

**ORGANIZATIONAL SUPPORT FOR INTRAPRENEURSHIP AND
ITS INTERACTION WITH HUMAN CAPITAL TO ENHANCE
INNOVATIVE PERFORMANCE**

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ABSTRACT

This study explores the impacts of the internal supportive environment for intrapreneurial activities on firms' innovative performance and the moderating role of human capital in this relationship by making use of a questionnaire study covering 184 manufacturing firms in Turkey. As for the individual direct effects of the dimensions of Organizational Support (OS), Management Support for Idea Development and Tolerance for Risk Taking are found to exert positive effects on innovative performance. Availability of a performance based Reward System and Free Time have no impact on innovativeness, while Work Discretion has a negative one. As for the role of Human Capital (HC), it is found to be an important driver of innovative performance especially when the OS is limited. However, when the levels of both HC and OS are high, innovative performance does not further increase, probably reaching a temporary performance ceiling. Managerial and further research implications are provided.

Keywords: Innovative Performance, Organizational Support, Human Capital, Intrapreneurship

1. INTRODUCTION

Human Capital (HC) and Organizational Support (OS) for intrapreneurial activities have become important yet separate areas of management research for the last three decades. Organizational supportive environment, as an internal climate factor, on one hand is described as a facilitator for organizations to spur organizational entrepreneurial activities (e.g., Miller and Friesen, 1982; Schuler, 1986; Kuratko, et al. 1990; Zahra and Covin 1995; Antoncic and Hisrich 2001; Hornsby 2002; Kuratko et al. 2005; Dess et al. 2003). On the other hand, HC as a core competence is described as one of the main indicators of organizational learning (e.g., Bantel and Jackson 1989; Edvinsson and Malone 1997; Hitt et al. 2001; Skaggs and Youndt 2004). Hence, both contribute to the organizational innovative performance.

Reviewing the related literature, we observe that empirical studies on the interaction between OS for intrapreneurial activities and the quality of HC, and their combined impact on innovative performance, seem to be surprisingly rare. Most studies investigated separately the individual effects of OS and HC on organizational performance. Considering the rarity of empirical studies investigating the combined effects of the quality of HC and organizational support mechanisms for intrapreneurial activities, our basic research question in this empirical study is as follows: "Is HC a moderator in the OS – innovative performance relationship?"

The motivation behind this research question is related to uncover the possible interaction or complementation between the intensity of organizational support and the quality of those supported. In the recent literature, the innovative performance impacts of various types of organizational support mechanisms (e.g. Hornsby et al. 2009) are studied separately from the perceived quality of the human capital that receives this support. Moreover, two distinct research streams in the innovative performance literature confirm separately the positive impacts of HC and OS on this performance. In this study, therefore, we try to discuss and investigate what will happen when both positive drivers interact with each other. On one

hand, we may automatically purport that this interaction would lead to a further increase in the innovative performance since both are already significant antecedents of it, and their combination would create a synergy. However, on the other hand, beside this possibility of synergy, we may also argue that a further increase in the innovative performance cannot come out automatically and immediately when such an interaction occurs. Beyond interaction, a complementary nature of this relationship may also exist in such a way that when one driver is rather lower the other one may complement its impact on innovative performance.

This study has five sections. The introduction precedes the second section where we briefly discuss the theoretical framework and develop hypotheses about the relationships among OS, HC and innovative performance of the organizations. The third section explains the research methods employed in the data collection and analysis processes, and the fourth section exhibits the findings of our empirical study. Finally, in the fifth section, conclusions and implications are forwarded.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

2.1. The Effects of Organizational Support Factors for Intrapreneurial Activities on Innovative Performance

The necessity of creating an inner environment that is conducive to internal entrepreneurship and individual commitment to sustainable corporate innovativeness has already been mentioned in the past literature (e.g. Rothwell, 1975). An organization-wide entrepreneurial spirit to cope with and benefit from rapidly changing marketplace conditions would be possible only if a suitable internal support climate is established, where intrapreneurs engage in opportunity-seeking entrepreneurial behaviors, as in the case of independent entrepreneurs discovering important challenges and opportunities (Slevin and Covin 1990;

Zahra 1991; Barringer and Bluedorn 1999; Jeong et al. 2006). When these efforts are supported and coordinated by managers, these endeavors will result in sustainable competitive advantages through innovation in the form of new products, services, and processes, or in a combination of the three (Quinn 1985; Brentani 2001; Hornsby et al. 2002). The growing body of literature, (e.g., Kuratko et al. 2004; Kuratko et al., 2005; Subramanian, 2005), also proposes that innovative performance is one of the desired outcomes of this supportive environment for intrapreneurial activities.

