

International Journal of Scientific Research and Reviews

The Role of Organizational Learning and Innovation Capabilities on Performance: Evidences from Literature

Shaik Kamruddin and Misab PT*

¹Assistant Professor, Department of Management Studies, Maulana Azad National Urdu University, Gachibowli, Hyderabad, India, 500032, Email:kamruddin@manuu.edu.in

^{2*}Ph.D. Scholar, Department of Management Studies, Maulana Azad National Urdu University, Gachibowli, Hyderabad, India, 500032, Email:ptmisab@gmail.com

ABSTRACT

This paper synthesizes the state of research on organizational learning capability (OLC) and its effect on innovation capability (IC) and performance based on a comprehensive review of 57 empirical studies published over the period of 2001 to 2018. This review consolidates various perspectives of empirical research on organizational learning capability into unique framework linking learning capability (exogenous variable) with innovation and performance as endogenous variables (outcome). And the review has found that majority of researchers have consensus about influence of OLC on innovation capability and performance and there is sufficient theoretical and empirical support for it. And learning capability is found as important antecedent of innovation capability. Directions for future research and practical implications are also discussed.

KEYWORDS: Learning Capability, Innovation Capability, Performance, Resource Based Perspective

***Corresponding Author**

Mr. Misab PT

PhD. Scholar

Dept. of Management Studies, CPDUMT Building

Maulana Azad National Urdu University

Gachibowli, Hyderabad, India, 500032.

Email : ptmisab@gmail.com

Mobile: 9496522929, 6302133414

1. INTRODUCTION

The literature on organizational learning capability has witnessed many reviews from 1983 to 2002¹⁻⁸ and most of them were dealing with theoretical papers due to scarcity of empirical research⁹. Since 2000s there were an exponential growth in empirical research on OLC and publications linking with OLC with Innovation capability and performance increased. However, this development in OLC literature especially in relation with innovation and performance is not reviewed adequately. Hence, this study aims to examine what has been learned through empirical research on OLC and IC how it can contribute into practice and policy making.

2. METHODOLOGY

Traditional methods of 'Narrative Literature Review' has been criticized for lack of relevance due to the absence of rigor and use of biased methods¹⁰. In many cases the absence of thoroughness and quality in narrative methods impeded decision making and policy implementation¹¹. To override this problem, this review has followed 'Systematic Review' Method in line with Campbell Collaboration's Guidelines. According Campbell Guidelines, systematic review involves following steps: 1) Formulating Review Question, (2) Setting Inclusion and Exclusion Criteria, (3) Systematic Data Search (4) Systematic Analysis and Synthesis (5) Presentation and Dissemination of Findings¹².

The Review Question was formulated as: How firm performance can be optimized through innovation and organizational learning capabilities? And it is further structured into five reviewable sub-questions:

- 1- How innovation capability and learning capability are related each other?
- 2- Is learning capability a key antecedent of innovation capability?
- 3- How learning capability and innovation capability contribute to firm performance?
- 4- Whether the influence of OLC on innovation and performance is stable or conditional?

This review has applied two criteria for taking decision on inclusion or exclusion of studies: first include only those studies which were published between 2001 and 2018. 2001 is set as lower temporal horizon of the study because the developments in organizational learning capability research is not reviewed sufficiently after this period. Till 2003 there are reviews like^{6,9,13}. Second, include only those studies which include any two variables from 'learning capability', 'innovation capability' and 'performance'. This criterion produced three types of studies containing either of innovation or performance as dependent variable and learning capability as independent variable and studies including all three variables.

For 'Systematic Search of Literature from data bases, libraries and journals two search engines namely Google Scholar and Summon Library Search Engine have been used. The key words

employed for searching were “Innovation Capability”, “Innovat*”, “Learning Capability”, “Organizational Learning”, “Learning Orientation” and “Performance”. Exhaustiveness of search has been ensured using asterisk truncation (innovat*) to include ‘innovation’, ‘innovations’ and ‘innovativeness’ and Boolean operators ‘AND’ & ‘OR’ on Summon and ‘OR’ Boolean on Google Scholar. Presentation and Dissemination of findings is the last and important step of this review. It also includes practical implications and suggestions for further research.

