

10th International Strategic Management Conference

A Research on Determining Innovation Factors for SMEs

Ebru Beyza Bayarçelik^a , Fulya Taşel^b , Sinan Apak^c , c*

^aGelişim University, Istanbul, 34315, Turkey

^bMaltepe University, Istanbul, 34857, Turkey

^c Maltepe University, Istanbul, 34857, Turkey

Abstract

SMEs are the essential elements of the economy which is responsible for driving innovation and competition in many economic sectors. To be a competitor in such economies those SMEs should support strategic management decisions successfully. The problem could be in decision phase according to market conditions with many external and internal factors. To cope with ambiguity executives have to consider appropriate strategies. Due to this difficult and time consuming evaluation process, this paper is focusing on determining to find some case-based strategic innovation success factors. A decision making approach is adopted to effectively evaluate those strategic innovation factors.

© 2014 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

Peer-review under responsibility of the International Strategic Management Conference.

Keywords: Small Medium Enterprises, Decision Making, Innovation.

1. Importance of innovations in SMEs

Because of globalization of markets with a higher rivalry environment, rapid technological changes and shorter product and technology lifecycles, many firms, especially the small and medium enterprises (SMEs), are focusing on making innovation which is the key driver for sustainable competitive advantage (Dadfar et al.,2013). Small and medium sized enterprises (SMEs) as they are increasingly recognized as central contributors to innovations play a pivotal role in the national economies of countries all around the world. Same as the other developed and emerging economies in the world, SMEs are important force for economic development in Turkey. In Italy, Japan and France, the number of SMEs accounted for 99% of the total number of enterprises. In the United States there were more than 2000 million SMEs, accounting for 98% of total number of enterprises although America was famous for its large enterprises (Liu,2012). In Turkey Small and Medium-Sized Enterprises (SMEs) constitute 99.9% of total number of enterprises,76% of employment, 53% of wages and salaries, 63% of turnover, 53.3% of value added at factor cost and 53.7% of gross investment in tangible goods (Turkstat, 2013).

* Corresponding author. Tel. + 90-216-626-1050 fax. +90-216-626-1070

Email address: sinanapak@maltepe.edu.tr

Table1. SMEs definition in Turkey.

Scale	Total number of employees	Annual turnover (million TL)	Annual Balance Sheet (million TL)
Micro	1-9	0 < and ≤1	0 < and ≤1
Small	10-49	1 < and ≤5	1 < and ≤5
Medium	50-249	5 < and ≤25	5 < and ≤25

Source: KOSGEB (Small and Medium Enterprises) Development Organization

The literature on innovation is very voluminous and diverse. Joseph Schumpeter is among the first economists who used the innovation concept in his studies. He explained in keeps the capitalist engine in motion comes from the new consumers, goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creation (Bayarçelik and Taşel, 2012). Innovation could be the implementation of a new or significantly improved product (e.g. change in product properties), process (e.g. changed delivery methods), marketing method (e.g. new product packaging) or organizational method (e.g. changes in workplace organization) in business practices, workplace organization, or external relations. It should be emphasized that innovations need to be successfully diffused in the market (e.g. products) or implemented (e.g. processes) to achieve an economic impact (Klewitz and Hansen, 2014). Actually, there are lots of studies in the literature concerning innovation. For instance, successful innovation can be achieved through an integrated development of a firm's business strategy and market positioning, organization of work, technology and people.

As local SMEs having limited resources what extent they can be able to implement innovative approaches and they can perform innovative growth in competitive business life. The aim of this paper is to find answer of which factors are more important for SMEs. Thus, this study initially investigates the terms of "innovation" in Turkey. Later, the Turkish SMEs are positioning their innovation strategies based on their competencies, then measuring and evaluating their relative performance within scope of this framework.

In literature there are several studies related with SMEs, Karpak and Topçu (2010) developed a multiple criteria framework to measure the success of Turkish small and medium sized manufacturing enterprises using analytical network process (ANP) method. They identified five factors to measure the company success such as country and business environment, firm internal environment, firm expertise, owner related factors and institutional support. Talebi et al. (2012) investigate the different types of innovation and the influence factors affecting them in small-medium size enterprises (SMEs) in Iran using ANP method and they found the most influence factors affecting innovation in Iran's SMEs are stage of industry, demand, industry-university linkage, attitude toward change and size and age.

