

Do the organizational proficiencies dominate in innovation and can manage the major factors of innovation? A Systematic Literature Review of Last 5 Decades

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Abstract

Purpose of the research: Innovation is the key to organizational success in the present complex and competitive business environment. Numerous factors are continuously affecting the innovative performances of the organizations. Researchers across the globe, have pointed out different factors and, often, several thematic factors that have been proven with strong positive effect on the innovation activities and innovation outcomes. The research attempted to find out the most dominating factors of innovations in the organizations through an extensive systematic literature review that ranges from 1973 to 2021.

Methodology: Resulting on the 102 individual influencing factors of innovation through the literature review, the researchers classified those factors into 10 thematic groups, e.g., culture, HRM functions, top management orientation, external environment, organizational proficiencies, leadership, knowledge management, market pressure and competition, technology adaptation and research and development. Besides, the researchers endeavoured to figure out the interrelationships among the identified dominating factors.

Findings: Finally, through couple of propositions, the research successfully identified 5 dominating factors of innovation, e.g., organizational proficiencies, external environment, culture, market pressure and competition, and HRM functions. Among 5, the factors of organizational proficiencies noticed the most dominating. The interrelationships between organizational proficiencies and external environment, culture, market pressure and competition, and HRM functions examined and delivered through an easy-to-understand diagram.

Originality and implications: This robust research is very valuable, firstly, it has accumulated the factors of innovation from the studies of last 50 years, secondly, it has established 10 thematic factors of innovation, and thirdly, the research has figured out the most crucial thematic factor of innovation which accelerates innovation and can control the threats of other relevant factors of innovation.

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1.0 Introduction

The current business environment is extremely dynamic. It is worryingly complex for all industries across the globe due to environmental (Osiyevskyy et al., 2020) and climate changes (Mercereau et al., 2020) along with increased demand (Wang et al., 2020a) and shifts in taste of customers (Jaworski et al., 2020).

Almost every day, new problems are arising, which are pushing the organizations to maximize their capacities. Organizations are continuously struggling to be prominent with new tactics/strategies for their optimum and viable professional activities. The two universal unique proficiencies are differentiating the products and lowering the cost (Hill et al., 2015) which are attainable; either by superior efficacy in innovations (differentiations) or by inventions. Hence, the significance of innovation is of paramount importance. Worthy approaches in innovation, be in products or processes, or services, can offer competitive superiorities to the organizations. There are numerous forces that affect organizations when it comes to innovations, and these factors are both external and internal (Antonelli et al., 2013). This study is aimed at finding the most dominant factors of innovation, as well as to explore the interrelation among them. Various studies have revealed that factors of organizational proficiencies, culture, external environment, and HRM functions are very dominant in influencing the innovation in the organizations.

Organizational proficiencies (or the capabilities) are the factors relating to the organizations' abilities towards all activities, particularly in innovation endeavour (da Cunha Bezerra et al., 2020), (Kabrylyants et al., 2021), (Zhang and Merchant, 2020). Researchers have argued that organizations may be successful in handling their external environmental threats through maximizing the capabilities of the organizations (Haarhaus and Liening, 2020), (Lin et al., 2020a). Numerous cultural factors contribute towards the innovativeness (Buccieri et al., 2020), (Sánchez-Báez et al., 2020), which has been established through innovation literature. Concurrently, factors relating to HRM functions have been recognized as highly influencing in innovation (del Mar Ramos-González et al., 2021), (Lei et al., 2021), (Rondi et al., 2021). Researchers in various studies have pointed out different factors of HRM functions that have very strong impact on innovation outcomes.

So, it will be very interesting to investigate which factors are dominating the innovation in the organization, as well as to examine the interrelationships among the most dominating factors. It will not be very surprising that if any other factors are found more dominating in associating to factors of organizational proficiencies, culture, external environment, and HRM Functions.

2.0 Brief literature review

2.01 Innovation

The concept of innovation is indeed not at all a new, rather it is a very ancient and well-practised idea. In his book, titled "The theory of economic development", Joseph A. Schumpeter, father of innovation theory, structurally and evidentially established the concepts of innovation (Schumpeter, 1934a).

According to Schumpeter, the changes towards the restoration or implementation of something novel and beneficial in the practical life, which include new product/service adoption, and/or introducing new production methodology, and/or new market identification, and/or employing such sources of materials for production which are new, and/or creating new institutional working relationships across different companies within an industry (Schumpeter, 1934b). In this way, innovation had been defined and categorized in early days which in turn triggered many researches that have been carried out on innovation, its theory and, also on its practices (Wolfe, 1994).

2.02 Factors of Innovation

It has been mentioned that organizations are affected by numerous factors which help them to practice innovation activities, and also a couple of factors restricting them from performing innovations. This study aims to identify the factors of innovation and then to find the most dominating factors and their interrelationships.

In general the terms "factors of innovativeness" or "factors of organizational innovativeness" refer to those issues that have very direct impact on the organizational innovation performance (Lynch et al., 2010). They are those factors that enables organizations to be creative (Wolniak and Grebski, 2018) and these factors must be cultivated properly through the organizational strategies, culture, structure, and different operations to ensure the innovative capabilities (Szczepeńska-Woszczyzna, 2018). When these factors are nourished appropriately within the organizations, the organizations enjoy the competitive advantages (Celtekligil and Adiguzel, 2019) and growth in market share.

While studying the innovation literature and trying to accumulate the factors of innovativeness, it has been noticed that terms like 'factors', 'drivers' have been used by the scholars simultaneously. Moreover, while it becomes to identify the factors, scholars have used such phrases like 'factors of innovativeness', 'factors of innovation', 'factors of innovation capability', 'drivers of innovativeness', 'drivers of innovation' etc. for the same purpose, i.e., to discover the factors that influence innovation.

Culture

Culture of an organization is highly affected by the national culture (Szydło and Grześ-Bukłaho, 2020), and the culture refers to the organization's internal norms and practices (Roscoe et al., 2019) that has a crucial impact on organizational performance.

HRM Functions

Human resources management (HRM) is an organizational function that encompasses challenges and strategies regarding proper management of human resources employed in the organization (Stewart and Brown, 2019). Proper HRM should be aligned with the organizational strategies for improving the innovative performance in the organizations (Delery and Roumpi, 2017). For innovation purpose, the main and first criterion is human knowledge (Kianto et al., 2017), and nourishing such knowledge increases organizational innovative capabilities.

Top Management Orientation

The behaviour of the top managers in the organizations in transmitted and influence the working patterns and teams outcomes to attain organizational goals (Jahanshahi and Brem, 2017). Thus, the decisions from the top level impact on organizational strategies and working procedure (Wang et al., 2020b), and their orientations directly blow the barriers of innovation (Szambelan et al., 2020).

External Environment

External environmental issues, such as university education, health, religious affiliation, affect the organizational development and performance (Munro and Belanger, 2017), which are essential to consider for innovation strategies (Ivančić et al., 2017). Furthermore, since external environment is considered as the traditional and one of the primary forces to influence organizational activities (Chang et al., 2019), therefore, when the organizations think about the innovative activities, they must concentrate of the external environment as it is highly linked and related with the organization and its culture (Wu and Ding, 2020), (Hameed et al., 2021).