3. AN OVERVIEW OF RESEARCH ON OLC, IC AND PERFORMANCE

This part discusses the status of studies happened during the review period. A search on Summon and Google Scholar with selected keywords in search fields: ‘Title’, ‘Abstract’, and ‘Subject’ ‘Terms’ Content type: ‘Journal Article’, Publication date: 01/01/2001 to 31/12/2018, Language ‘English’, produced 126 matching results. Beside this, a cross reference search using ‘Find’ feature in PDFs has been done across studies dealing with three Key Search Terms (learning, innovation, performance) particularly and it produced 16 more relevant studies raising the total to 142. Retrieved studies were further classified by examining Title, Abstract, Keywords, introduction and Conclusion. Out of the 142 studies 85 were empirical studies, 35 theory papers, fourteen were review papers, and eight were systematic reviews. From 85 empirical studies, based on inclusion and exclusion criterion 57 studies were selected for this review. Often it was difficult to distinguish studies as ‘empirical’ or ‘theory’, because many papers had both components. In such cases they have been added to empirical category in this study.

The majority of articles selected for review are coming from following journals: Journal of Business Research -10, Industrial Marketing Management -5, Technovation-5, Procedia - Social and Behavioral Sciences-4, European Journal of Innovation-4, Industrial Management and Data Systems-3, Journal of Management Studies-2, Journal of Marketing-2, Asia Pacific Management Review, and Strategic Management Journal (SMJ) etc.

During the 2001 to 2018 on an average there was three empirical studies on Learning, Innovation and Performance (LIP) published each year. And there was substantial increase in average during 2005 and 2013, five studies per year. Especially, in 2006 and 2012 there was 6 and 8 publications respectively, the highest in whole review period. This growth in number of empirical studies on LIP shows the importance of the field and its significance among researchers and stakeholders (See Figure 1).

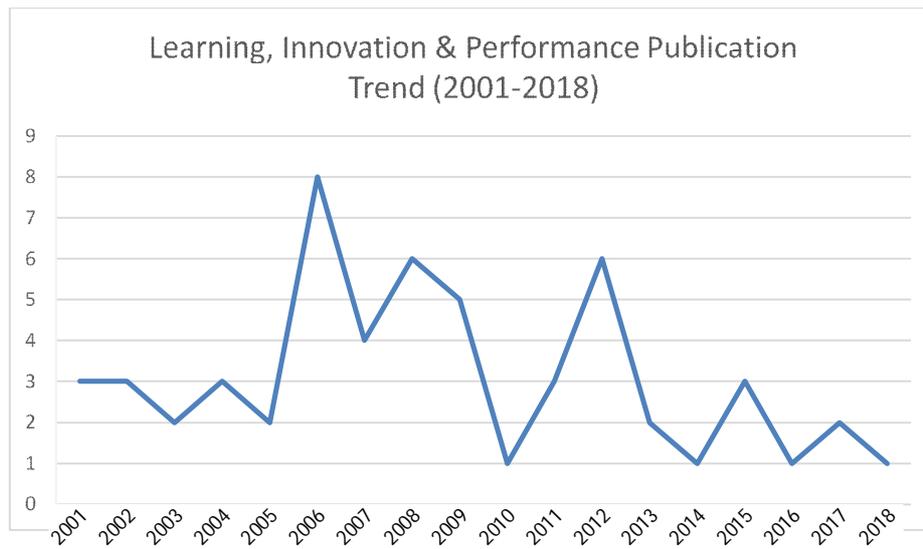


Figure 1. Learning, Innovation & Performance Publication Trend

Among the selected empirical studies on LIP, 55% belongs to manufacturing sector which includes tiles, chemical, pharmaceutical, electrical industries and rest of the studies are conducted in service sector which includes government agencies, NPOs, communication, transportation, and management services.

4. ORGANIZATIONAL LEARNING CAPABILITY

The enormous studies have come on organizational learning during the last two decades. It is a process by which an organization acquires new insights and knowledge from the common experiences of members within the firm, and it has the power to affect firm's culture and capabilities¹⁴. Whereas, organizational learning capability can be understood as managerial and organizational characteristics that facilitate process of knowledge construction through sharing of beliefs, meanings and experiences over time and permit an organization to learn¹⁵.

There is a vast extent of studies about Organizational Learning Capability (OLC) in RBV literature and they establish that OLC is an essential factor for achieving innovation and growth for firms¹⁶⁻¹⁹. According to advisors and strategic scholars, organizational capabilities carry superior normative characteristics, especially organizational learning capability, which is the 'best' source of competitive advantage²⁰.