2. Defining innovation factors for SMEs

A firm's operating environment, and strategic posture affect innovation. Because of this reason firms place a greater emphasis on innovation in difficult operating environments, characterized by short product cycle, rapid technological change, and intense rivalry (Laforet, 2011). Innovation allows organizations to better meet consumer needs, stay ahead of the competition, capitalize on strategic market opportunities, and align organizational strengths with market opportunities (Rujirawanich et al., 2011). Thus, a detailed research conducted to determine most critical implementation factor. According to our literature base study we determined eleven influencing criteria to innovation in SMEs. Those criteria are given in the following:

Financial Factor (FF): Financial strengths of SME's are important for innovation success. According to Lecerf financial resources are key levers of innovation (Lecerf, 2012). Innovation can only occur if the capacity to innovate exists in a company. Innovation capacity refers to availability of resources, collaborative structures, and processes to solve problems. In the SME context, available resources are mainly related with financial factors and skilled workforce (Laforet, 2011). According to Xie et al. (2013) financial capital is one of the resources required by a firm to start, operate or grow. It is important to have adequate level of finance and also it is an essential condition to make a technological innovation. Xie et al. pointed out the importance of financial factors for SME's and indicates that small firms placed greater emphasis on finance than medium and large-sized firms (Xie et al., 2013).

Firm Size (FS): The size of the organization is also an issue in the diffusion of new knowledge (Davenport and Bibby, 1999). In general, adoption and use of technology appears to be related to the size of the firm. However

traditional innovation literature stresses that larger firms have an advantage in innovation. This idea is based on three important arguments. First, larger firms have stronger cash flows to fund innovation. Equally, larger firms may have higher assets to use as collateral for loans. Second, a larger volume of sales implies that the fixed costs of innovation can be spread over a larger sales base. Third, larger firms may have access to a wider range of knowledge and human capital skills, which are pre-requisites for innovation (O'cass and Weerawardena, 2009). Furthermore, larger organizations may have greater access to the resources needed to implement innovations. Lacking such resources, smaller organizations are forced to make difficult tradeoffs in their investment choices and often give up implementation of expensive technologies.

Institutional Factor (IF): Institutional factors are important for SME's innovation capability because factors related with the institutional environment may also affect innovation performance. Such as, in environments with weak institutional structures, performance could be endangered by a violation of intellectual property rights, ineffective contract enforcement, and a lack of political and economic stability (Volchek et al., 2013).

Technological Capability (TC): It is very costly to develop new products or technologies. As a result, competing firms are forced to bring together their mutual resources and competencies and combine them to speed up the product development task and to develop unique products or technologies. However, cooperative relations are not easy and involve high costs and risks (Gynawali and Park, 2009). According to Subrahmanya the technological innovations of the enterprise were based on in-house technological capability. Also it is important that in-house training of labor was a continuous process (Subrahmanya, 2009).

Consumer Preferences (CP): As customers can particularly drive innovation in SMEs, companies work closely with their customers on contractual work, and often have to develop new products to meet their requirements. Sometimes new ideas may come from the customers themselves. Customer orientation has an impact on product development. Their influence is particularly important in new product ideas, new product launches, process innovation, cross-functional teamwork, interdepartmental connection, and to a lesser extent, in business strategy (Laforet, 2011). The indicators such as strong brand awareness, expressions of consumer preference, and high levels of market share are important factors for overall firm performance in SMEs (Lamprinopoulou and Tregar, 2011).

Economic Factor (EF): Economic structure plays a crucial role in innovation (Rujirawanich et al., 2011). The financial and economic crisis has impact on all areas of business activities and results in problems with accessing to financial sources which are needed to finance investments, especially for innovations (Lesáková, 2014). Moreover GNP affects the development of SMEs (Karpak, 2010). To encourage SMEs growing eventually leads to growth, innovation, and employment in the economy (Volchek et al., 2013). And also the role of SME's are very important in achieving economic growth and creating new employment opportunities. Consequently SMEs are responsible for much of the innovation which leads to new higher value products and services (Karpak, 2010).

Culture Factor (CF): According to Schein (1992), organizational culture is values and beliefs that provide norms of expected behaviors that employees might follow. Values refer to act as social principles or philosophies that guide behaviors and set a broad framework for organizational routines and practices. Values and by building corresponding norms for expected behavior managers can give shape to organizational culture that has a convincing and effective influence on employee behavior values. Values and norms turn to as organization ceremonies, rituals and langue which are artifacts that direct desired behavior of employees like innovation (Hogan and Coote, 2013).