Organizational Proficiencies

Organizational proficiencies refer to the capabilities of the organizations that enable organizations in performing (Rehman et al., 2019) which often play the mediating roles organizational goals and performances. Organizational proficiencies offer the solutions through proper knowledge management for better performance (Serrat, 2017). organizational proficiencies i.e., numerous organizational abilities empower organizations towards innovativeness (Zhang and Merchant, 2020). This is because such capabilities allow organizations to agility and in facilitating learning which in turn accelerate the organizational innovation capabilities for the competitiveness (Saha et al., 2020).

Leadership

Different leadership styles have strong positive relationships with innovation and innovative performance in shaping the organizational culture and behaviour of employees and leaders (Alblooshi et al., 2020). Therefore, while developing organizational strategies towards improving organizational innovativeness, leadership must be shaped accordingly within the innovation framework (Cortes and Herrmann, 2021) for the best innovative outcomes.

Knowledge Management

The literature has established a direct linkage between knowledge management and organizational innovative performance; because knowledge management has a very strong mediating role organizational practices and innovation (Ode and Ayavoo, 2020). Furthermore, knowledge management process develops organizations operations which impact on increasing innovation capacity (Migdadi, 2020).

Market Pressure and Competition

In responding to changing customers' requirements, market competition and uncertainty, the organizations are compelled to improve and innovate their service, and thereto, force the employees towards innovative activities (Senbeto and Hon, 2020). Due to such market turbulence, organizations have to be innovative both in product and service delivery for their sustainability (Qiu et al., 2020). Thus, through service innovation and service excellence, organization can improve their image and as a consequence, share in the market (Aladwan and Alshami, 2021).

Technology Adaptation

Since in the era of technological advancements, numerous and quick new technologies have been emerging continuously and it has become a must for the organizations to cope with these technological parasites in designing proper innovation management (Coccia and Watts, 2020). It is also important to note that the high migration is always pushing the developed countries in solving relevant problems, such as housing, utilities etc., through innovative ways and to solve these, there is no alternative but adaption of the technologies and implement these in innovative performances (Mazzucco et al., 2020). In addition, to mitigate the threats of climate change, the organizations needs to be innovative through effective technological adaptation and responding to the change very quickly (Nwankwo et al., 2020).

Research and Development

Scholars have established that research and development is the key indicator for organizational innovations (Heij et al., 2020) as a result of increasing the knowledge and learning within the organizational settings. Innovation and sustainability, both are dependent on research and development because of adaptation of new technologies (Johannes et al., 2020); and it is stated that research and development strongly affect the organizational comparative advantages (Kim and Choi, 2020). Particularly in service industry, the product-service integration is highly benefited through research and development of information technologies (Vendrell-Herrero et al., 2021).

2.03 Systematic Literature Review

As both in concepts and practices, desire to innovate is ubiquitous across all business activities. Researchers identified numerous factors of innovativeness/innovation. Therefore, a structured, systematic literature review (SLR) requires conducting with specific intention to identify factors of innovativeness applicable to organizations in any discipline or economic sector across the globe.

The early scholars have identified the systematic literature review (SLR) is the science of reviewing the existing literature for summarizing the key factors and findings (Mulrow, 1994) and ensuring the best synthesis (Cook et al., 1997). The SLR is an effective tool to find out the most relevant literature for a specific study from millions of scholarly publications (Nightingale, 2009) that stands as a guide for the researchers (Okoli and Schabram, 2010). The SLR has the capability to deal with large and big data sets (Mikalef et al., 2018) and offers analyses also. Inclusion and exclusion of articles are easily and scientifically managed through the systematic literature review (Xiao and Watson, 2019) through establishing research protocols, and therefore, the systematic literature review has been increasingly used widely for synthesizing the literature and the body of knowledge (Kraus et al., 2020).

3.0 Methodology and propositions

In fulfilling the objectives of the study, the study is going to examine the innovation literature. Hence, it is using qualitative research approach (Alvino et al., 2020), (Kyngäs, 2020). Systematic literature review is the method for accumulating the factors of innovation which has been narrated in earlier section. Researchers have claimed the for gathering information through literature analyses, the SLR is the best qualitative research method (Karimi and Iordanova, 2021), (Psomas, 2021). Before conducting the systematic literature review, it is a must to set the review protocols for effective review of literature and body of knowledge as well as to extract accurate and as much as possible the factors of innovation (Krüger et al., 2020), (Mengist et al., 2020).

3.01 Review Protocol

A systematic, structured search of published literature has been carried out with the SCOPUS, Google Scholar and Web of Science databases, because these three databases contain the most recent and related research. A review protocol (Tranfield et al., 2003) has been settled for finding and exploring relevant articles/scholarly papers that describe/detail out factors, influencing innovativeness (product/process) in all industries across the world. The protocol includes following criteria:

the studies, carried/written/described/pointed/measured/concluded/focussed on different factors/drivers/elements/measures/determinants, affecting/influencing innovativeness/organizational innovativeness/innovation/innovation capabilities or developing new idea/knowledge/concepts as in titles.

the studies must be undertaken in specific industry to address the innovativeness and its influencing factors, and preferably there should be defined research methodology with sample size and region/country.

the studies carried out through quantitative/qualitative analyses, detailing measuring instruments, i.e., questionnaires, interviews, survey, literature and cases studies.

the studies preferably include scholarly articles and conference proceedings/papers, books, as reports with the high relevancy to this research.

the papers/articles/reports are published in English only.

3.02 PRISMA Model

Adapting the PRISMA (Preferred Reporting Items for Systematic-Reviews and Meta-Analyses) recommendations (Moher et al., 2009), following figure demonstrates the way of gathering researches, which have been incorporated in the SLR.