As in the case of any evolutionary natural process of a dynamic concept, organizational learning also is not exempt from widespread controversy and theoretical dismay. Different scholars looked at organizational learning from different angles. The approach of Barbara Levitt and James G. March is the prominent view which states that organizational learning is routine based, target oriented and history dependent⁶. The consequent scholars focused on how organizations absorb their learnings from history to mold their routine activities and thus develop conceptual frameworks. It is

also important that how organizations learn from their own experiences as well as experience of others to improve their practices and performance.

Since OLC is an abstract construct it very difficult to measure it and thus researchers have derived distinct tools for OLC during advancement of RBV literature. However, the measurement scale developed by R Chiva got more popularity and acceptance. It was contributed by Ri. Chiva²² in his study titled “Development and Validation of an Instrument to Measure Organizational Learning Capability”. The study introduced five dimensions of OLC: (i) Risk Taking, (ii) experimentation, (iii) dialogue, (iv) interaction with external environment and (v) participative decision making. This tool distinguished from previous scales by focusing on process and sources of learning capability, instead of focusing on output metrics. This scale have been widely used by many researchers to measure OLC and find out relationship with other organizational issues such as product innovation¹⁵, firm innovativeness²³, and firm performance²⁴. Since the scope of this review is limited to tracing the literature evidences supporting the interlinks between capabilities and performance a detailed review of all other tools for assessing OLC is not included here.

5. ROLE OF LEARNING CAPABILITY ON PERFORMANCE

The role of learning capability in driving the performance of firms is an extensively researched concept. The literature evidences shows that learning capability is critical contributor to business performance²⁵⁻²⁷.

However, there is much debate on whether this effect is direct or indirect. Many researchers argued that there is no direct effect for OLC on performance rather it is achieved through OLC's influence on innovation capability¹⁹. Kocoglu²⁸ had developed a model in which technological learning is treated as enhancing factor of innovation capability and performance and which was supported by other researchers also (eg. Carayannis, Alexander, & Ioannidis,²⁹ which illustrated three levels of innovation (instrumental, innovative, creative) at which OLC effects innovation and then performance. The Direct relationship between learning and performance has established by only few researchers like Mavondo, Chimhanzi, & Stewart,³⁰ with ($p < 0.0001$) and by Kalmuk & Acar³¹ where they found that learning capability is positively related to profitability of firms ($r = 0.3466$).

Another issue which empirical OLC literature underscored yet is whether the effect of learning on performance is constant across industries or not. There are evidences for variance of this effect according to the changes in industries and environments. For example the influence of learning capability on performance in Export industry and SMEs is found as insignificant^{24,32,33}. Another example is the Total effect of learning capability on innovation and performance is higher for firms in high turbulent environment and lower for firms in stable environment and individual effect on

performance is lower in turbulent environment and high in stable environment²⁵. This phenomenon was further supported by Wu & Shanley,³⁴ who found that turbulence of environments will force companies to practice learning activities so that they can bring new ideas and concepts to face their competitors. Thus, dynamic environment causes the increased effect of OLC on Performance.

6. INNOVATION CAPABILITY

Innovation capability (IC) refers to ability of a firm to apply knowledge to innovation activities to create added value like new product or service. It is commonly defined as adopting an idea or behavior in relation to a product, service, instrument, system, policy or program which is new to the company¹⁹. Xu, Lin, & Lin³⁵ considered IC as “the capacity of gaining access to, developing and implementing innovative technologies for designing and manufacturing” while Chen³⁶ defined it as “firm's capabilities, grounded in the processes, systems, and organizational structure, which can be applicable to the product or process innovation activities”. Whereas Koc T³⁷ defined it as “continuous improvement of the overall capabilities and resources that the firm possesses to explore and exploit opportunities for developing new products to meet market needs”. Hogan³⁸ has contributed a holistic and comprehensive definition for innovation capability which considers a broad range of innovation activities and performance implication which states that it is “a firm's ability, relative to its competitors, to apply the collective knowledge, skills, and resources to innovation activities relating to new products, processes, services, or management, marketing or work organization systems, in order to create added value for the firm or its stakeholders”. It is observed from the review of studies above that most of the definitions emphasize the point that innovation indicates the application of a new idea or behavior especially regarding with product or process development. On the other hand, the terms like innovation, Innovation Capability, Innovation Capacity, and Innovative capability has been used interchangeably and there is no consensus about the definition and underlying meanings of these terms among researchers.

Literature seeking the link between innovation and performance has demonstrated varied tools for measuring innovation capability. There is no unanimity about which composition of dimensions will fully explain the innovation capability construct across the industries.