Organizational culture or climate that encourages the employees' innovation capacity, tolerates risk, and supports personal growth and development, is very important antecedent for innovativeness (Menzel et al., 2007). These cultures' may be labelled as an 'innovation culture' (Castro et al., 2013). Such an innovation culture involves taking risks, worker participation, creativity, and shared responsibility (Lau and Ngo, 2004). Dombrowski et al. (2007) identify eight elements of organizational innovative culture: (1) innovative mission and vision statements; (2) a culture of democratic, lateral communication without the chains of hierarchy in order to attract and retain talented individuals who are so necessary for pursuing experimentation and innovation; (3) forms of safe innovative environments that allows for the mysterious innovation process; (4) flexibility; (5) collaboration across various organizational boundaries; (6) sharing and teaching among and across business units and alliances can be an effective way of promoting collaborative innovation; (7) incentive schemes based in work teams can foster innovative culture; and (8) leadership is necessary to encourage innovation, for which is necessary big aspirations, a flexible definition of their businesses, and a habit of experimentation (Škerlavaja, et al., 2010)

Management Skills (MS): Manager/leader management style is one of the most important organizational characteristic predicting innovation adoption among organizations. Managers are tends to be more indirect roles that allows for experimentation, open mindedness, and collaboration (Burgelman and Sayles, 1986; Russell, 1999). Middle managers can communicate and reinforce objectives for innovation. They can facilitate and promote entrepreneurial

activity in the firm, provide resources and expertise, reduce bureaucratic layers, and promote collective understanding and interpersonal trust (Chung and Gibbons, 1997; Dess et al., 2003; Burgelman and Sayles, 1986; Hornsby et al., 2002). These broad actions can shape the organization's culture and value systems, increasing its receptiveness for innovation (Kelley et al., 2011)

Learning Capability (LC): Organizational learning defined as a collective capability based on experiential and cognitive processes and involving knowledge acquisition, knowledge sharing, and knowledge utilization. It supports creativity, inspires new knowledge & ideas and increases ability to understand and apply them (Arago'n-Correa et al., 2007). The processes of learning at organizational level involve key components that support knowledge productivity processes, which include searching for information, assimilating, developing and creating new knowledge on products, processes, and services. (Günsel et al., 2011) Thus, Organizational learning have noted a positive relationship between organizational learning and firm innovation (Calantone et al., 2002; Tushman & Nadler, 1986).

The OL literature mainly focuses on the development of normative models for the creation of a learning organization. This literature underlines the importance of organizational learning capability (OLC) (Alegre and Chiva, 2008). Writers defined set of actions that ensures learning capability: effective generation of ideas by implementing a set of practices such as experimentation, continuous improvement, teamwork and group problem-solving, observing what others do, or participative decision making.

Learning capability much more important for SME's to identify and respond to market cues better, faster, and cheaper than rivals as well as underpins the SMEs' competences needed to efficiently develop new products (Prieto and Revilla, 2006; Sok and O'Cass, 2011).

Market Orientation (MO): It is defined as "the organization-wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization-wide responsiveness to it" (Kohli and Jaworski, 1990). Writers used three core concept customers focus, marketing coordination and profit of marketing and covers three basic activities: 1) integration of market information related to customers; 2) the dissemination of market information inside enterprise and 3) design and implementation of an answer to such information (Aldas-Manzano et al., 2005). Market Orientation is typically involved with doing something new in response to market conditions, it is considered as an antecedent of innovation (Jaworski & Kohli, 1993, 1996). Empirical research has found that the degree to which a firm is involved in new product development activity is significantly associated with the extent and nature of its MO (Wang and Chung, 2013)

Serna et al. (2013), Lado and Maydeu-Olivares (2001), Aldas-Manzano et al. (2005), Keskin (2006), Low et al. (2005; 2007) and Grinstein (2008), are all found that the market orientation strongly influence innovation. So companies get involved in market orientation, they higher their level of innovation.

Competitive Advantage (CA): In knowledge economy, innovation becomes a key source of competitive advantages (Daghfous, 2004; Prajogo & Ahmed, 2006). According to the resource-based view, there are four indicators to measure the potential of firm resources to generate sustainable competitive advantages—value, rareness, imitability, and substitutability (Barney, 1991). Thus if company has valuable and rare resources like physical assets, capacities, organizational culture, patents, trademarks, information, and knowledge, it can use these resources to implement value-creating strategies that cannot be duplicated by other companies to obtain sustainable competitive advantages. (Chen, 2009).

After determining literature based important innovation factors we are able to construct our decision model which is seen in Figure 1.