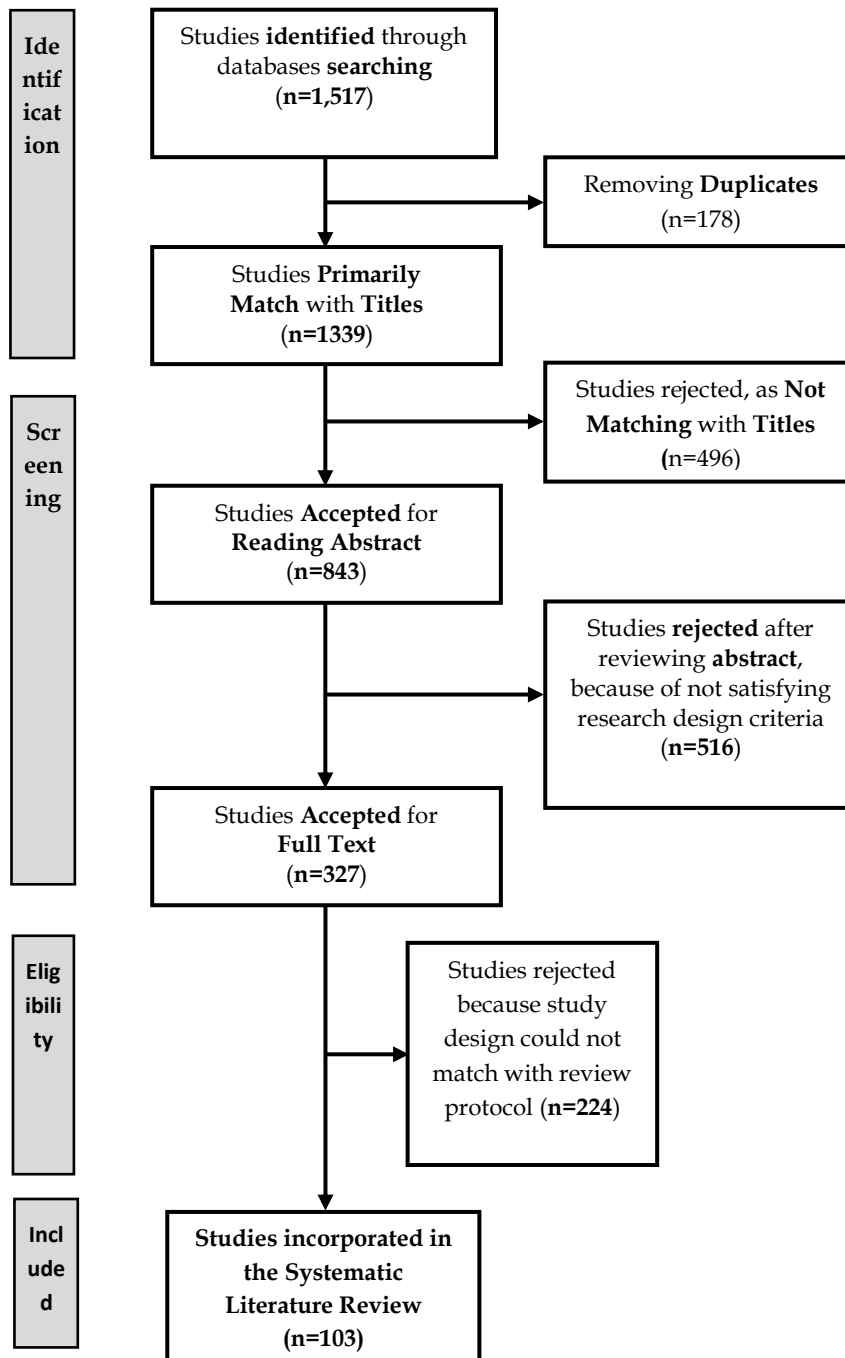


Figure -01 : Selection process for studies included in systematic literature review.

3.03 Developing Propositions

Testing or examining propositions is more effective for the qualitative research (Skarbek, 2020), (Bouncken et al., 2021). Therefore, this study is dealing with the following propositions:

Are the organizational proficiencies the most dominating factors in innovation?

Do the organizational proficiencies affect the factors of external environment, culture and HRM functions toward innovation?

The factors in propositions will be measured in terms of citations by the different researchers. The proposition will be checked through an extensive review of the innovation literature to be examined for justification.

4.0 Findings

After reviewing the selected 103 scholarly papers and analysing, the researchers have identified a total of 102 factors that contributes to increasing or developing innovation capabilities of the organizations in different industries. 102 factors of innovation are a very big number and for further research and discussions, these factors have been classified into 10 groups or clusters using the research synthesis (Marshall and Wallace, 2019).

Such synthesisation allows the researcher with freedom to express own contribution in a scientific manner through describing the each group with the support of literature (Gurevitch et al., 2018). In addition, the Research synthesis has been accompanied with a 'Realist Synthesis' (Pawson, 2002) encompassing a tally of vibrant elements or instruments (either positively or negatively) that reinforce each single research (through open coding).

Through thematic coding (Tranfield et al., 2003), the groups have been termed as culture, HRM functions, top management orientation, external environment, organizational proficiencies, leadership, knowledge management, market pressure and competition, technology adaptation and research and development.

These thematic coded groups reflect the major factors described under the factors of innovation in the literature review. The following table illustrate the summary of the systematic literature review

Serial	Researcher(s) & Year	Culture	HRM Functions	Top Management Orientation	Organizational Proficiencies	Leadership	External Environment	Market Pressure and Competition	Knowledge Management	Research and Development	Technology Adaptation
1	Locke, 1973	-	-	Y	Y	Y	-	-	-	-	-
2	Falus, 1982	-	Y	-	-	-	-	-	-	-	-
3	Tatum, 1989	Y	-	Y	Y	Y	-	-	-	-	Y
4	Nam and Tatum, 1997	-	Y	-	Y	Y	-	-	-	-	Y
5	Nijkamp & Reggiani, 2000	-	Y	Y	Y	-	Y	Y	-	Y	-
6	Prajogo and Sohal, 2001	-	Y	-	Y	-	-	-	-	-	-
7	Storey et al., 2002	-	Y	-	-	-	-	-	-	-	-
8	Dulaimi et al., 2002	Y	Y	-	Y	Y	Y	-	-	Y	-
9	Cormican & O'Sullivan, 2003	-	-	-	-	-	-	-	Y	-	-
10	Sundström and Zika-Viktorsson, 2003	Y	-	-	Y	-	-	Y	-	-	-
11	Seaden et al., 2003	-	Y	Y	-	Y	Y	Y	-	-	Y
12	Prajogo and Sohal, 2003	-	-	-	Y	-	-	-	-	-	-
13	Bossink, 2004	-	-	-	Y	-	Y	-	Y	-	Y
14	Giardini and Kyllönen, 2004	Y	Y	-	Y	-	-	-	-	-	-
15	Pu et al., 2004	Y	-	-	Y	Y	-	Y	-	-	-
16	Sexton & Barrett, 2004	-	Y	Y	-	Y	-	Y	-	-	Y
17	Blayse and Manley, 2004	Y	Y	-	Y	-	Y	Y	Y	-	-
18	Korsvold and Sletbakk Ramstad, 2004	-	-	-	-	-	-	-	Y	-	-
19	Singh and Smith, 2004	-	-	-	Y	-	-	-	-	-	-
20	Funk & Plünnecke, 2005	-	Y	-	Y	-	Y	-	-	-	Y
21	Conceição et al., 2006	-	-	-	Y	-	Y	-	-	Y	Y

22	Cropley, 2006	Y	-	Y	-	-	-	-	-	-	-
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(Table - 01 : Summary of Systematic Literature Review)

Serial	Researcher(s) & Year	Culture	HRM Functions	Top Management Orientation	Organizational Proficiencies	Leadership	External Environment	Market Pressure and Competition	Knowledge Management	Research and Development	Technology Adaptation
23	Manley & Mcfallan, 2006	-	Y	-	-	-	Y	-	-	-	Y
24	Shyu et al., 2006	Y	Y	-	Y	Y	-	-	Y	-	-
25	Abbot et al., 2006	Y	-	Y	-	-	-	Y	-	Y	-
26	Hartmann, 2006	Y	Y	-	-	-	-	-	-	-	-
27	Fortuin et al., 2007	Y	Y	-	Y	-	-	Y	-	-	-
28	Koc and Ceylan, 2007	Y	Y	Y	-	Y	-	-	-	-	Y
29	Paladino, 2007	Y	-	-	Y	-	-	Y	-	-	-
30	Van Moorsel et al., 2007	-	-	Y	Y	Y	-	Y	Y	Y	-
31	Ilter et al., 2008	Y	Y	-	Y	-	Y	Y	-	-	Y
32	Panuwatwanich et al., 2008	Y	-	-	Y	Y	-	-	-	-	-
33	Capitanio et al., 2009	-	Y	-	Y	-	Y	-	-	Y	-
34	Chang and Yeh, 2009	Y	Y	-	-	-	-	-	-	-	-
35	Fortuin and Omta, 2009	-	-	-	Y	-	-	Y	-	Y	-
36	Kamath et al., 2009	-	Y	-	-	-	-	-	Y	-	-
37	Nidumolu et al., 2009	-	-	-	Y	-	-	-	-	-	-
38	Zhang et al., 2009	-	Y	Y	Y	-	Y	Y	-	-	-
39	Bel, 2010	Y	-	Y	Y	Y	-	-	Y	-	-
40	Chen et al., 2010	Y	Y	-	Y	-	Y	Y	-	-	-
41	Kinkel and Som, 2010	-	-	-	-	-	Y	Y	-	Y	-