Tang recognized six dimensions for innovation namely knowledge and skills, information and communication, behavior and integration, project raising and doing, the external environment, and guidance and support³⁹. Other indicative dimensions on innovation capability are ability to utilize/execute new ideas, utilize/execute new behaviors, utilize/execute new products, utilize/execute new academic services, utilize/execute new technology utilize/execute new administrative practices.

Recent researchers have identified some other dimensions for innovation capability construct, which received wider acceptance, they are: Product innovation, Process Innovation, Marketing Innovation, Organizational innovation^{40,41} technology focused innovation, client focused innovation, behavioral operational process, Marketing focused innovation³⁸.

7. INFLUENCE OF LEARNING CAPABILITY ON INNOVATION CAPABILITY

This part reviews the studies that treated organizational learning capability as an antecedent of innovation capability of firms. Although, the theory and concept of linking organizational learning capability with innovation capability was very popular in literature, the empirical studies started to appear in literature after 2001 onwards.

Many studies during 2001 and 2010 found that organizational learning capability positively affects innovation capability of organizations such as^{16,26,33,42-44}. Organizational learning is one of the most important factor contributing to the innovation of firms. And innovation is perceived as basic important determinant of organizational performance in competitive environment^{30,45-47}. Kalmuk & Acar and Lin et al.,^{31,33} established that learning capability as intermediate variable effecting the link between innovation and performance. Researchers also have observed that innovativeness of an organization can be identified by looking at their approach towards organizational learning⁴⁸. Studies have found that the learning capability is a necessary component for companies to innovate and survive^{17,19,49}.

This trend in literature has continued post to 2010 as well. A good amount of studies found that there is strong relationship between Learning Capability innovation capability of firms²²⁻²⁴. And learning capability is considered as critical enabler of Innovation^{20,50}. The greater the organizational innovation is required by a firm, the greater importance needs to be given towards creating environment for learning new things from existing knowledge¹⁹. A high and strong learning capability is necessary factor for high innovation⁵¹⁻⁵³. The mechanism of organizational knowledge through which new knowledge is produced from existing knowledge (organizational learning) causes organizational innovation¹⁹.

Em Sutando²⁰ extended above findings to educational industry and he found that organizational learning capability and creativity of universities significantly influences the organizational innovation. And he emphasised the need for creating more learning environment among lectures and employees; the more learning, the more new ideas will come up and institutions will innovate fast. This result was found as common for both public and private universities.

The review also found that one stream of studies are following a classification approach where innovation is studied as different types such as product innovation, process innovation market innovation and organizational innovation and technological innovation etc.^{14,15,17,19,41,54,55}. While other stream of scholars focused upon orientation towards learning and innovation. They argue that learning orientation, culture and knowledge acquisition facilitates innovation orientation^{16,42,45,47,56}.

8. INFLUENCE OF INNOVATION CAPABILITY ON PERFORMANCE

During the period between 2002 and 2018 several studies have been conducted to study the influence of innovation capability on performance variable. Innovation capability is regarded as an important factor for performance of companies especially in competitive environments^{25,51,57}.

Innovation capability widely recognized as super catalyst for competitive advantage and firm performance in RBV literature. Gomezelj found that innovation capability is one of the most significant capabilities that contributes superior performance⁵⁸. Maintaining effective organizational innovation is the solution to achieve competitive advantage to face uncertainties and environmental challenges⁵⁹.

Many extensive studies on the link between innovation capability and performance have contributed empirical evidences that there is a positive link between them^{25,60-62}. Transformational leadership is another variable which influence the performance where leaders transforms innovative behaviors of employees into new ideas and products⁶³.

There are wealth of evidences in academic literature that support the link between innovation capability and performance and show that innovation capability is the most significant driver for sustainable performance⁵⁸. The study results of^{19,25,27,43,58,64} shows that innovation have direct impact on performance of business firms both in service sector and manufacturing sector. However, few studies^{65,66} indicated a negative link or no link between innovation and performance and⁴⁰ though neglected direct impact in manufacturing industry, they found IC indirectly contributes to the performance via significantly effecting operational performance. In food exporting firms the components of effective innovation capability like culture, resources, and organizational management have significant effect on performance.

Few studies have taken one more step ahead to extend these findings into different perspective. They concluded that though the innovation has positive impact on organizational performance, it also bears some negative outcomes such as high cost burden, exposure to market risk, resistance and frustration of employees and inherent casualties occurring while implementing recurrent changes, etc. Hence innovation shouldn't be seen as all-time solution for all firms in all

situations, rather a caution is required while adopting innovation about its riskier and expensive nature⁶⁷.