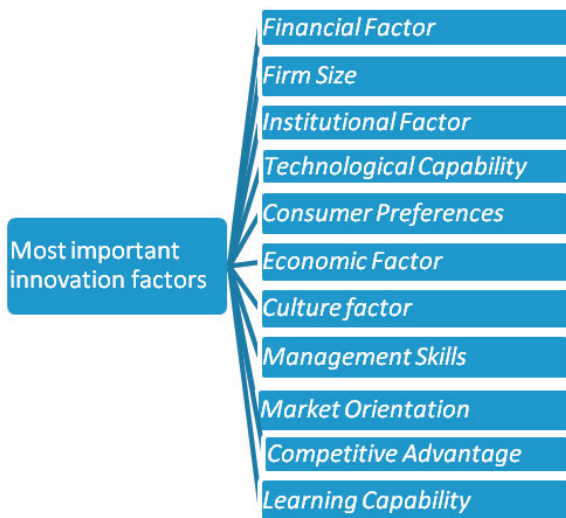


Figure 1. Innovation factors

3.The Method of Application

We interviewed 33 SME owner and manager in Istanbul, Turkey using a modified version of analytic hierarchy process. Saaty (2006) identifies two types of measurements in AHP method; absolute and relative measurement. In the absolute measurement, the alternative is compared with an ideal alternative that is known of or can be imagined; however in relative measurement an alternative is compared with other alternatives one by one which is called pairwise comparison. Pairwise comparisons are classically carried out by asking the decision maker how valuable a criterion (C1) when compared to another criterion (C2) with respect to overall goal.

The AHP has been widely used across many industrial applications such as Sadeghi et al. (2012) developed a model to evaluate factors affecting Iranian high-tech SME's success, Tsai and Kuo (2011) considered the interdependent relationship among complex policy evaluation criteria and alternatives, and addresses the constraints of itemized annual budgets and evaluation results showed that three alternatives (incubator center, financial assistance, and knowledge-sharing platforms) are selected under budget constraints and the model provides an effective solution to help policy makers evaluate and select feasible entrepreneurship policy mix. Saremi et al. (2009) applied systematic decision process for selecting external consultant about TQM in SMEs. Chang et al. (2012) developed AHP model based on the needs of the SME who should use it to obtain a better outsourcing provider resulting from improved information vital to maintain outsourcing efficiency. Tsai and Chou (2009) proposed a novel hybrid model for selecting optimal management systems under resource constraints, and illustrate the practical application.

Definitions and notations for the pair-wise comparison matrix

Saaty (2003) suggested a 1–9 fundamental scale to compare two elements with respect to the criteria. For simplicity, let $A = (a_{ij})_{n \times n}$ be a pair-wise matrix with n criteria ($n \geq 3, i, j = 1, 2, \dots, n$) then we have the following definitions and notations.

Definition 1. A comparison matrix A is positive reciprocal matrix if $a_{ij} = 1/a_{ji}, a_{ij} > 0$ and $a_{ij} = 1/a_{ij}$ for all positive integer i and j .

Definition 2. A reciprocal matrix is perfectly consistent if $a_{ij}a_{jk} = a_{ik}$ for all i, j and k .

Definition 3. A reciprocal matrix is approximately consistent if $a_{ij}a_{kj} \approx a_{ik}$ for all i, j and k , where ‘ \approx ’ denotes approximately or close to.

Definition 4. A reciprocal matrix is transitive if $A > C$ can be derived from $A > B$ and $B > C$ logically.

Definition 5. The pair-wise comparison matrix can pass the consistency test, if the consistency ratio

$$C.R. = C.I. / R.I. < 0.1$$

, where the consistency index $C.I. = (\lambda_{max} - n) / (n - 1)$; $R.I.$ is the average random index

based on matrix size, λ_{max} is the maximum eigenvalue of matrix A , and n is the order of matrix A .

Then the consistency property in the pairwise comparison is examined by the procedure as following

- a- Build the normalized pairwise comparison matrix A_1

$$A_1 = \begin{bmatrix} a_{11} & \dots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{n1} & \dots & a_{nn} \end{bmatrix} \tag{1}$$

and $a_{ij}' = \frac{a_{ij}}{\sum_{i=1}^n a_{ij}}$ for $i, j = 1, 2, \dots, n$, [2]

- b- Calculate the eigenvalue and the eigenvector.

$$w = \begin{bmatrix} w_1 \\ \vdots \\ w_n \end{bmatrix}, \text{ and } w_i = \frac{\sum_{j=1}^n a_{ij}'}{n} \text{ for } i = 1, 2, \dots, n, \tag{3}$$

$$w' = Aw' = \begin{bmatrix} w_1' \\ \vdots \\ w_n' \end{bmatrix}, \tag{4}$$

and $\lambda_{max} = \frac{1}{n} \left(\frac{w_1'}{w_1} + \frac{w_2'}{w_2} + \dots + \frac{w_n'}{w_n} \right)$, [5]

where w is the eigen vector, w_i is the eigen value of criterion I, and λ_{max} is the largest eigen value of the pairwise comparison matrix.

Next, we use these equations to get the performance of twelve innovation factors at Table 1.