42	Liddle and El-Kafafi, 2010	-	-	Y	Y	-	Y	Y	-	-	Y
43	Drnevich et al., 2011	-	-	-	-	-	Y	Y	-	-	Y
44	Engström and Levander, 2011	-	-	-	-	-	-	Y	-	-	-
45	Kask, 2011	-	-	Y	Y	Y	Y	-	-	-	-

(Table -01 : Summary of Systematic Literature Review, *cont.*)

Serial	Researcher(s) & Year	Culture	HRM Functions	Top Management Orientation	Organizational Proficiencies	Leadership	External Environment	Market Pressure and Competition	Knowledge Management	Research and Development	Technology Adaptation
46	Kramer et al., 2011	-	-	Y	-	-	Y	-	Y	Y	-
47	Ropret et al., 2011	Y	-	-	Y	-	-	Y	-	-	-
48	Zhang, 2011	-	-	-	-	-	Y	Y	-	Y	Y
49	Zizlavsky, 2011	-	-	Y	Y	-	Y	Y	-	-	-
50	Gambatese and Hallowell, 2011a	Y	Y	-	Y	Y	Y	-	-	Y	-
51	Gambatese and Hallowell, 2011b	Y	Y	Y	Y	-	-	Y	-	-	-
52	Chaminade and De Fuentes, 2012	-	Y	-	-	-	-	-	-	Y	Y
53	Chang and Hughes, 2012	-	-	-	Y	Y	Y	Y	-	-	-
54	Von Treuer and McMurray, 2012	Y	Y	-	Y	-	-	-	-	-	-
55	Chan and Liu, 2012	Y	-	-	Y	-	-	-	-	-	-
56	Asgari et al., 2013	Y	Y	Y	-	Y	-	-	-	-	-
57	Boso et al., 2013	Y	-	Y	-	-	-	Y	-	-	-
58	Dachyar et al., 2013	-	Y	-	Y	-	Y	Y	-	-	Y
59	Abdul Hamid and Abd. Rahman, 2014	-	-	Y	Y	Y	Y	-	Y	-	-
60	Liu et al., 2014	-	-	-	Y	-	-	Y	-	-	-
61	Narayanan and Parvin Hosseini, 2014	-	-	-	Y	-	Y	Y	-	Y	Y

62	Chan et al., 2014	Y	-	-	-	Y	-	-	-	-	-
63	Ozorhon et al., 2014	-	Y	-	Y	Y	-	-	-	-	-
64	Xue et al., 2014	Y	Y	-	-	Y	Y	Y	Y	Y	Y
65	Bourke and Crowley, 2015	-	Y	-	Y	-	-	-	-	-	-

(Table -01 : Summary of Systematic Literature Review, *cont.*)

Serial	Researcher(s) & Year	Culture	HRM Functions	Top Management Orientation	Organizational Proficiencies	Leadership	External Environment	Market Pressure and Competition	Knowledge Management	Research and Development	Technology Adaptation
66	Ciliberti et al., 2015	-	-	-	Y	-	-	-	-	Y	-
67	Joppe et al., 2015	Y	Y	-	Y	-	-	Y	-	Y	-
68	O'Brien, 2015	-	-	Y	-	-	-	-	-	-	-
69	Ribarić, 2015	-	Y	-	Y	-	-	Y	-	-	Y
70	Zuñiga-Collazos et al., 2015	-	-	-	-	-	-	-	-	Y	-
71	Ozorhon and Oral, 2016	Y	Y	Y	Y	Y	Y	Y	Y	-	Y
72	Bhuiyan et al., 2017	-	-	Y	Y	-	Y	Y	-	-	-
73	Fellnhofer, 2017	Y	Y	Y	Y	Y	-	-	-	-	-
74	Lašáková et al., 2017	Y	-	-	Y	-	-	-	-	-	-
75	Liu and Chan, 2017	Y	-	-	-	Y	-	-	-	-	-
76	Zhu and Cheung, 2017	Y	Y	Y	-	-	-	-	Y	-	-
77	Antunes et al., 2017	-	-	-	Y	-	-	-	-	-	-
78	Taddese, 2017	-	-	-	Y	-	-	-	-	-	-
79	Kallmuenzer, 2018	-	Y	Y	-	-	-	Y	-	-	-
80	Albors-Garrigós, et al., 2018	Y	-	-	-	-	-	-	Y	-	-
81	Divisekera and Nguyen, 2018	-	Y	-	Y	-	Y	Y	-	-	Y

82	Meng and Brown, 2018	-	-	-	Y	-	Y	Y	-	-	Y
83	Nordli, 2018	-	Y	-	-	-	-	-	Y	-	-
84	Pikkemaat, et al., 2018	Y	Y	-	-	Y	Y	Y	-	-	-
85	Quirapas, et al., 2018	-	-	-	Y	-	Y	-	-	-	Y
86	Revilla and Rodríguez-Prado, 2018	Y	Y	-	-	-	-	-	-	-	-
87	Soto-Acosta, et al., 2018	-	-	-	-	-	Y	-	Y	-	Y

(Table -01 : Summary of Systematic Literature Review, *cont.*)

Serial	Researcher(s) & Year	Culture	HRM Functions	Top Management Orientation	Organizational Proficiencies	Leadership	External Environment	Market Pressure and Competition	Knowledge Management	Research and Development	Technology Adaptation
88	Tutusaus, et al., 2018	-	-	-	-	-	-	-	-	-	Y
89	Argothy and Álvarez, 2019	-	Y	-	Y	-	Y	-	-	-	Y
90	Arzhantsev and Bondarenko, 2019	-	-	-	Y	-	Y	-	-	-	Y
91	Beyina, 2019	-	-	-	-	-	-	Y	-	-	Y
92	Diaz-Delgado, et al., 2019	Y	Y	-	Y	-	-	-	-	-	-
93	Hanifah, et al., 2019	Y	-	-	Y	-	Y	-	-	-	-
94	Kafetzopoulos and Skalkos, 2019	-	-	-	Y	-	Y	-	Y	-	-
95	Owolabi, et al., 2019	-	-	Y	Y	-	Y	Y	-	-	Y
96	Velev and Veleva, 2019	Y	Y	Y	Y	Y	Y	-	-	-	Y
97	Atiase and Dzansi, 2020	-	Y	-	-	-	Y	Y	-	-	-
98	Nevzorova and Karakaya, 2020	-	-	Y	-	-	-	-	Y	-	Y
99	Tajeddini and Martin, 2020	Y	Y	-	-	Y	-	-	Y	-	-
100	Hayuningtyas, et al. 2020	-	-	Y	-	Y	-	Y	-	-	-

101	Feng, 2021	-	-	Y	-	-	-	-	-	-	-
102	Mousavi, et al., 2021	-	Y	-	Y	Y	Y	Y	-	-	Y
103	Ding, and Wang, 2021	-	-	-	-	-	Y	-	-	Y	-

(Table -01 : Summary of Systematic Literature Review, *cont.*)

The 10 thematic groups, i.e., culture, HRM functions, top management orientation, external environment, organizational proficiencies, leadership, knowledge management, market pressure and competition, technology adaptation and research and development are now being presented with their individual factors identified.