A suitable organizational milieu for the intrapreneurial activities to flourish necessitates a set of organizational policies, processes, and characteristics whereby organizations try to actualize their appropriate managerial practices and required behavioral patterns for pioneering innovative ideas in their products, operational and managerial processes, structures and markets. The literature on how to establish a suitable internal environment for intrapreneurship seems to be based on several organizational arrangements or managerial tools; namely (1) management support for generating and developing new business ideas, (2) allocation of free time, (3) convenient organizational structures concerning, in particular, decentralization level or decision-making autonomy, (4) appropriate use of incentives and rewards, and (5) tolerance for trial-and-errors or failures in cases of creative undertakings or risky project implementations (e.g. Kuratko et al. 1990; Kuratko et al. 1992; Hornsby et al. 1993; Hornsby et al. 1999; Hornsby et al. 2002; Kuratko et al. 2004; Kuratko et al. 2005). Table 1 summarizes these five factors and their definitions. Thus, in this section, we will briefly discuss some potential associations of OS factors to innovative performance.

“Please insert Table 1 about here”

The first factor, management support for generating new and creative ideas and projects, is essential for awaking entrepreneurial spirit within an organization (Kuratko and Montagno

1989). The essence of effective performance under entrepreneurial spirit is concerned with employees' ability to manage uncertainty and to deal and struggle with different circumstances and boundaries with degree of their knowledge and experiences (Schuler 1986). Management support for problem solving and conflict resolution in the intrapreneurship process is required in the idea generation, development, and particularly implementation (project execution) stages of the ideas (Damanpour 1991). Management support therefore will positively influence a corporation's entrepreneurial behavior and enhance potential intrapreneurs' perceived trustworthiness to their corporations in terms of detecting opportunities and willingness to develop novel or useful ideas and or projects and to take risks to actualize them (Stevenson and Jarillo, 1990). Therefore, our first hypothesis is as follows:

H1: The greater the management support in organizations, the higher their innovative performance.

The second factor is the allocation of free time to employees for innovative initiatives. Time availability refers to the sufficiency of time to work on developing novel ideas and implementing projects (Brazeal 1993; Fry 1987; Schuler 1986, Pinchot 1985; Kuratko et al. 1990). Other resources such as information, labor, equipment etc. are the inputs of the research and development activities. However, most of the enthusiastic intrapreneurs make their pioneering steps to actualize their idealized projects in their spare times (Ende et al. 2003). Thus availability of free time for employees is a critical factor for their both daily routines and intrapreneurial ideas and activities, i.e. time to imagine, observe, experiment and develop (e.g. Pinchot 1985; Fry 1987). Delivery of free time inevitably encourages employees to take risks for putting their novel ideas into practice (e.g. Burgelman 1984; Fry 1987; Sundbo 1999; Hornsby et al. 2002). Therefore, our second hypothesis is formulated as follows:

H2: The greater the allocation of free time in organizations, the higher their innovative performance.

The third factor is the work discretion or convenience of the organizational structure concerning especially decentralization level or decision-making autonomy for lower level managers and employees. OS for an effective intrapreneurial climate should involve autonomy and flexibility particularly in strategy making (Mintzberg 1973; Khandwalla 1973; Burgelman 1983, 1984; Slevin and Covin 1990; Covin and Slevin 1989; Barringer and Bluedorn 1999; Honig 2001). Work discretion is concerned with the degree of autonomy of the employees to make decisions regarding their work (Slevin and Covin 1990; Lober 1998; Kuratko et al. 1992; Hornsby et al. 2002) and to implement them in order to realize their novel ideas (Lumpkin and Dess 1996, 2001). Autonomy extends to decentralization of decision-making power to those who will actually carry through the work. It also represents employees' degree of initiative upon their formal work and implementing improvement efforts or resolving problems (Souder 1974; Tatikonda and Rosenthal 2000). Powerful, i.e. autonomous employees or managers can think, act, and afford to risk more for innovative consequences, and they can afford to allow others' freedom (Kanter 1977). Performance enhancing role of flexible or autonomous decision making is confirmed also by recent empirical studies (e.g. Alpan et al. 2007). Moreover, in a recent study on Russian firms, Gurkov (2009) indicate that it is the rigidity of the existing organizational structures that really slows down both the innovative process and the implementation of its results. Therefore, our third hypothesis is as follows:

H3: The greater the work discretion in organizations, the higher their innovative performance.