Table 2. The meaning of importance scale.

Importance Scale	Meaning
1	Represent the two elements are of same importance
3	Represent the two elements the former is slight important than the latter
5	Represent the two elements the former is obviously important than the latter
7	Represent the two elements the former is more important than the latter
9	Represent the two elements the former is extreme important than the latter

4.Priorities of the criteria

After building the hierarchy model, a questionnaire is developed for the prioritization of the criteria. We explored compatibility of each expert judgment to eachother. The questionnaire was used to analyze twelve criteria. Average is compatible as a group. Aside from the relative weight, we can also check the consistency of innovation factors. Principal Eigen value is obtained from the summation of products between each element of Eigen vector and the sum of columns of the reciprocal matrix. Aggregate judgment is derived from the geometric mean of individual judgments. The weights obtained are shown in Table 1 and the scores of the criteria. The more important criteria for the decision makers (DM) are Management skills, Technological capability, Financial factor, and firm size with a total weight of nearly half of the total weight. Our study, however, illustrates that prior criteria are the most influential factor in SMEs innovations. If there are interdependencies among the factors, the factors that are less important individually might turn out to be more important when evaluated collectively. That’s why we preferred to make pair-wise comparison as a network model.

Table 3. *Preference Vector* for Each Criterion

<i>Criteria</i>	<i>Weights</i>	<i>Normalized Weights</i>
<i>Financial Factor</i>	1,1403	0,15932
<i>Firm Size</i>	0,9337	0,130454
<i>Institutional Factor</i>	0,1053	0,014712
<i>Technological Capability</i>	1,1731	0,163903
<i>Consumer Preferences</i>	0,3564	0,049795
<i>Market Orientation</i>	0,4837	0,067581
<i>Culture Factor</i>	0,1625	0,022704
<i>Management Skills</i>	1,9638	0,274377
<i>Learning Capability</i>	0,0477	0,006665
<i>Market Orientation</i>	0,7376	0,103056
<i>Competitive Advantage</i>	0,0532	0,007433

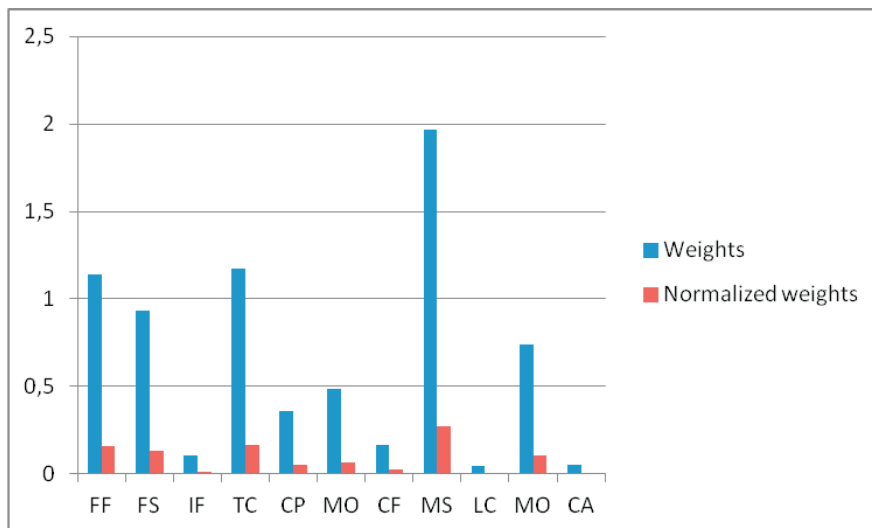


Figure 2. Weights of criteria

Aside from the relative weight, we can also check the consistency of innovation factors. Principal Eigen value is obtained from the summation of products between each element of Eigen vector and the sum of columns of the reciprocal matrix. Our consistency ratio is $CR = 9,2\% < 10\%$. Thus, our subjective evaluation is consistent.

5. Conclusion

Innovations are substantial for the economic performance of SMEs in all over the world. This work has reviewed the most important innovation factors according to 34 SMEs owner and manager.

The decision model is based on the AHP. The decision makers found this technique very useful because model makes a deep reflection on the problem, as well as determine the criteria influencing innovation factors, and analyse the influences among criteria and set priorities using the models proposed here. The DM had to answer some questionnaires that, though at first seemed difficult, were relatively simple and easy to answer. We asked the relative strength of eleven factors. This procedure improves the current decision-making process, providing more rigor and scientific robustness.

Although this paper points out different factors to promote the innovation factors, there are other things you can see in the relationship between the different innovation factors that can be added to decision model. In other words, if you build an open innovation model, it is obvious to find different results.