Cultural Factors

Innovation Culture (Dulaimi et al., 2002), (Blayse and Manley, 2004), (Shyu et al., 2006), (Chan and Liu, 2012), (Chan et al., 2014), (Xue et al., 2014), (Liu and Chan, 2017), (Zhu and Cheung, 2017), (Hanifah et al., 2019); Building Cultural Infrastructure (Asgari et al., 2013).; Strategic Culture (Asgari et al., 2013); Culture for Creativity (Sundström and Zika-Viktorsson, 2003), (Pu et al., 2004), (Cropley, 2006), (Albors-Garrigós et al., 2018), (Revilla and Rodríguez-Prado, 2018), (Hanifah et al., 2019), (Tajeddini and Martin, 2020); Entrepreneurial Culture (Fellnhofer, 2017), (Pikkemaat et al., 2018); Organizational Climate (Giardini and Kyllönen, 2004), (Cropley, 2006), (Abbot et al., 2006), (Koc and Ceylan, 2007), (Ilter et al., 2008), (Panuwatwanich et al., 2008), (Bel, 2010), (Chen et al., 2010), (Gambatese and Hallowell, 2011a), (Gambatese and Hallowell, 2011b), (Diaz-Delgado et al., 2019), (Velez and Velez, 2019); Risk/Risk Taking (Tatum, 1989), (Bel, 2010), (Boso et al., 2013); Freedom/Autonomy (Hartmann, 2006), (Fortuin et al., 2007), (Chang and Yeh, 2009), (Ropret et al., 2011), (Von Treuer and McMurray, 2012), (Asgari et al., 2013), (Boso et al., 2013), (Lašáková et al., 2017); Tolerate Failure (Fortuin et al., 2007), (Bel, 2010) (Chan and Liu, 2012); Governance (Joppe et al., 2015); Education/Learning Transfer Climate (Asgari et al., 2013), (Liu and Chan, 2017); Approach of the Project Team (Chen et al., 2010), (Ozorhon and Oral, 2016); Diffusion of innovation (Gambatese and Hallowell, 2011a), (Gambatese and Hallowell, 2011b); Organizational Learning and Capacity (Koc and Ceylan, 2007), (Paladino, 2007), (Chang and Yeh, 2009).

Factors of HRM Functions

Human Resources (Seaden et al., 2003), (Sexton and Barrett, 2004), (Funk and Plünnecke, 2005), (Capitanio et al., 2009), (Zhang et al., 2009), (Dachyar et al., 2013), (Ozorhon et al., 2014), (Xue et al., 2014), (Joppe et al., 2015), (Ozorhon and Oral, 2016), (Kallmuenzer, 2018), (Divisekera and Nguyen, 2018), (Pikkemaat et al., 2018), (Revilla and Rodríguez-Prado, 2018), (Atiase and Dzansi, 2020); Human Resource Management Practices (Kamath et al., 2009), (Bourke and Crowley, 2015), (Tajeddini and Martin, 2020), (Mousavi et al., 2021); Competent Technical Staff (Nijkamp and Reggiani, 2000), (Chen et al., 2010), (Chaminade and De Fuentes, 2012), (Velez and Velez, 2019); Motivation (Giardini and Kyllönen, 2004), (Kamath et al., 2009); Teamwork/Coordination (Prajogo and Sohal, 2003), (Fortuin et al., 2007), (Koc and Ceylan, 2007), (Chang and Yeh, 2009), (Joppe et al., 2015), (Nordli, 2018); Selective Recruitment (Manley and Mcfallan, 2006), (Diaz-Delgado et al., 2019), (Atiase and Dzansi, 2020); Employee participation/Engagement (Ribarić, 2015); Innovation Champions (Nam and Tatum, 1997), (Blayse and Manley, 2004), (Gambatese and Hallowell, 2011b), (Xue et al., 2014); Available Skill Levels (Ilter et al., 2008); Organization Career Management (Zhu and Cheung, 2017); Good Internal Communication Systems (Shyu et al., 2006), (Fortuin et al., 2007), (Gambatese and Hallowell, 2011a), (Gambatese and Hallowell, 2011b), (Xue et al., 2014), (Joppe et al., 2015), (Zhu and Cheung, 2017), (Diaz-Delgado et al., 2019), (Mousavi et al., 2021); Reward/Incentive Schemes/Systems (Falus, 1982), (Dulaimi et al., 2002), (Funk and Plünnecke, 2005), (Shyu et al., 2006), (Hartmann, 2006), (Chen et al., 2010), (Von Treuer and McMurray, 2012), (Ozorhon and Oral, 2016), (Fellnhofer, 2017), (Revilla and Rodríguez-Prado, 2018), (Diaz-Delgado et al., 2019); Training and Development (Nijkamp and Reggiani, 2000), (Dulaimi et al., 2002), (Shyu et al., 2006), (Revilla and Rodríguez-Prado, 2018), (Argothy and Álvarez, 2019), (Diaz-Delgado et al., 2019), (Atiase and

Dzansi, 2020); Human/Employees' Potentials/Interests (Falus, 1982), (Fortuin et al., 2007), (Asgari et al., 2013); Flexible Working Contracts (Storey et al., 2002).

Top Management Orientation

Strategic Vision (Locke, 1973), (Tatum, 1989), (Seaden et al., 2003), (Sexton and Barrett, 2004), (Van Moorsel et al., 2007), (Bel, 2010), (Kask, 2011), (Asgari et al., 2013), (Abdul Hamid and Abd. Rahman, 2014), (Cote, 2017) (Fellnhofner, 2017), (Velev and Veleva, 2019), (Madsen and Ulhøi, 2021); Decision Making (Kask, 2011); Entrepreneurship (Nijkamp and Reggiani, 2000), (Cropley, 2006), (Zhang et al., 2009), (Boso et al., 2013), (O'Brien, 2015), (Fellnhofner, 2017), (Zhu and Cheung, 2017), (Kallmuenzer, 2018), (Velev and Veleva, 2019), (Nevzorova and Karakaya, 2020), (Wadhvani et al., 2020), (Feng, 2021); Management Priority (Tatum, 1989), (Liddle and El-Kafafi, 2010), (Kramer et al., 2011), (Zizlavsky, 2011), (Gambatese and Hallowell, 2011b), (Fellnhofner, 2017), (Hayuningtyas et al., 2020); Profit/Economic Motivation (Abbot et al., 2006), (Bhuiyan et al., 2017); Improving Firm Performance (Ozorhon and Oral, 2016), (Owolabi et al., 2019); Improving Project Performance (Ozorhon and Oral, 2016); Corporate Social Responsibility (Ozorhon and Oral, 2016); Delegation (Koc and Ceylan, 2007); Proactiveness (Boso et al., 2013), (Nevzorova and Karakaya, 2020).