The fourth factor is the appropriate use of rewards in cases of success. If the management tries to convince the employees to act like intrapreneurs, it must also be willing to pay them as entrepreneurs (Thornberry 2003). If the employees have a high level of trust in the reward system of their organization, hoping that organizational success will turn to be beneficial to all

parties, then both their commitment to innovation (e.g., Morrison and Robinson, 1997; Chandler et al. 2000; Bulut and Alpkın, 2006) and their willingness to assume the risks associated with the intrapreneurial activity (e.g., Kuratko et al. 1990) will also be higher. Thus, organizational support should be enriched with a performance based reward system for creating a suitable internal environment (Souder 1981; Fry 1987; Hornsby et al. 2002). Therefore, our fourth hypothesis is stated as follows:

H4: The greater the performance based reward system in organizations, the higher their innovative performance.

The fifth dimension is tolerance for risk taking and failure. Individual intrapreneurs' willingness to take risks and top managers' risk permissiveness to allow and encourage them to be more innovative necessitate a more tolerant understanding behind managerial reactions towards those intrapreneurs whose projects fail especially in turbulent markets (e.g., Stopford and Badenfuller 1994; Hornsby et al. 1990, 1999, 2002; Alpkın and Kaya 2004). Conservative and risk-averse attitudes of the managers will cause the lack of confidence on the side of the employees' intrapreneurial potential; and their frustration will reduce innovative approaches and undertakings (Gupta et al. 2004). Thanks to the attitudes and behaviors of the managers for creating a supportive internal environment, intrapreneurs will expect that some failures resulting from actions taken in good faith, will not be harshly punished but should be tolerated (MacMillan et al. 1986; Lumpkin and Dess 1996). So our fifth hypothesis is formulated as follows:

H5: The greater the tolerance for risk taking in organizations, the higher their innovative performance.

2.2. The Impact of Human Capital on Innovative Performance

The accumulation of all the societal, organizational and personal investments for schooling, education, and training manifested at the individual level in the form of improved skills and performance, at the organizational level in the form of increased profitability, and at the societal level in the form of societal benefits is labeled as the HC (Schultz 1961; Mincer 1962; Psacharopoulos and Woodhall 1985; Nafukho et al. 2004). In the organizational context, Joia (2000) defines the concept of HC as the sum of the expertise and skills of the employees of an organization. Dakhli and De Clercq (2004) argue that HC is embodied in the people's skills, knowledge, and expertise that can be improved especially by education and work experience. Hence, those people, who are better educated, have more extensive work experience, and invest more time, energy, and resources in honing their skills, are better able to secure higher benefits for themselves and for the society.

Hitt et al. (2001) claim that HC with tacit knowledge, being an important component of intangible resources, is more likely to produce a competitive advantage than tangible resources, by attributing the performance differences across the firms to the variance in the firms' resources and capabilities according to the resource-based view of the firm. They also emphasize the necessity to spend money for the development of human resources especially in the form of training, transfer, and retention costs. According to Petty and Guthrie (2000) among the various categories of intellectual capital, HC should be regarded as the most valuable asset, and the money spent on human resources to improve efficiency and productivity should not be seen and reported as a cost, but as an investment – particularly by those enterprises relying heavily on the knowledge and skills of their staff.

Recent empirical evidence confirms the HC-performance relationship. For instance, Bontis et al. (2007) find a general support for this relationship in Egyptian software companies. Shrader and Siegel's (2007) empirical study on high-tech ventures imply that for small, technology-based new ventures, HC, in the form of technological experience, appears

to be the most important determinant of the success of a differentiation strategy. Similarly, Cater and Cater (2009) report that a differentiation advantage is positively affected by HC. Again, in a more recent study, Federico et al (2009) find that HC contributes to the internationalization performance of young firms in Latin America. Following the above-mentioned descriptive and empirical studies, we may deduce that HC is one of the important drivers of various aspects of firm performance.

As for the direct effects of HC on innovative performance, an earlier empirical study conducted by Bantel and Jackson (1989) indicates the importance of HC, and reveals that more innovative organizations are managed by well-educated teams, who are diverse with respect to their functional areas of expertise. According to the recent empirical studies on different cultures around the world, investments made to improve the HC seem to provide an increase in the organizational innovativeness. For instance, Dakhli and De Clercq (2004) find strong support for the positive relationship between HC and innovation in their study of secondary data on the cross-country differences of innovativeness. They attribute this relationship to the knowledge-intensive nature of both variables, namely HC and innovation.

Based on an empirical study conducted in Denmark, Anker (2006) indicates the importance of updating the skills of the employees especially in the high-tech sectors and concludes that HC increases the ability to innovate. Wu et al. (2007) in a more recent empirical study in Taiwan confirm that HC has a positive effect on innovative performance; Marvel and Lumpkin (2007) find similarly a positive association between radical innovations done by the technology entrepreneurs operating within university-affiliated incubators and their level of HC measured in the form of formal education and knowledge of technology. Finally, Allen et al. (2007) conclude that HC increases entrepreneurial research activities leading to new patents.

