to the quality of relations among its staff can pave the ground for emerging creativity, innovation and innovativeness through vertical and institutional trust.

In this study, Interpersonal trust was based on competence, benevolence and reliability. Therefore, organizations should encourage the development of trust in supervisor by enhancing competence, benevolence and reliability levels of supervisor. This enhancement could be done through careful recruitment and training of supervisors.

We found that process and behavioral innovativeness

could be most effectively enhanced by building both interpersonal and impersonal organizational trust, with Adjust R Square as 0.748 and 0.638, respectively. These findings indicate that organizational trust can capture new production methods, new management approaches, and new technology that can be used to improve production and management processes. Since trust involves risk, increasing trust between employees and supervisors will lead to greater innovative behaviors. The positive relationship between trust and innovative behaviors was confirmed by Tan and Tan (2000). Trust toward employees is often manifested in risk-taking behaviors, such as providing greater autonomy and decision latitude, which are essential factors in nurturing innovative behaviors. Given Mosca's (1997) prediction that the new millennium will be characterized by creativity and change, organizations are poised to provide an environment that is nurturing by creating trusting dynamic relationships between supervisors and subordinates.

Based on achieved results and similar to study by Ellonen et al. (2008), one can say that the role of impersonal trust which is called institutional trust in this research is undeniable in organizational innovativeness. Compared to interpersonal and social trust, institutional trust can be described as the trust to organizational structures, processes and policies which support organizational interactions and social trust. Therefore, managers can have a special attention to impersonal

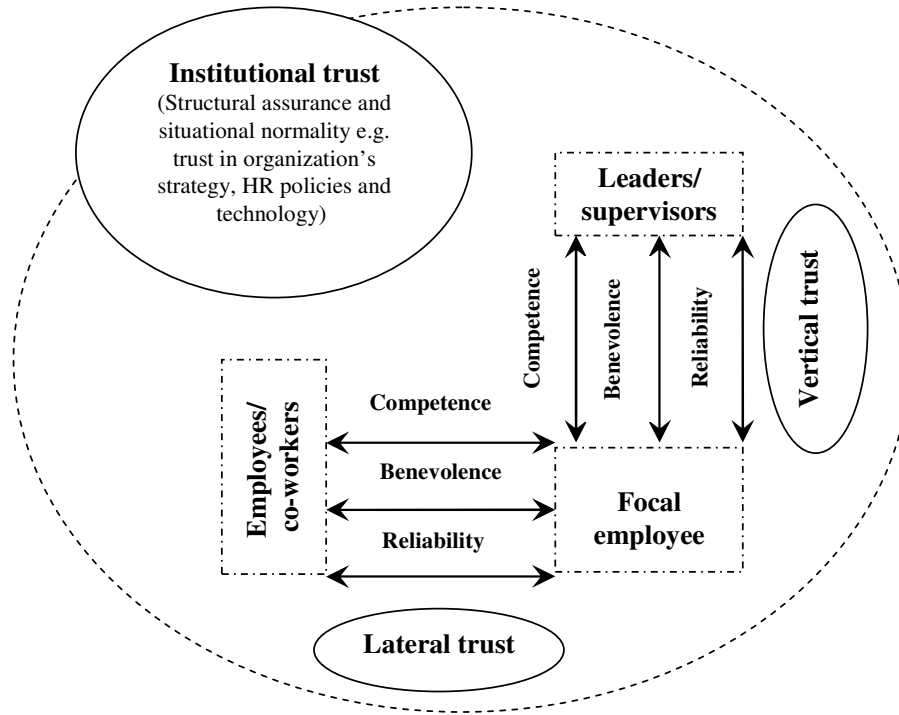


Figure 1. Lateral, vertical and institutional trust
 Source: Ellonen et al. (2008, p.163)

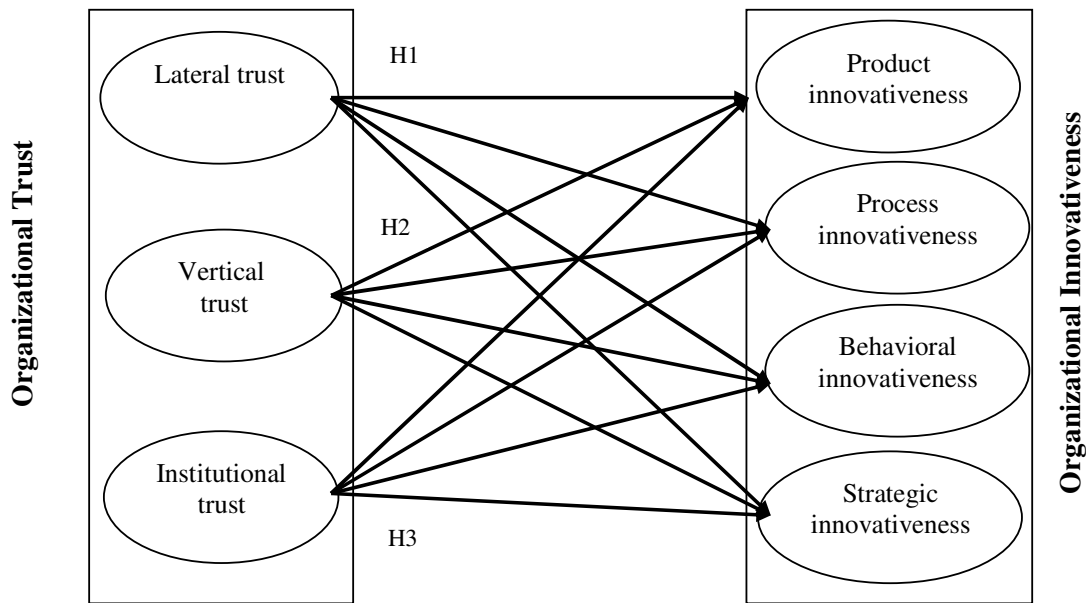


Figure 2. Research model.

forms of trust such as institutional dimensions of organizational trust which pave the ground for innovativeness growth. Some managerial actions such as a transparent vision to meet future challenges (have a strong strategic vision) and communicating understandable strategy and

fair HR processes could enhance experienced institutional trust. It is necessary that top management notes the fact that harmony and integration among theory and practice can retain and improve institutional trust. Consequently, institutional trust and its development can be

be considered as one of the strategic requirements of organizations.

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