External Environment

Factors of External Environment (Seaden et al., 2003), (Bossink, 2004), (Conceição et al., 2006), (Capitanio et al., 2009), (Zhang et al., 2009), (Kask, 2011), (Zizlavsky, 2011), (Xue et al., 2014), (Meng and Brown, 2018), (Quirapas et al., 2018), (Soto-Acosta et al., 2018), (Kafetzopoulos and Skalkos, 2019); Environmental Sustainability (Chang and Hughes, 2012), (Ozorhon and Oral, 2016), (Argothy and Álvarez, 2019), (Owolabi et al., 2019); Collaborative Relationship Network (Nijkamp and Reggiani, 2000), (Abdul Hamid and Abd. Rahman, 2014), (Divisekera and Nguyen, 2018), (Pikkemaat et al., 2018), (Kafetzopoulos and Skalkos, 2019), (Atiase and Dzansi, 2020); Social Network (Nijkamp and Reggiani, 2000), (Conceição et al., 2006); Partnering/Networking with Specialist Experts (Nijkamp and Reggiani, 2000), (Ilter et al., 2008), (Chen et al., 2010), (Kinkel and Som, 2010), (Liddle and El-Kafafi, 2010), (Kramer et al., 2011), (Narayanan and Parvin Hosseini, 2014); Industry Relationships (Nijkamp and Reggiani, 2000), (Blayse and Manley, 2004); Opportunity (Gambatese and Hallowell, 2011a), (Bhuiyan et al., 2017), (Velev and Veleva, 2019), (Mousavi et al., 2021); New Technology (Manley and Mcfallan, 2006), (Liddle and El-Kafafi, 2010), (Drnevich et al., 2011), (Dachyar et al., 2013), (Narayanan and Parvin Hosseini, 2014), (Xue et al., 2014); Government/Regulatory Role (Dulaimi et al., 2002), (Blayse and Manley, 2004), (Chen et al., 2010), (Zhang, 2011), (Argothy and Álvarez, 2019), (Arzhantsev and Bondarenko, 2019), (Hanifah et al., 2019), (Owolabi et al., 2019), (Ding and Wang, 2021); Regulations and Legislations (Liddle and El-Kafafi, 2010), (Ozorhon and Oral, 2016), (Bhuiyan et al., 2017); Labour Market (Funk and Plünnecke, 2005).

Organizational Proficiencies

Organizational Resources (Locke, 1973), (Nam and Tatum, 1997), (Dulaimi et al., 2002), (Blayse and Manley, 2004), (Fortuin et al., 2007), (Paladino, 2007), (Fortuin and Omta, 2009), (Chang and Hughes, 2012), (Abdul Hamid and Abd. Rahman, 2014), (Fellnhofner, 2017), (Diaz-Delgado et al., 2019); Organizational Support for Innovation (Nijkamp and Reggiani, 2000), (Pu et al., 2004), (Chen et al., 2010), (Kask, 2011), (Zizlavsky, 2011), (Gambatese and Hallowell, 2011a), (Gambatese and Hallowell, 2011b), (Von Treuer and McMurray, 2012), (Chan and Liu, 2012), (Abdul Hamid and Abd. Rahman, 2014), (Narayanan and Parvin Hosseini, 2014), (Velev and Veleva, 2019); Organizational Structure (Nijkamp and Reggiani, 2000), (Bel, 2010), (Chang and Hughes, 2012); Organizational Age (Sundström and Zika-Viktorsson, 2003), (Capitanio et al., 2009), (Chang and Hughes, 2012); Firm Size (Van Moorsel et al., 2007), (Zhang et al., 2009), (Liddle and El-Kafafi, 2010), (Chang and Hughes, 2012), (Divisekera and Nguyen, 2018), (Argothy and Álvarez, 2019); Capital Resources (Paladino, 2007), (Van Moorsel et al., 2007), (Liddle and El-Kafafi, 2010), (Kask, 2011), (Dachyar et al., 2013), (Joppe et al., 2015), (Ozorhon and Oral, 2016), (Arzhantsev and Bondarenko, 2019), (Velev and Veleva, 2019); Available Finance (Nijkamp and Reggiani, 2000), (Funk and Plünnecke, 2005); Productivity (Bhuiyan et al., 2017), (Meng and Brown, 2018), (Quirapas et al., 2018), (Owolabi et al., 2019); Safety and Working Condition (Bhuiyan et al., 2017), (Emuze and Mollo, 2021), (Semin et al., 2021); Information & Communication Resources (Nijkamp and Reggiani, 2000),

(Funk and Plünnecke, 2005), (Dachyar et al., 2013), (Narayanan and Parvin Hosseini, 2014), (Bourke and Crowley, 2015); Project Management (Zizlavsky, 2011); Integration (Internal & External) (Tatum, 1989), (Dulaimi et al., 2002), (Bossink, 2004), (Zizlavsky, 2011), (Liu et al., 2014), (Ozorhon et al., 2014); Innovation Strategy/Policy (Giardini and Kyllönen, 2004), (Blayse and Manley, 2004), (Paladino, 2007), (Bel, 2010), (Liddle and El-Kafafi, 2010), (Antunes et al., 2017), (Hanifah et al., 2019), (Velev and Veleva, 2019); Process Management (Kafetzopoulos and Skalkos, 2019), (Mousavi et al., 2021); Innovation Management (Ribarić, 2015), (Lašáková et al., 2017); Organizational Innovation Capacity (OIC) (Shyu et al., 2006), (Panuwatwanich et al., 2008); Organizational Innovation Activity (Conceição et al., 2006); Structure of Production (Blayse and Manley, 2004); Procurement Systems (Dulaimi et al., 2002), (Blayse and Manley, 2004), (Ilter et al., 2008), (Ciliberti et al., 2015); Practicality (Locke, 1973); Project Complexity (Ozorhon and Oral, 2016); Total Quality Management (TQM) (Prajogo and Sohal, 2001), (Prajogo and Sohal, 2003), (Singh and Smith, 2004), (Antunes et al., 2017), (Taddese, 2017), (Kafetzopoulos and Skalkos, 2019); Continuous Improvement (Prajogo and Sohal, 2001); Intellectual Property Rights (Van Moorsel et al., 2007), (Chen et al., 2010), (Ropret et al., 2011), (Zizlavsky, 2011), (Mousavi et al., 2021); Sustainability (Nidumolu et al., 2009), (Liddle and El-Kafafi, 2010).

Leadership

Leadership Style (Tatum, 1989), (Nam and Tatum, 1997), (Dulaimi et al., 2002), (Panuwatwanich et al., 2008), (Bel, 2010), (Chang and Hughes, 2012), (Chan et al., 2014), (Ozorhon et al., 2014), (Xue et al., 2014), (Ozorhon and Oral, 2016), (Liu and Chan, 2017), (Pikkemaat et al., 2018), (Tajeddini and Martin, 2020), (Hayuningtyas et al., 2020), (Mousavi et al., 2021); Idea Generation (Pu et al., 2004), (Shyu et al., 2006), (Koc and Ceylan, 2007), (Bel, 2010), (Gambatese and Hallowell, 2011a); Vision (Locke, 1973), (Tatum, 1989), (Seaden et al., 2003), (Sexton and Barrett, 2004), (Van Moorsel et al., 2007), (Bel, 2010), (Kask, 2011), (Asgari et al., 2013), (Abdul Hamid and Abd. Rahman, 2014), (Fellnhöfer, 2017), (Velev and Veleva, 2019).

Knowledge Management

External Knowledge Sources (Van Moorsel et al., 2007), (Nordli, 2018); Knowledge Management (Cormican and O'Sullivan, 2003), (Bossink, 2004), (Korsvold and Sletbakk Ramstad, 2004), (Shyu et al., 2006), (Kamath et al., 2009), (Kramer et al., 2011), (Abdul Hamid and Abd. Rahman, 2014), (Ozorhon and Oral, 2016), (Albors-Garrigós et al., 2018), (Soto-Acosta et al., 2018), (Kafetzopoulos and Skalkos, 2019), (Nevzorova and Karakaya, 2020), (Tajeddini and Martin, 2020); Knowledge Codification/Transfer (Blayse and Manley, 2004), (Kramer et al., 2011), (Xue et al., 2014); Process of Knowledge Codification (Ozorhon and Oral, 2016); Knowledge Development (Cormican and O'Sullivan, 2003), (Bossink, 2004), (Korsvold and Sletbakk Ramstad, 2004), (Shyu et al., 2006), (Kamath et al., 2009), (Kramer et al., 2011), (Abdul Hamid and Abd. Rahman, 2014), (Ozorhon and Oral, 2016), (Albors-Garrigós et al., 2018), (Soto-Acosta et al., 2018), (Kafetzopoulos and Skalkos, 2019), (Nevzorova and Karakaya, 2020), (Tajeddini and Martin, 2020); Learning/Action Learning (Bel, 2010), (Zhu and Cheung, 2017).