Based on the above literature discussion, we propose the following hypothesis:

H6: The greater the level of HC in organizations, the higher their innovative performance.

2.3. The Moderating Role of Human Capital

HC in the form of the knowledge, skills, and abilities of the employees can contribute to the organizational competencies and performance by reducing the risks and increasing the returns from investments done in innovation and venturing (e.g., Hayton 2005; Hayton and Kelley 2006). Therefore, beside its direct effect on firm performance, HC as a precious resource may also exert a facilitator role in the attempts to form a suitable climate to produce higher organizational performance. Findings of past studies emphasize this positive role of HC. For instance, Edelman et al. (2002) underlining that a firm's strategy should be in line with its resources find in a study on US SMEs that only those high-tech firms with appropriate human resources should be seeking innovative performance goals. Hitt et al. (2001) mentioning that firm resources and strategy interact to produce positive returns, conclude that HC moderates the strategy and performance relationship. Similarly, Selvarajan et al. (2007) confirm this moderator role in a different setting. Hayton and Zahra (2005) find in an empirical study on high technology new ventures in the USA that the relationship between venturing activities and innovation is moderated by the HC diversity of the top management teams. More specifically, Subramaniam and Youndt (2005) claim that the HC interacting with social capital increases radical innovative capability.

Similar interaction effects of HC together with entrepreneurship are mentioned not only in the organizational innovativeness literature but also in the regional development studies. Beginning a discussion on what the appropriate policies are to foster local growth in the face of globalization; Taylor and Plummer (2003) highlight the role of entrepreneurship and HC in promoting regional economic growth. In a follow up empirical study (Plummer and Taylor, 2004), they reveal that HC with an enterprise culture is a very significant driver for regional economic growth.

The above literature on HC, leads us to purport that HC may play a similar moderator role in the relationship between OS and innovative performance. In this context, we may argue that since a high quality pool of knowledge, skills, and abilities of the employees that an organization possesses, is among the important drivers of new idea generation and implementation, provision of a higher amount of support to this HC, in terms of time, rewards, good managerial relations, discretionary power, etc., would create a better milieu for innovativeness. In other words, if organizations with higher quality HC support their HC with higher amount of time allocations, managerial encouragements, tolerance, discretion, rewards, etc. their innovative performance would be much more increased. Following this argumentation, we develop the following hypothesis:

H7a: The greater the HC in organizations, the stronger the influence of OS on innovative performance.

However, on the other hand, since both HC and OS are already hypothesized to be increasing innovative performance separately, the combination of them is not certain to create any further synergetic increase in this performance immediately. Instead, HC and OS may be complementary to each other. For instance, when HC is low, we may argue that there is still some place for increasing innovative performance through OS. In other words, in those organizations where knowledge, skills, and abilities of the employees are relatively lower, the innovative performance may also be lower accordingly; at this situation, the provision of better organizational mechanisms to encourage intrapreneurial activities may recover the deficiency caused by lower levels of HC and increase the innovative performance significantly. Following this contradictory argumentation, we develop an alternative hypothesis to H7a:

H7b: The lower the HC in organizations, the stronger the influence of OS on innovative performance.

The eight hypotheses of this study are displayed together in Figure 1.

“Please insert Figure 1 about here”

3. METHOD AND FINDINGS

3.1. Measurement

To assess the OS factors, we adapted the items developed and used in the studies of Kuratko et al. (1990; 1992) and Hornsby et al. (2002) to our survey. The measurement of HC was taken from the study of Subramaniam and Youndt (2005). As for the construct of innovative performance, we employed a scale consisting of items adapted from the earlier studies of Antoncic and Hisrich (2001), Neely and Hii (1998), Meeus and Oerlemans (2000) and Hagedoorn and Cloudt (2003). All items have been translated and adapted to Turkish and then translated back to English by using the translation-and-back translation process proposed by Ronen and Shenkar (1985). All items were measured on a five point Likert scale, where “1= strongly disagree” and “5= strongly agree”.

3.2. Sample

To test the hypotheses, the unit of analysis is selected as the individual manufacturing firm in the context of a developing country. Data is collected via questionnaire forms in the most industrialized region of Turkey, the northern Marmara region. This region is actually generating nearly 30% of Turkish GNP (TUIK, 2001). The firms are selected randomly from the database of the Union of Chambers and Commodity Exchange (TOBB), and from the chambers of industry located in the cities of Istanbul, Kocaeli, Sakarya, Tekirdag, and Cerkezkoy. Out of 1674 questionnaires distributed, 184 useable forms are returned producing a response rate of about 11%.