Another observation is that the influence of innovation capability on performance is not static everywhere, but it is dependent on environment in which the firm operates. For example Wright, Palmer, & Perkins found that product innovation capability affects the performance of small business firms in turbulent environment, but it doesn't affect in pleasant environments⁶⁸. Gaining required innovation capability is the strategic way to face environmental challenges and build competitive advantage^{69,70}.

Likewise, the effect of innovation capability on performance is also contingent on the pattern of innovation types. If a firm adopts same type of innovation types it will not yield any added performance, but keeping divergency from traditional norms in the industry and trying new types of innovation will drive greater performance⁷¹.

Similarly, a number of studies have reported evidences in support of the view that innovation capability enables the firms to deal with external environmental changes effectively^{19,72}.

Finally, the relationship between innovation and performance is conditional to some moderating variables. Studies have found the size, age and industry type and environmental conditions are the significant moderators and they influence the effect of innovation capability on performance^{73,74}. Age of organizations yields added experience and market awareness which fastens the innovation activities and in turn triggers performance⁷⁵.

9. CONCLUSION AND IMPLICATIONS

This review has identified many interesting developments in literature dealing with capabilities of learning and innovation with regard to performance. From the review of studies on resources and capabilities it has been concluded that firm specific assets and capabilities are important factors which contribute to the performance of organizations. This perspective is basically built upon resource and capability based theory of firm (RBV).

There was exponential growth in empirical studies about influence of learning and innovation capabilities on performance. Researchers have conducted these studies in different markets and industries such as tiles, chemical, pharmaceutical manufacturing companies, electrical industries and firms from service sector which includes government agencies, NPOs, communication, transportation, and management services and educational institutions. Thus, findings of this review have more scope and practical implications for a larger reader. However, the findings of these studies are not blindly generalizable to broader aspects, because of the differences in methodology, sampling procedure and tools they used.

The empirical results show that there is positive relationship between organizational learning capability, innovation capability and organizational performance. The organizational learning capability has both direct and indirect effect on performance. The effect of learning capability on innovation capability increases the effect of innovation on performance. Organizational learning is key factor that helps organizations to improve their creativity and capabilities for innovation.

It is also found from the review literature on LIP that the relationship between learning and innovation and performance are moderated by age, size, and environmental conditions. Some studies added that environmental turbulences play a key role in the effect of innovation capability on performance. Similarly, the pattern of adoption of innovation types also influences the relationship between innovation and performance. It was found from the literature that innovation has both positive outcomes and negative outcomes such as market risk and increased cost and employees' dissatisfaction.

This review has some implications for future research. Since there are very scarce studies dealing with cross industrial studies and comparisons, this study recommends for empirical research comparing the effects learning and innovation capabilities on performance of firms from different industries. It will help make the finding generalizable and applicable in broader perspective. Most of the studies reviewed were cross sectional, hence this review suggests to fill this gap by conducting more studies by taking longitudinal data. This review also has noticed a wide gap with respect researches regarding the contingency factors that influence the link between learning, innovation and performance. There is need to advance the empirical studies from cross-sectional to longitudinal studies. Exploring these aspects will inspire the further progress of the scientific knowledge domain and industrial growth.

10. REFERENCES

1. Crossan MM, Lane HW, White RE, Djurfeldt L. Organizational learning: Dimensions for a theory. *Int J Organ Anal.* 1995;3(4):337-60.
2. Dodgson M. Organizational Learning: A Review of Some Literatures. *Organ Stud.* 1993;14(3):375-94.
3. Crossan M, Easterby-Smith M, Nicolini D. Organizational learning: Debates past, present and future. *J Manag Stud.* 2000 Sep;37(6):783-96.
4. Fiol CM, Lyles MA. Organizational Learning. *Acad Manag Rev.* 1985;10(4):803-13.
5. Huber GP. Organizational Learning: The Contributing Processes and the Literatures. *Organ Sci.* 1991;2(1):88-115.