Market Pressure and Competition

Market (Structure) (Sexton and Barrett, 2004), (Paladino, 2007), (Van Moorsel et al., 2007), (Chen et al., 2010), (Ropret et al., 2011), (Zizlavsky, 2011), (Chang and Hughes, 2012), (Boso et al., 2013), (Dachyar et al., 2013), (Liu et al., 2014), (Bhuiyan et al., 2017); Marketing (Nijkamp and Reggiani, 2000), (Seaden et al., 2003), (Pu et al., 2004), (Zizlavsky, 2011), (Narayanan and Parvin Hosseini, 2014), (Joppe et al., 2015); Clients and Manufacturers Relationship (Blayse and Manley, 2004), (Zizlavsky, 2011); Clients' Requirements (Nijkamp and Reggiani, 2000), (Sundström and Zika-Viktorsson, 2003), (Fortuin et al., 2007), (Paladino, 2007), (Ilter et al., 2008), (Fortuin and Omta, 2009), (Engström and Levander, 2011), (Ropret et al., 2011), (Gambatese and Hallowell, 2011b), (Ribarić, 2015), (Ozorhon and Oral, 2016), (Bhuiyan et al., 2017), (Meng and Brown, 2018), (Pikkemaat et al., 2018), (Owolabi et al., 2019), (Mousavi et al., 2021); Market Demands (Abbot et al., 2006), (Liddle and El-Kafafi, 2010), (Drnevich et al., 2011), (Boso et al., 2013), (Liu et al., 2014), (Xue et al., 2014), (Bhuiyan et al., 2017), (Meng and Brown, 2018), (Mousavi et al., 2021); Competition Level (Paladino, 2007), (Kinkel and Som, 2010), (Ropret et al., 2011), (Zhang, 2011), (Zizlavsky, 2011), (Ozorhon and Oral, 2016), (Kallmuenzer, 2018), (Divisekera and Nguyen, 2018), (Meng and Brown, 2018), (Pikkemaat et al., 2018), (Beyina, 2019), (Atiase and Dzansi, 2020),

(Hayuningtyas et al., 2020); Suppliers (Nijkamp and Reggiani, 2000); Brand Advertisement (Zhang et al., 2009), (Ropret et al., 2011), (Meng and Brown, 2018).

Technology Adaptation

Technological Competence (Tatum, 1989), (Nam and Tatum, 1997), (Seaden et al., 2003), (Bossink, 2004), (Conceição et al., 2006), (Manley and Mcfallan, 2006), (Chaminade and De Fuentes, 2012), (Dachyar et al., 2013), (Xue et al., 2014), (Meng and Brown, 2018), (Quirapas et al., 2018), (Argothy and Álvarez, 2019), (Arzhantsev and Bondarenko, 2019), (Nevzorova and Karakaya, 2020); Scientific and Technology Resources (Funk and Plünnecke, 2005), (Drnevich et al., 2011), (Zhang, 2011); Technology/Design Trends (Ozorhon and Oral, 2016), (Owolabi et al., 2019); Technology Transfer (Sexton and Barrett, 2004), (Koc and Ceylan, 2007), (Narayanan and Parvin Hosseini, 2014), (Beyina, 2019); Technology Strategy (Koc and Ceylan, 2007), (Liddle and El-Kafafi, 2010); Use of ICT/CAD (Ilter et al., 2008), (Ribarić, 2015), (Divisekera and Nguyen, 2018), (Soto-Acosta et al., 2018), (Tutusaus et al., 2018), (Owolabi et al., 2019), (Velev and Veleva, 2019), (Mousavi et al., 2021).

Research and Development

Internal Research and Development (Dulaimi et al., 2002), (Conceição et al., 2006), (Van Moorsel et al., 2007), (Capitanio et al., 2009), (Fortuin and Omta, 2009), (Kinkel and Som, 2010), (Kramer et al., 2011), (Zhang, 2011), (Gambatese and Hallowell, 2011a), (Chaminade and De Fuentes, 2012), (Joppe et al., 2015), (Zuñiga-Collazos et al., 2015), (Ding and Wang, 2021); Research Capabilities for Innovation (Fortuin and Omta, 2009); Academia - Industry Collaboration (Nijkamp and Reggiani, 2000), (Abbot et al., 2006), (Kramer et al., 2011), (Xue et al., 2014), (Ciliberti et al., 2015); R&D Collaboration with Other R&D Institutions (Kinkel and Som, 2010), (Narayanan and Parvin Hosseini, 2014).

The following table illustrates the list of the thematic groups with the number of individual candidate factors influencing innovation.

Thematic Groups	Individual Factors
Culture	14
HRM Functions	15
Top Management Orientation	10
External Environment	11
Organizational Proficiencies	25
Leadership	3
Knowledge Management	6
Market Pressure and Competition	8
Technology Adaptation	6
Research and Development	4

(Table - 02 : Thematic Groups with number of individual factors)

5.0 Analyses and discussions

The identified factors and their grouping are the baseline for this study. The systematic literature review revealed 2 important findings. One finding is related to the thematic group and the another is related to the individual factors of innovation.

The first finding shows which thematic group has been cited by the researchers in how many studies among the 103 scholarly papers. The other finding shows that which individual factor of innovation has been cited how many times in the selected list of papers.

Since the study aimed at finding the most dominating factors and while analyzing the first finding, the number of citations of the thematic groups can be easily found. The following tables shows the result. Accordingly, the table also indicates that which thematic groups are very dominant.

Citations by Thematic Groups	
Thematic Groups	Studies
Organizational Proficiencies	62
HRM Functions	47
External Environment	41
Market Pressure and Competition	41
Culture	40
Technology Adaptation	31
Top Management Orientation	30
Leadership	28
Knowledge and Learning	19
Research and Development	18

(Table - 03 : Citations of the Thematic Groups in Different Studies)

As predicted in the proposition, the thematic group, Organizational Proficiencies is found as the most dominating in innovation. This group has been cited the most, in 72 studies. Hence, the proposition - 1 has been proven true in this study.

Table - 03 also represent that another thematic group, Market Pressure and Competition is dominant along with other 3 expected groups, e.g., external environment, culture and HRM functions. In relation to proposition 2, it now became essential to examine whether the organizational proficiencies affect the factors of external environment, market pressure and competition, culture and HRM functions toward innovation.

When focus shifted to the second finding, e.g., citation by the factors of innovation under the 10 thematic group, the following table accumulates the analysis.

Citations by Factors	
Factors under Thematic Groups	Citations
Organizational Proficiencies (25 factors)	99
HRM Functions (15 factors)	72
Market Pressure and Competition (8 factors)	61
Culture (14 factors)	56
External Environment (11 factors)	56
Top Management Orientation (10 factors)	39
Knowledge Management (6 factors)	34
Technology Adaptation (6 factors)	33
Leadership (3 factors)	31
Research and Development (4 factors)	21

(Table - 04 : Number of Citations of the Individual Factors under thematic groups)

25 factors of organizational proficiencies have been cited 99 times which strongly support the stand of this thematic group as the most dominating factor in innovation. Therefore, the justification of proposition - 1 is stronger and can be accepted.