Prior studies such as Karpak and Topçu (2010) indicates that the most influential factor affecting the success of SMEs is regulation and policies. In the second place there is facility location and in the third place there is stage of industry. According to the research of Talebi et al. (2012) the most influential factor in SMEs' innovation is the stage of industries following by demand, industry -university linkage, attitude to work change and size and age

This study examines the factors influencing the innovation performance of SMEs, and the results of this study shows that the most important criterias for the decision makers (DM) are Management skills, Technological capability, Financial factor, and firm size with a total weight of nearly half of the total weight. Management Skills is often considered as the most influential factor related to the performance of an SME (Man et al., 2002). And also management skills plays critical role in innovation process by promoting the entrepreneurial activity in the firm, provide resources being open minded and by supporting collaboration (Burgelman and Sayles, 1986; Russell, 1999; Chung and Gibbons, 1997; Dess et al., 2003; Hornsby et al., 2002).

References

- Aldas-Manzano, J., Küster, I. and Vila, N. (2005), Market orientation and innovation: an inter-relationship analysis, *European Journal of Innovation Management*, 8(4), 437-452.
- Alegre J, Chiva R. (2008) Assessing the impact of organizational learning capability on product innovation performance: An empirical test *Technovation*; 28(6): 315-26.
- Arago'n-Correa, J.A., Garc'a-Morales, V.J., Cordo'n-Pozo, E. (2007) Leadership and organizational learning's role on innovation and performance: Lessons from Spain, *Industrial Marketing Management*, 36 349 – 359.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Bayarçelik, E.B., Taşel, F. (2012) Research and Development: Source of Economic Growth, *Procedia - Social and Behavioral Sciences*, Vol.58, 12 October 2012, 695-701. 8th International Strategic Management Conference, June 20-24 2012, Barcelona/Spain
- Burgelman, R.A., Sayles, L.R. (1986). *Inside Corporate Innovation: Strategy, Structure, and Managerial Skills*, Free Press, New York, NY.
- Calantone, R. J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management*, 31, 515 – 524.
- Castro, G.M., Delgado-Verde, D., Navas-López, J., Cruz-González, J., (2013) The moderating role of innovation culture in the relationship between knowledge assets and product innovation, *Technological Forecasting & Social Change*, Volume 80,351–363.
- Chang, S.I., Yen, D.C., Ng, C.S.P., and Chang W.T., (2012) An analysis of IT/IS outsourcing provider selection for small- and medium-sized enterprises in Taiwan, *Information & Management*, Volume 49, Issue 5, pp. 199-209.
- Chen, Y.S, Lin J.M., Chang, C.H. (2009)The positive effects of relationship learning and absorptive capacity on innovation performance and competitive advantage in industrial markets *Industrial Marketing Management* 38 152–158.
- Chung, L. H., Gibbons, P.T., (1997). Corporate entrepreneurship: the roles of ideology and social capital. *Group and*
- Dadfar, H., Dahlggaard, J.J., Brege, S., Alamirhoor, A. (2013). Linkage between organisational innovation capability, product platform development and performance. *Total Quality Management*, 24(7), 819 –834,
- Daghfous, A. (2004). Absorptive capacity and the implementation of knowledgeintensive best practices. *S.A.M. Advanced Management Journal*, 69(2), 21–27.