Responding firms in our resulting sample are distributed among six main business sectors, namely automotive (20.1%), textile (19.6%), metal goods (19%), chemicals (17.9%), machinery (15.2%), and electrical home appliances (8.2%) industries. Responses are given by top managers (CEOs, general managers and owners; 33%), and middle managers (plant managers and functional managers; 67 %). As for the firm size, 25.5% of the firms responding are small firms employing less than 50 employees, 48.2% of them are medium sized firms employing between 50-250 employees, and 26.2 of them are large firms employing more than 250 employees.

3.3. Factor Analyses and Correlation Tests

All scales were initially submitted to exploratory factor analysis with varimax rotation and then confirmatory factor analysis to explore and confirm the latent factor structure of the innovative performance, HC and OS factors' scales in the Turkish context. The factor analyses (EFA and CFA) produced totally seven factors as anticipated; five factors for OS, one for HC and one for innovative performance -as shown in Tables 2 and 3- with a total variance explanation (TVE) of 69.85 %, and a cut point of 1.129 Eigen value. Cronbach's alpha (α) scores of all the factors are all above 0.70 - ranging from 0.72 to 0.92. This indicates that internal consistency levels of our variables are sufficiently reliable (Nunnally, 1967). Regarding to the results of the above statistical tests for validity and reliability, we assumed that our factors are sufficiently valid and reliable to test our hypotheses. Accordingly, we produced seven constructs to be used in the further tests, namely, Innovative Performance, Human Capital, Managerial Support, Tolerance for Risk Taking, Work Discretion, Allocation of Free Time, and Performance-based Reward System.

“Please insert Table 2 & 3 about here”

Table 4 shows the means and one-to-one associations among the variables. It is seen that Innovative Performance is significantly and positively linked to HC and to most of the dimensions of OS with the exception of Work Discretion and Allocation of Free Time. Considering the means of the variables, all seem moderate ranging between 3 to 4; on a scale from 1 to 5, while the mean of the Managerial Support construct is the highest (3.91), and that of the Tolerance for Risk Taking construct is the lowest (3.11).

3.4. Hypothesis Tests

To test our hypotheses we used multiple regression analyses (see Table 5). In step 1, we conducted a regression analysis, where the dimensions of the OS constitute the independent variables and the innovative performance is the dependent variable. Our rationale that the five dimensions of the OS reinforce the organizational innovative performance is partially supported. On the one hand, Hypothesis 1 proposing that the greater the management support in organizations, the higher their innovative performance ($\beta: .318$; $p < .01$), and Hypothesis 5 claiming that the greater the tolerance for risk taking in organizations, the higher their innovative performance ($\beta: .202$; $p < .05$), are supported. On the other hand, the Hypotheses 2, 3, and 4 -claiming respectively that allocation of free time, work discretion, and effective reward system increase innovative performance- are not supported.

In step 2, we conducted a regression analysis, where the OS -as the sum of its five constituting dimensions- and the HC are the independent variables and the innovative performance is the dependent variable. This time, as an integrated single construct, OS is found to have a significant impact on innovative performance ($\beta: .212$; $p < .01$). As for the other independent variable, HC, it is also found to be effective on innovative performance ($\beta: .153$; $p < .05$), thereby providing support for Hypothesis 6.

In step 3, we used moderated regression analysis to test hypothesis 7a and 7b. Before calculating the regression coefficients, in order to minimize the effects of any multicollinearity among the variables comprising our interaction terms, we centered (mean=0) our HC variable. The results of our moderated regression analysis show that the OS-HC interaction produces not only a negative but insignificant impact on innovative performance. Thus, none of our alternative hypotheses purporting that “the greater or the lower the HC in organizations, the stronger the influence of OS on innovative performance” is not approved.

In steps 4 and 5, we conducted two more regression analyses in order to clarify this finding about the insignificant but still negative moderating effect of HC by splitting the general data into two data sets from the mean of HC. In step 4, we calculated the impact of OS on innovative performance only for those organizations, where HC is below average. It is found that OS has a strong and positive effect on innovative performance ($\beta: .357$; $p < .01$), when HC is below average. The size of this effect found in the split data is greater than that found employing the general data ($\beta: .212$; $p < .01$). In step 5, we calculated the impact of OS on innovative performance but this time only for those organizations, where HC is above average. A significant association is not found. Step 5 only served to confirm the results of step 3.

“Please insert Table 4 about here”

In order to elaborate on the findings of step 4, and provide some indirect significant support for H7b, we split the general data set into four categories of possible contingencies related to the higher and lower levels of both OS and HC. Then we calculated the average innovative performance for each category as reported in Table 5. It is clearly shown that when only one of these two antecedents of innovative performance, namely OS or HC, is already high, an increase in the other one does not contribute to the innovative performance

significantly. On the other hand, however, when both OS and HC are low, innovative performance is very low and then an increase in any one of its drivers OS or HC seems to exert a positive impact on innovative performance.