Like the table - 3, factors of HRM functions, Market Pressure and Competition, Culture and External Environment are at the top dominating factors.

Hence, both tables (table - 3 and 4) indicated and established that organizational proficiencies, external environment, market pressure and competition, culture and HRM functions are the dominating factors of innovation where in both analyses, organizational proficiencies found as the most dominating.

Organizational Proficiencies and External Environment

The factors of organizational proficiencies can affect the factors of external environment and link those to the innovation performances of the organizations (da Cunha Bezerra et al., 2020), (Zhang and Merchant, 2020). Even it has been also sought that organizational abilities can manage the changes in the external environment (Koçyiğit and Akkaya, 2020), (Hameed et al., 2021), (Mikalef et al., 2021).

Researcher claim that the organizations can perform better in their innovation pursuits through adaptation of the changes in the external environment by connecting with their organizational proficiencies (da Cunha Bezerra et al., 2020), (Soomro et al., 2020). Such connectivity with external environment, organizational proficiencies allow more resilience and sustainability for innovation (da Cunha Bezerra et al., 2020), (Hillmann and Guenther, 2021). Hence, it can be claimed that organizational proficiencies can affect positively the factors of external environment toward innovation.

Organizational Proficiencies and Market Pressure and Competition

It is very natural that there will be increasing pressures in the market. To address these pressures, organizations can use and improve their proficiencies, e.g., abilities in innovation performances (Deslatte and Stokan, 2020), (Gupta et al., 2020), (Lin et al., 2020b). On the other hand, high competition compels organizations to go for innovation (Karakara and Osabuohien, 2020), (Katz, 2021). If the organizations focus on their capabilities, and if require, increase, they can gain the sustainable competitive advantages through innovation (Yang et al., 2020), (Hermundsdottir and Aspelund, 2021), (Wang and Gao, 2021).

Thus, organizational proficiencies positively affect market pressure and competition in the innovation performances of the organizations.

Organizational Proficiencies and Culture

The importance of culture in innovation has been already established in this study. The culture in the organizations is heavily affected by the organizational proficiencies, or capabilities (Li et al., 2020), (Zhang and Merchant, 2020). Organizations' capabilities in different points allow more room and flexibility to shape the organizational culture toward innovation (Asamoah et al., 2021), (Bahrami and Shokouhyar, 2021).

Alternatively, culture also has very strong mediating impact on the organizational proficiencies, or improving organizational capabilities in innovation activities (Harel et al., 2020), (Hosseini et al., 2020), (Upadhyay and Kumar, 2020).

Therefore, it can be claimed that organizational proficiencies and culture have mutual relationships between them, where both the factors have positive impact on each other.

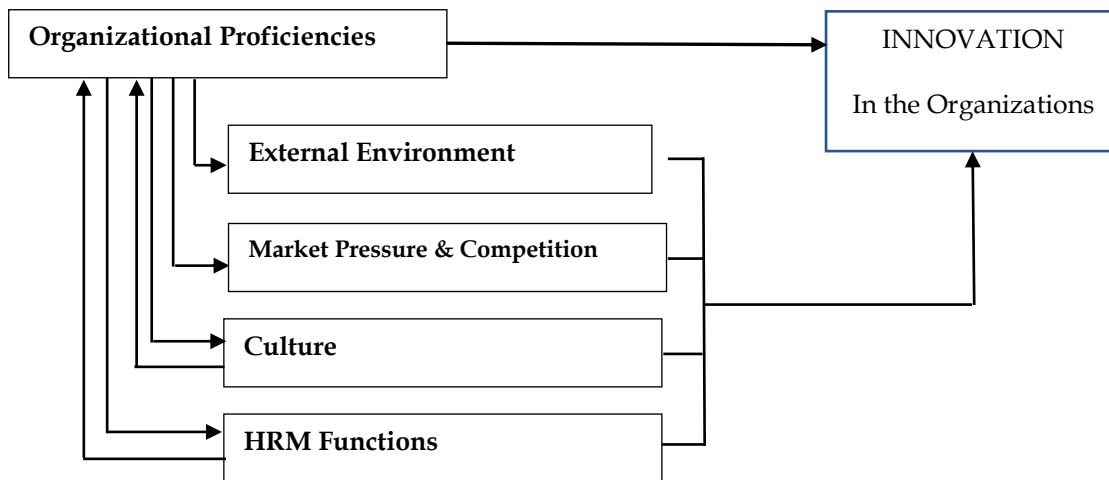
Organizational Proficiencies and HRM Functions

Human, the employees, in the organizations are the key of innovation because they develop the potential idea for innovation (Kianto et al., 2017), (Atiase and Dzansi, 2020). Thereto, researcher have emphasized HRM functions (Tajeddini and Martin, 2020), (Mousavi et al., 2021) for better innovation performance.

Organizational proficiencies, or capabilities enable organizations to design their HRM functions in alignment with their innovation pursuits (Sittisom, 2020), (Singh et al., 2021), (Than et al., 2021). On the other hand, it is found that well designed HRM functions help organization in improving their capabilities toward innovation (Alshammari, 2020), (Yasir and Majid, 2020), (Chadwick and Flinchbaugh, 2021).

So the interrelationships between organizational proficiencies and HRM Functions foster the organizations' performance toward innovation. Simultaneously, it has been proved that organizational proficiencies affect and can control the factors of external environment, culture and HRM functions toward innovation, also market pressure and competition. Hence, the second proposition has been found satisfactorily true and acceptable.

The discussion so far, has clearly established that organizational proficiencies have positive influence on other dominating factors of innovation, e.g., external environment, culture, HRM functions, and market pressure and competition. It has also been recognized that culture and HRM functions also affect organizational proficiencies for innovation. The interrelationship among these 5 dominating factors of innovation can be demonstrated through the following figure.



(Figure - 02 : Relationships among the Dominating Factors towards Innovation)

6.0: Study limitations

The key limitations are:

1. Papers were chosen from three databases: SCOPUS, Google Scholar, and Web of Science.
2. Only papers with the titles factors/drivers/forces of innovation/innovativeness were included in the study.
3. No papers that were not derived from a specific research methodology were included in the study.
4. The systematic literature review was used to select all of the factors.

7.0 Conclusion

This study was initiated with the objective of identifying the most important elements influencing innovation and examining their interrelationships. Two necessary and pertinent premises were constructed to serve as a foundation for and steer the study. In answer to the first proposition, the most important predictors of innovation are expected to be organisational capabilities. The innovation literature significantly substantiated this claim. Thus, organisational capabilities have been demonstrated to be the most important elements influencing organisational innovation.

There was some variation in the second proposition, such as the addition of a new factor, market pressure, and competition. Because these factors were discovered to be predominating in invention. The second premise was successfully completed by outlining the interrelationship between organisational capabilities and culture, external environment, human resource management functions, and market pressure and competition. Their interrelationships with regard to organisational innovation are clearly depicted in a diagram (Figure - 02).

The study adds to the corpus of knowledge as well as practises. The identification and accumulation of innovation factors are the means by which the innovation literature is updated. Additionally, the thematic grouping of these characteristics will assist future researchers in working comfortably in this field. Simultaneously, the partitioners of innovation activities can leverage their understanding of the interrelationships between the most influential aspects to improve innovation outcomes.

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