6. Barbara Levitt and James G. March. "Organizational Learning." *Annu Rev Sociol* [online]. 1988;14:27: 319-340. available from: URL: <http://www.jstor.org/stable/2083321> .
7. Miller D. A preliminary typology of organizational learning: Synthesizing the literature. *J Manage*. 1996;22(3):485-505.
8. Shrivastava P. A Typology Of Organizational Learning Systems. *J Manag Stud*. 1983;20(1):7-28.
9. Mary M. From Raising Questions To Providing Answers: Reviewing Organizational Learning. *Organ Learn Knowl*. 2003;(519):1–24.
10. Fink A. *Conducting Research Literature Reviews: from the Internet to Paper*, 2nd edn. Sage Publications; 2019 Jan 30.
11. Hart C. *Doing a Literature Review: Releasing the Social Science Research Imagination (SAGE Study Skills Series)*. Doing a Literature Review. 1998.
12. Tranfield D, Denyer D, Smart P. Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*. 2003;14(3):207-22.
13. Dixon NM. Organizational Learning : A Review of the Literature with Implications for HRD Professionals. *Hum Resour Dev Q*. 1992;3(1).
14. Chang DR, Cho H. Organizational memory influences new product success. *J Bus Res*. 2008 ;61(1):13-23.
15. Alegre J, Pla-Barber J, Villar C. Organizational learning capability, product innovation performance and export intensity. *Technol Anal Strateg Manag*. 2012;24(5):1–31.
16. Hult GTM, Hurley RF, Knight GA. Innovativeness: Its antecedents and impact on business performance. *Ind Mark Manag*. 2004;33(5):429-38.
17. Lynn GS, Akgun AE. A new product development learning model: antecedents and consequences of declarative and procedural knowledge. *Int J Technol Manag*. 2000;20(5-8):490-510.
18. Jerez-Gómez P, Céspedes-Lorente J, Valle-Cabrera R. Organizational learning and compensation strategies: Evidence from the Spanish chemical industry. *Glob Bus Organ Excell*. 2007;26(3):51-72.
19. Jiménez-jiménez D, Sanz-valle R. "Innovation , organizational learning , and performance." *J Bus Res* [online]. 2011;64(4):408–17. available from: URL: <http://dx.doi.org/10.1016/j.jbusres.2010.09.010>
20. Sutanto EM. "The influence of organizational learning capability and organizational creativity on organizational innovation of Universities in East Java , Indonesia." *Asia Pacific*

- Manag Rev [online]. 2017;22(3):128–35. available from: URL: <http://dx.doi.org/10.1016/j.apmrv.2016.11.002>
21. Chiva Ri, A Legre J, Lapiedra R. Development and validation of an instrument to measure organizational learning capability. OLKC Conf. 2006;(March):46.
 22. Alegre J, Chiva R. Linking entrepreneurial orientation and firm performance: The role of organizational learning capability and innovation performance. *J Small Bus Manag.* 2013;51(4):491–507.
 23. Ona AO, Tepeci M, Ba AA. Organizational Learning Capability and its Impact on Firm Innovativeness. *Procedia - Soc Behav Sci.* 2014;150:708–17.
 24. Gomes G, Wojahn RM. “Organizational learning capability, innovation and performance: study in small and medium-sized enterprises (SMES).” *RAUSP Manag J* [online]. 2017;52(2):163–75. available from: URL: <http://dx.doi.org/10.1016/j.rausp.2016.12.003>
 25. Arago JA, Cordo E. Leadership and organizational learning’s role on innovation and performance : Lessons from Spain. *Ind Mark Manag.* 2007;36:349–59.
 26. Fonseca S, Baptista A. “Market orientation, organizational learning, innovation and performance: keys to the sustainability of non-profits.” *Eur Sci J* [online]. 2013;16(3):259–64. available from: URL: <http://hdl.handle.net/10400.19/4189>
 27. García-Morales VJ, Jiménez - Barrionuevo MM, Gutierrez - Gutierrez L. “Transformational leadership influence on organizational performance through organizational learning and innovation.” *J Bus Res* [online]. 2012;65(7):1040–50. available from: URL: <http://dx.doi.org/10.1016/j.jbusres.2011.03.005>
 28. Kocoglu I, Zeki S, Ince H, Keskin H. Learning, R & D and Manufacturing Capabilities as Determinants of Technological Learning : Enhancing Innovation and Firm Performance. *Procedia - Soc Behav Sci.* 2012;58:842–52.
 29. Carayannis EG, Alexander J, Ioannidis A. Leveraging knowledge, learning, and innovation in forming strategic government – university – industry (GUI) R & D partnerships in the US , Germany , and France. *Technovation.* 2000;20:477–88.
 30. Mavondo FT, Chimhanzi J, Stewart J. “Learning orientation and market orientation Relationship with innovation, human resource practices and performance.” *Eur J Mark.* 2005;39(11):1235–63.
 31. Kalmuk G, Acar AZ. “The Mediating Role of Organizational Learning Capability On The Relationship Between Innovation and Firm’s Performance: A Conceptual Framework.” *Procedia - Soc Behav Sci* [online]. 2015;210:164–9. available from: URL: <http://dx.doi.org/10.1016/j.sbspro.2015.11.355>