“Please insert Table 5 about here”

4. RESULTS

4.1. Discussion

Our empirical findings reveal that HC and OS -especially its dimensions of managerial support and tolerance for risk taking- exert significant and positive impacts on innovative performance. However, the interaction between HC and OS does not produce higher innovative performance. On the one hand, when HC is low, OS increases innovative performance more. On the other hand, when both are high, a further significant increase in innovative performance seems not to be possible within the same period. It appears that the existence of some other resources or antecedents is necessary beyond the interaction of HC and OS to reach a relatively higher level of innovativeness. A plausible explanation for this may be related to the existence of a local and or temporary ceiling for innovative performance in the short run. Even though we cannot conclude that neither the lower nor the higher the HC the OS increases innovative performance significantly, we can still argue that beyond an interaction between them a kind of complementation seems to be present.

4.2. Managerial Implications

As a managerial implication, it is possible to suggest that if in an organization the innovative performance is low, then either the quality of human resources or the level of the organizational support provided to these human resources should be increased. There is no

place to invest in both at the same time and to reap their fruits in the short run. If, for example, strategists in an organization find it difficult to increase HC considering the internal and external recruitment pool of this organization, they should try to establish an internal climate, where especially managerial support and tolerance for risk taking are high. Nevertheless, if HC is above average considering the industry in which they operate, we can assume that their innovative performance is already high, and it should not be expected to increase it significantly with the help of any increase in OS. Therefore, a major jump in innovative performance, which is already relatively high, is not possible in the short run; but in the long run, we can expect that balanced and incremental advancements in both the quality of the human resources and the organizational support provided to them may still help to increase innovative performance.

Another managerial implication may be related to the direct and combined effects of each dimension of the OS. On one hand, considering the one-to-one correlations support, tolerance, and reward are found to be related to innovativeness, while work discretion and time allocation are not. On the other hand, considering the combined effects of all the OS factors, managerial support and tolerance for risk taking have still exerted significant effects on innovativeness, but some other relations are changing.

Considering the individual impacts of OS dimensions on innovative performance, we find that, firstly, the performance-based reward system, which is significantly correlated to innovative performance, is ineffective on it when regressed together with the two significant drivers of innovativeness, namely support and tolerance. Secondly, work discretion, which is not significantly correlated to innovative performance, is found to be negatively effective on it when regressed together with the other dimensions of OS, probably because of the overshadowing effects of management support and tolerance for risk taking as the strongest drivers of innovativeness.

Thus, we can suggest that top managers prioritizing on innovativeness should invest to build such an organizational milieu where first, support and tolerance exist to a large extent. Every employee should feel and know that if they behave like intrapreneurs and develop viable but still risky ideas for innovation and entrepreneurship, they will be supported in their firms, their proposals will be listened to, they will be encouraged for implementing their ideas with necessary emotional, physical and monetary assistance, and even if their ideas and projects fail they will not be punished or humiliated. Fears of loneliness and failure seem to be important burdens on the way to start and implement innovative projects even if some clever ideas come to mind. An internal environment promising support and tolerance will be a good remedy for these fears. Moreover, provision of discretionary power, time, and rewards are not leading directly to innovativeness without the existence, or mediation of support and tolerance.

4.3. Limitations and Further Research Implications

In our cross-sectional empirical study, we have some limitations; the recovery of them may open new avenues for further studies. For instance, our theoretical model was proposing some direct and moderating effects among HC, OS and innovativeness. All the variables in the model are measured through the perceptions of single respondents representing their firms, at the same point in time. In later studies, the model may be enlarged with some control variables, e.g. firm size and age, and other similar organizational drivers of innovativeness, e.g. social and organizational capital; more than one respondent may be contacted on the organizational level; some rational indicators of innovativeness collected from other sources, for instance number of officially approved patents or new product announcements, and also different aspects of innovativeness e.g. radical vs. incremental or process vs. product, may be used for measuring the innovative performance; a longitudinal study to discover the long term effects of climate on innovativeness may be conducted; mediating effects of OS factors among each other, and moderating role of external environmental factors, e.g. market dynamism, may

be explored; and this extended model may be tested over a larger number of respondents covering a larger number of regions and industries.

4.4. Conclusion

We have endeavored to explore and assess internal organizational climate factors for effective OS in Turkey's most industrialized northern Marmara region. Our empirical study reveals that an internal supportive environment providing especially management support and tolerance for risk taking to their intrapreneurs, and a high quality HC will contribute to the innovative performance. Moreover, when HC is of low quality, the OS is still influencing positively innovative performance. However, when HC is of higher quality, the impact of OS on innovative performance is slowing down or even disappearing -perhaps with innovative performance reaching a temporary ceiling- since a higher HC has already increased innovative performance significantly.