- Davenport, S., Bibby, D. Zeng, (1999) Rethinking a national innovatin system: The small country as 'SME', *Technology Analysis & Strategic Management*, Volume 11, No 3, pp. 431-462.
- Dess, G.G. , Ireland, R. D. , Zahra, S. A. , Floyd, S. W., Janney, J. J., Pane, P. L. (2003).Emerging Issues in Corporate Entrepreneurship *Journal of Management, Journal of Management*, 29(3), 351-378.
- Dombrowski, C., Kim, J. Y., Desouza, K. C., Braganza, A., Papagari, S., Baloh, P. (2007). Elements of innovative cultures. *Knowledge and Process Management*,14(3), 190–202.
- Dunning, P., & Dunham, R. (2010). *The Innovation's Way: Essential practices for successful innovation*. MIT Press.
- Gnyawali, D., Park, B., (2009) Co-opetition and Technological Innovation in Small and Medium-Sized Enterprises: A Multilevel Conceptual Model, *Journal of Small Business Management*, Volume 47, pp. 308-330.
- Gregorio Martín-de Castro Miriam Delgado-Verde José E. Navas-López, Jorge Cruz-González (2013), The moderating role of innovation culture in the relationship between knowledge assets and product innovation; 80(2):351–363.
- Grinstein, A. (2008).The effect of market orientation and its components on innovation consequences: A meta-analysis. *Journal of the Academy of Marketing Science*,36, 166–173.
- Gunsel, A., Siachou E., Acar, A. Z.(2011) Knowledge Management And Learning Capability To Enhance Organizational Innovativeness, *Procedia Social and Behavioral Sciences* 24 ,880–888.
- Hogan, S. J.,Coote, L.V. (2013), Organizational culture, innovation, and performance: A test of Schein's model. *Journal of Business Research*, 1-13.
- Hornsby, J. S., Kuratko, D. F. ve Zahra S. (2002). "Middle Managers' Perception of the Internal Environment for Corporate Entrepreneurship: Assessing a Measurement Scale," *Journal of Business Venturing*, 253-273
- Jaworski, B. J., & Kohli, A. K. (1993).Market orientation: Antecedents and consequences. *Journal of Marketing*, 57,53–70.
- Jaworski,B.J.,&Kohli,A.K.(1996).Market orientation: The construct, research proposition, and managerial implication.*Journal of Marketing*, 54,1–18.
- Karpak B., Topçu I., (2010) Small medium manufacturing enterprises in Turkey: An analytic network process framework for prioritizing factors affecting success. *Int. J. Production Economics*, 125, pp.60-70.
- Kelley D.J., O'Connor, G.C., Neck,H., Peters,L.(2011) Building an organizational capability for radical innovation:The direct managerial role. *Journal of Engineering and Technology Management* 28, 249–267.
- Keskin, H. (2006), Market orientation, learning orientation and innovation capabilities in SMEs: an extended model, *European Journal of Innovation Management*, 9(4), 396-417.
- Klewitz, J. and Hansen, E.G., (2014), Sustainability-oriented innovation of SMEs: a systematic review, *Journal of Cleaner Production*, Volume 65, pp. 57–75.
- Kohli, A.K. and Jaworski, B.J. , (1990).Market orientation: the construct, research propositions and managerial implications, *Journal of Marketing*, 541-18.
- Lado, N.and Maydeu-Olivares, A. (2001), Exploring the link between market orientation and innovation in the European and US insurance markets, *International Marketing Review*, 18,2130-145.
- Laforet, S., (2011) A framework of organisational innovation and outcomes in SME's, *International Journal of Entrepreneurial Behaviour & Research*, Volume 17, No.4, pp. 380-408.
- Lamprinopoulou, C., Tregear, A., (2011) Inter-firm relations in SME clusters and the link to marketing performance, *Journal of Business & Industrial Marketing*, Volume 26/6, pp.421–429.
- Lau, C.-M. , Ngo H.-Y. (2004). The HR system, organizational culture, and product innovation *International Business Review*. 13, 685–703.
- Lecerf, M.A., (2012) Internationalization and Innovation: The Effects of a Strategy Mix on the Economic Performance of French SMEs, *International Business Research*, Volume 5, No.6, pp. 1-13.
- Lesáková, L. (2014). Evaluating innovations in small and medium enterprises in Slovakia, *Contemporary Issues in Business, Management and Education* 2013, *Procedia - Social and Behavioral Sciences* 110, pp. 74 – 81
- Liu, M., Li, M., Zhang, T. (2012), Empirical Research on China's SMEs Technology Innovation. *Engineering Strategy. Systems Engineering Procedia* 5, 372 – 378
- Low, D. R., Chapman, R. L. and Sloan T. R., (2007), Inter-relationship between innovation and market orientation in SMEs, *Management Research News*, 30(12), 878-891.
- Man, T.W.Y., Lau, T., Chan, K.F. (2002), The competitiveness of small and medium enterprises A conceptualization with focus on entrepreneurial competencies, *Journal of Business Venturing*, Volume 17, pp. 123-142.
- Martinez Serna, M.C., Guzman, G.M., Castro,S.Y.P. (2013) The Relationship between Market Orientation and Innovation in Mexican Manufacturing SME's, *Advances in Management & Applied Economics*, 3(5), 125-137.
- Menzel H., I. Aaltio, J. Ulijn, (2007) On the way to creativity: engineers as intrapreneurs in organizations, *Technovation* 27 (12) 732–743.
- Mumford, M.D., Scott, G. M., Gaddis, B., & Strange, J. M. (2002).Leading creative people: Orchestrating expertise and relationships.*Leadership Quarterly*, 13(6), 705–750.
- O'Cass, A., Weerawardena, J., (2009) Examining the role of international entrepreneurship, innovation and international market performance in SME internationalisation, *European Journal of Marketing*, Volume 43, No 11/12, pp. 1325-1348.
- Organization Management* Volume 22 Issue1, 10–30.
- Prajogo, D. I., & Ahmed, P. K. (2006). Relationships between innovation stimulus,innovation capacity, and innovation performance. *R & D Management*, 36(5),499–515.
- Prieto, I., Revilla, E., 2006. Assessing the impact of learning capability on business performance: empirical evidence from Spain. *Management Learning* 37, 499– 522.
- Rujirawanich, P., Addison R., Smallman, C., (2011) The effects of cultural factors on innovation in a Thai SME, *Management Research Review* ,Volume 34, No. 12, pp. 1264-1279.
- Russell, R. D. (1999). Developing a Process Model of Intrapreneurial Systems: A Cognitive Mapping Approach, *Entrepreneurship: Theory and Practice*, Volume 23, 65-87.