32. Dalvand V, Moshabaki A, Karampour A. The impact of innovation capabilities on export performance of firms. *Appl Math Eng Manag Technol*. 2015;3(2):295–308.
33. Lin C, Peng C-H, Kao DT. The innovativeness effect of market orientation and learning orientation on business performance. *Int J Manpow*. 2008;29(8):752–72.
34. Wu J, Shanley MT. Knowledge stock, exploration, and innovation: Research on the United States electromedical device industry. *J Bus Res*. 2009;62(4):474–83.
35. Xu Z, Lin J, Lin D. Networking and innovation in SMEs: evidence from Guangdong Province, China. *J Small Bus Enterp Dev*. 2008;15(4):788–801.
36. Chen C. Technology commercialization, incubator and venture capital, and new venture performance. *J Bus Res*. 2009;62(1):93–103.
37. Koc T. Organizational determinants of innovation capacity in software companies. *Comput Ind Eng*. 2007;53(3):373–85.
38. Hogan SJ, Soutar GN, Mccoll-kennedy JR, Sweeney JC. “Industrial Marketing Management Reconceptualizing professional service firm innovation capability : Scale development.” *Ind Mark Manag* [online]. 2011;40(8):1264–73. available from: URL: <http://dx.doi.org/10.1016/j.indmarman.2011.10.002>
39. Tang HK. “An integrative model of innovation in organizations.” *Technovation* [online]. 1998;18(5):361. available from: URL: <http://linkinghub.elsevier.com/retrieve/pii/S0166497298800278>
40. Kafetzopoulos D, Psomas E. “The impact of innovation capability on the performance of manufacturing companies.” *J Manuf Technol Manag* [online]. 2015;26(1):104–30. available from: URL: <http://www.emeraldinsight.com/doi/10.1108/JMTM-12-2012-0117>
41. Rajapathirana RPJ, Hui Y. “Relationship between innovation capability, innovation type, and firm performance.” *J Innov Knowl* [online]. 2018;3(1):44–55. available from: URL: <http://dx.doi.org/10.1016/j.jik.2017.06.002>
42. Keskin H. Market orientation, learning orientation, and innovation capabilities in SMEs An extended model. *Eur J Innov*. 2006;9(4).
43. Calantone Cavusgil, S.T. & Zhao, Y. RJ. “Learning orientation, firm innovation capability, and firm performance.” *Ind Mark Manag* [online]. 2002;31:515–24. available from: URL: https://ac.els-cdn.com/S0019850101002036/1-s2.0-S0019850101002036-main.pdf?_tid=4d832ede-c276-11e7-959500000aab0f6b&acdnat=1509920082_2b29575c36bbe5b1e25609df005e2c9d
44. Yeung ACL, Lai KH, Yee RWY. Organizational learning, innovativeness, and organizational performance: A qualitative investigation. *Int J Prod Res*. 2007;45(11):2459–77.

45. Lee TS, Tsai HJ. The effects of business operation mode on market orientation, learning orientation and innovativeness. *Ind Manag Data Syst.* 2005;105(3):325-48.
46. Salavou H, Lioukas S. Radical product innovations in SMEs: The dominance of entrepreneurial orientation. *Creat Innov Manag.* 2003;12(2):94-108.
47. Ussahawanitchakit P. Impacts of Organizational Learning on Innovation Orientation and Firm Efficiency: an Empirical Assessment of Accounting Firms in Thailand. *Int J Bus Res.* 2008;8(4):1-12.
48. Nooteboom B. Innovation, learning and cluster dynamics. In: *Clusters and Regional Development: Critical Reflections and Explorations.* Routledge;2006;155-181.
49. Pilar Jerez-Go´mez, Jose´ Ce´spedes-Lorente RV-C, Jerez-G´omez P, C´spedes-Lorente J, Valle-Cabrera R. Organizational learning capability : a proposal of measurement. *J Bus Res.* 2005;58(6):715–25.
50. Eghtesadi G, Hamidizadeh M. Organizational learning and organizational innovation. *Kuwait Chapter Arab J Bus Manag Rev.* 2012;1(5):71–7.
51. Ho LA. Meditation, learning, organizational innovation and performance. *Ind Manag Data Syst.* 2011;111(1):113-31.
52. Tohidi H, Jabbari MM. Learning capability, highlighting its complex and multidimensional nature. *Procedia - Soc Behav Sci.* 2012;00(2011):436–40.
53. Liang TP, You JJ, Liu CC. A resource-based perspective on information technology and firm performance: A meta analysis. *Ind Manag Data Syst.* 2010;110(8):1138-58.
54. Yli-Renko H, Autio E, Sapienza HJ. Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. *Strateg Manag J.*2001;22(6-7):587-613.
55. Camis´on C, Villar-l´opez A. “Organizational innovation as an enabler of technological innovation capabilities and firm performance.” *J Bus Res* [online]. 2012; available from: URL: <http://dx.doi.org/10.1016/j.jbusres.2012.06.004>
56. Hurley RF, Hult GTM, Hurley RF, Hult GTM, Abrahamson E, Maxwell S. Innovation, Market Orientation, and Organizational Learning: An Integration and Empirical Examination. *J Mark.* 2013;62(3):42–54.
57. Damanpour F, Gopalakrishnan S. “The Dynamics of the Adoption of Product and Process Innovation in Organizations.” *J Manag Stud* [online]. 2001;38(1):45–65. available from: URL: [f:%5C4-Litt?ature%5CDamanpour 2001 JMS innovation adoption in service firms.pdf](f:%5C4-Litt?ature%5CDamanpour%202001%20JMS%20innovation%20adoption%20in%20service%20firms.pdf)