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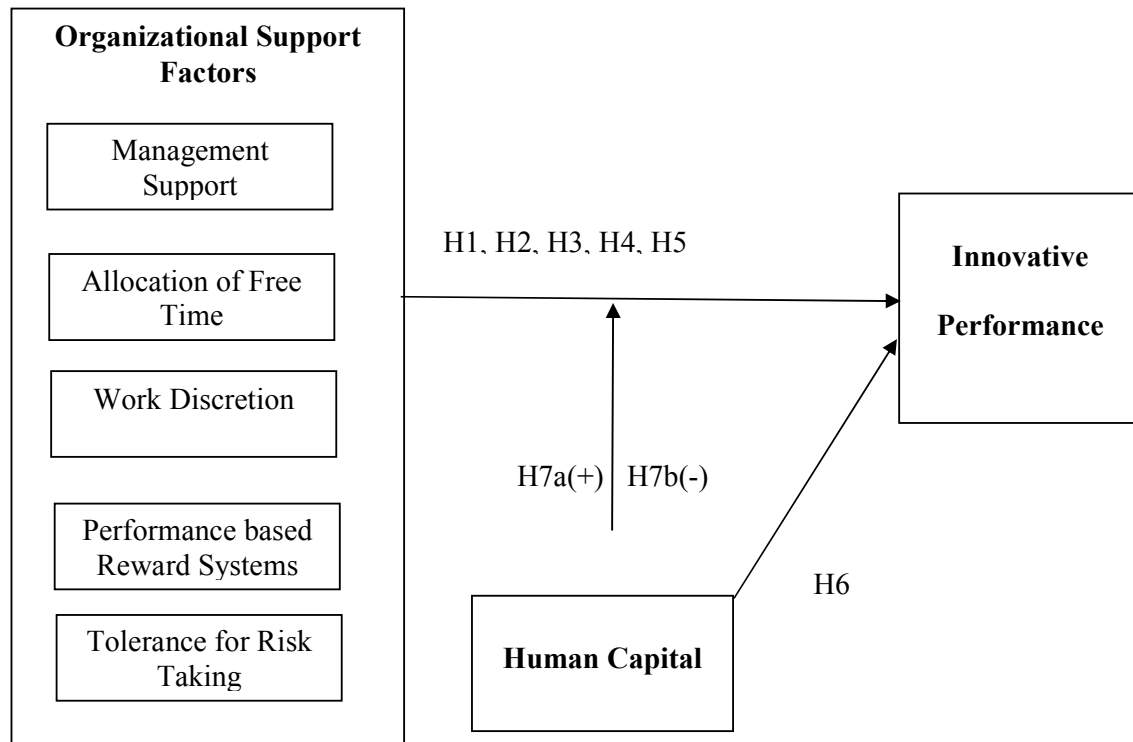
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Appendix: Figure 1. The Theoretical Model and Hypotheses



List of the hypotheses

H1: The greater the management support in organizations, the higher their innovative performance

H2: The greater the allocation of free time in organizations, the higher their innovative performance

H3: The greater the work discretion in organizations, the higher their innovative performance

H4: The greater the performance based reward system in organizations, the higher their innovative performance

H5: The greater the tolerance for risk taking in organizations, the higher their innovative performance

H6: The greater the HC in organizations, the higher their innovative performance

H7a: The greater the HC in organizations, the stronger the influence of OS on innovative performance

H7b: The lower the HC in organizations, the stronger the influence of OS on innovative performance

Table 1. Five Theoretical Factors of OS

Factors	Definitions	Citations
Management Support for Idea Generation	Encouragement of entrepreneurial idea generation and development	Pinchot, 1985; Damanpour, 1991; Stevenson and Jarillo, 1990; Hornsby et al., 1993; Kanter, 1996; Sundbo, 1999
Allocation of Free Time	Provision of sufficient time to work on developing novelties without any burden of routine workload	Burgelman, 1984; Kanter, 1985; Sathe, 1985; Fry, 1987; Damanpour, 1991; Slevin and Covin, 1997; Bamber, et al., 2002
Work Discretion	Decision making initiative of the staff about their work	Sathe, 1985; Quinn, 1985; Antoncic and Hisrich, 2001; Drucker, 1985; Burgelman, 1983; Zahra, 1991
Performance Based Reward System	Availability of a performance based reward system encouraging innovativeness	Souder, 1981; Fry, 1987; Cissell, 1987; Sykes and Block, 1989; Kuratko et al., 2005
Tolerance for Risk Taking	Recognizing risk taking intrapreneurs even if they fail and encouraging them to implement their novel proposals and projects	Stopford and Badenfuller, 1994; Quinn, 1985; Kanter, 1996; Lumpkin and Dess, 1996, 2001