- Saaty, T.L. (2006), Rank from comparisons and from ratings in the analytic hierarchy/network processes, *Eur. J. Oper. Res.*, 168 (2), pp. 557–570.
- Saaty, T.L., (2003), Decision-making with the AHP: Why is the principal eigenvector necessary, *European Journal of Operational Research* 145 (1), pp. 85–91.
- Sadeghi, A., Azar, A., and Rad, R.S. (2012), Developing a Fuzzy Group AHP Model for Prioritizing the Factors Affecting Success of High-Tech SME's in Iran: A Case Study, *Procedia - Social and Behavioral Sciences*, Volume 62, pp. 957-961.
- Saremi, M., Mousavi, F., Sanayei., (2009), TQM consultant selection in SMEs with TOPSIS under fuzzy environment, *Expert Systems with Applications*, Volume 36, Issue 2, Part 2, pp. 2742-2749.
- Schein, E. H. (1992). *Organizational culture and leadership*. San Francisco: Jossey-Bass Inc.
- Serna, M., Guzman, G.M., Pinzon Castr, S.Y. (2013) The Relationship between Market Orientation and Innovation in Mexican Manufacturing SME's. *Advances in Management & Applied Economics*, Volume 3, Issue 5, 125-137.
- Skerlavaja, M., Song, J.H., Youngmin, L. (2010) Organizational learning culture, innovative culture and innovations in South Korean firms, *Expert Systems with Applications* 37, 6390–6403.
- Sok, P., O' Cass, A., (2011). Achieving superior innovation-based performance outcomes in SMEs through innovation resource-capability complementarity. *Industrial Marketing Management* 40, 1285–1293.
- Subrahmanya, B. M.H., (2009) Nature and strategy of product innovations in SMEs: A case study-based comparative perspective of Japan and India, *Innovation: management, policy & practice*, Volume 11, pp. 104-113.
- Talebi, K., Ghavamipour, M., (2012) Innovation in Iran's small and medium size enterprises (SMEs): Prioritize influence factors affecting innovation of SMEs, using analytic network process (ANP) method, *African Journal of Business Management*, Volume 6, No 43, pp. 10775-10785.
- Tellis, G. J., Prabhu, J. C., & Chandy, R. K. (2009). Radical innovation across nations: The preeminence of corporate culture. *Journal of Marketing*, 73(1), 3–23
- Tsai, W.H. and Chou, W.C., (2009), Selecting management systems for sustainable development in SMEs: A novel hybrid model based on DEMATEL, ANP, and ZOGP, *Expert Systems with Applications*, Volume 36, Issue 2, Part 1, pp. 1444-1458.
- Tsai, W.H., Kuo, H.C., (2011), Entrepreneurship policy evaluation and decision analysis for SMEs, *Expert Systems with Applications*, Volume 38, Issue 7, pp. 8343-8351.
- Turkstat, www.turkstat.gov.tr. Available on 23.03.2014.
- Tushman, M. L., & Nadler, D. A. (1986). Organizing for innovation. *California Management Review*, 28(3), 74 – 92.
- Volchek, D., Jantunen, A., Saarenketo, S., (2013) The institutional environment for international entrepreneurship in Russia: Reflections on growth decisions and performance in SMEs, *Journal of International Entrepreneurship*, Volume 11, pp. 320-350.
- Wang, C.L., Chung H.F.L. (2013), The moderating role of managerial ties in market orientation and innovation: An Asian perspective, *Journal of Business Research* 66, 2431–2437.
- Xie, X., Zeng, S., Peng, Y., Tam, C., (2013) What affects the innovation performance of small and medium-sized enterprises in China?, *Innovation: Management, Policy & Practice*, Volume 15, Issue 3, pp. 271-286.
- Yongyoon, S., Kim, M.S. (2012) Effects of SME collaboration on R&D in the servicesector in open innovation, *Innovation: Management, Policy & Practice*, Volume 14, Issue 3, pp. 349-362.