58. Gomezelj DO. "A systematic review of research on innovation in hospitality and tourism." *Int J Contemp Hosp Manag* [online]. 2016;28(3):91. available from: URL: <http://dx.doi.org/10.1108/IJCHM-10-2014-0510>
59. Darroch J, Mcnaughton R. Examining the link between knowledge management practices and types of innovation. *J Intellect Cap*. 2002;3(3):210-22.
60. Schulz M, Jobe LA. Codification and tacitness as knowledge management strategies: An empirical exploration. *J High Technol Manag Res*. 2001;12(1):139-65.
61. Thornhill S. Knowledge, innovation and firm performance in high- and low-technology regimes. *J Bus Ventur*. 2006;21(5):687-703.
62. Kirner E, Kinkel S, Jaeger A. Innovation paths and the innovation performance of low-technology firms-An empirical analysis of German industry. *Res Policy*. 2009;38(3):447-58.
63. Oke A, Munshi N, Walumbwa Fo. The Influence of Leadership on Innovation Processes and Activities. *Organ Dyn*. 2009;38(1):64-72.
64. Weerawardena J, Cass AO, Julian C. Does industry matter? Examining the role of industry structure and organizational learning in innovation and brand performance. *J Bus Res*. 2006;59:37-45.
65. Capon N, Farley JU, Hoenig S. Determinants Of Financial Performance. *Manag Sci*. 1990;36(10):1143-59.
66. Subramanian A, Nilakanta S. Organizational innovativeness: Exploring the relationship between organizational determinants of innovation, types of innovations, and measures of organizational performance. *Omega*. 1996;24(6):631-47.
67. Simpson PM, Siguaw JA, Enz CA. Innovation orientation outcomes: The good and the bad. *J Bus Res*. 2006;59(10-11):1133-41.
68. Wright RE, Palmer JC, Perkins D. Types of Product Innovations and Small Business Performance in Hostile and Benign Environments. *J Small Bus Strateg*. 2004;15(2):33-44.
69. Lemon M, Sahota PS. Organizational culture as a knowledge repository for increased innovative capacity. *Technovation*. 2004;24(6):483-98.
70. Liao S hsien, Fei WC, Liu CT. Relationships between knowledge inertia, organizational learning and organization innovation. *Technovation*. 2008;28(4):183-95.
71. Damanpour F, Walker RM, Avellaneda CN. Combinative effects of innovation types and organizational Performance: A longitudinal study of service organizations. *J Manag Stud*. 2009;46(4):650-75.
72. Baker WE, Sinkula JM. Market Orientation, Learning Orientation and Product Innovation: Delving into the Organization' s Black Box. *J Mark Manag*. 2002;5(1):5-23.

73. Laforet S. Size, strategic, and market orientation affects on innovation. *J Bus Res.* 2008;61(7):753-64.
74. Damanpour F, Schneider M. Phases of the adoption of innovation in organizations: Effects of environment, organization and top managers. *Br J Manag.* 2006;17(3):215-36.
75. Sorensen JB, Stuart TE. Aging, Obsolescence, and Organizational Innovation. *Adm Sci Q.* 2000;45(1):81-112.