Table 2. Results of the Exploratory Factor Analysis

Item Statements and Factors	F1	F2	F3	F4	F5	F6	F7
Factor 1: Performance-based Reward System							
The rewards that employees received or will receive are dependent on their work on the job.	,811						
Employees will be appreciated by their managers if they perform very well.	,802						
Employees from every level will be rewarded, if they innovate.	,791						
Employees with innovative and successful projects will be highly rewarded.	,791						
Managers increase employee's job responsibilities if they perform well	,756						
Factor 2: Human Capital							
Our human resources are very intelligent and creative		,853					
Our human resources are very talented		,772					
Our human resources are specialized on their jobs		,739					
Our human resources are producing new ideas and knowledge		,707					
Our human resources are best performers		,691					
Factor 3: Innovative Performance							
Percentage of new products in the existing product portfolio.			,864				
Number of new product and service projects			,864				
Ability to introduce new products and services to the market before competitors			,772				
Innovations introduced for work processes and methods.			,649				
Quality of new products and services introduced			,582				
Factor 4: Management Support for Idea Generation							
The development of new and innovative ideas are encouraged				,793			
Senior managers encourage innovators to bend rules and rigid procedures in order to keep promising ideas on track.				,753			
Developing one's own ideas is encouraged for the improvement of the corporation.				,710			
Upper management is aware and very receptive to ideas and suggestions				,640			
Factor 5: Tolerance for Risk Taking							
There are several options within the organization for individuals to get financial					,741		

support to actualize their innovative projects.							
Money is often available to get new project ideas off the ground.						,698	
The term risk taker is considered a positive attribute for people in our organization						,611	
Individual risk takers are often recognized for their willingness to champion new projects, whether eventually successful or not.						,570	
Factor 6: Allocation of Free Time							
Our employees always seem to have plenty of time to get everything done.							,872
Our employees have enough time to spend for developing new ideas.							,813
Our employees' workloads do not prevent them to conduct innovative projects.							,798
Factor 7: Work Discretion							
Our employees have the freedom to implement different work methods for doing major and routine tasks from day to day.							,838
It is basically the employees' own responsibility to decide how their jobs get done.							,726
This organization provides the employees with the freedom to use their own judgment and methods							,635
Variance explained %	14,65	10,94	10,63	9,84	8,54	8,45	6,79
Cronbach's alpha (α)	,92	,85	,83	,88	,78	,87	,72

Extraction Method: Principal Component Analysis. Rotation Method: Varimax. Total Variance Explained: 69,85 %

Table 3. Descriptives and Correlations

Variables	mean	SD	(1)	(2)	(3)	(4)	(5)	(6)
(1) Management Support	3,91	0,75						
(2) Allocation of Free Time	3,21	0,95	,324(**)					
(3) Work Discretion	3,24	0,83	,361(**)	,358(**)				
(4) Performance based Reward System	3,67	0,92	,643(**)	,413(**)	,353(**)			
(5) Tolerance for Risk Taking	3,11	0,82	,601(**)	,407(**)	,412(**)	,585(**)		
(6) Human Capital	3,61	0,66	,341(**)	,229(**)	,155(*)	,328(**)	,302(**)	
(7) Innovative Performance	3,74	0,66	,391(**)	,032	,012	,283(**)	,280(**)	,230(**)

* p < ,05 ** p < ,01

Table 4. Results of the Regression Analyses for OS, HC and Innovative Performance
(standardized regression coefficients are displayed)

Independent Variables	Dependent Variable: Innovative Performance				
	Step 1	Step 2	Step 3	Step 4	Step 5
Organizational Support Factors					
Management Support	,318**				
Allocation of Free Time	-,122				
Work Discretion	-,169*				
Performance based Reward System	,064				
Tolerance for Risk Taking	,202*				
Organizational Support		,212**		,357**	,077
Human Capital		,153*			
Organizational Support x Human Capital			-,132		
R ²	,203	,092	,108	,128	,006
F	8,944**	9,053**	7,181**	14,059**	,486

* p < ,05 ** p < ,01

Table 5. Mean Scores of Innovative Performance Under Different Contingencies

	Organizational Support						
	Low		High		Difference		
	<i>N</i>	mean	<i>N</i>	mean	<i>mean</i>	<i>t</i>	<i>p</i>
Human Capital							
Low	52	3.4885	46	3.8609	.3725	2.855	.005
High	34	3.8000	50	3.8630	.0630	.443	.659