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Factors of Organizational Innovativeness: A Systematic Literature Review

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ABSTRACT:
Everyday organizations are facing various challenges from numerous sources. For the survival, they are always fighting for getting a comparative edge over the competitors. Innovation and capabilities to be innovative are the best weapon in this war. Numerous factors are continuously affecting and forcing organizational innovative activities and performances. It will be very helpful for the organizations when they will be well informed about all these impacting factors. This study efforts in pointing out the factors of organizational innovativeness through a systematic literature review.
KEY WORDS: Organizational Innovativeness, Factors of Organizational Innovativeness, Systematic Literature Review, Review Protocols.

I. INTRODUCTION

Current business environment is very dynamic [1] and challenging [2], particularly after the COVID pandemic [3]. Organizations are struggling for competitive advantages over their competitors, either through product differentiation or minimizing the cost [4]. Such condition compels the organizations toward innovative activities, because innovation is considered as a very strong competitive weapon [5], [6].

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 [7]. They are those factors that enables organizations to be creative [8] and these factors must be cultivated properly through the organizational strategies, culture, structure, and different operations to ensure the innovative capabilities [9]. When these factors are nourished appropriately within the organizations, the organizations enjoy the competitive advantages [10] and growth in market share.

Therefore, to focus on the factors of organizational innovativeness and ensure the proper cultivation of the essential factors in initiating, improving and maintain the innovative capabilities.

2. Organizational Innovativeness

In defining the innovativeness in the organizations, the scholars [11], [12], [13], [14], [15], [16], [17]; have argued that innovativeness is the capability of the organization that develop and/establish the baseline and/or platform for innovations. Thus, innovations are the results of an organizational capacity, called innovativeness. This innovativeness, in most cases, refers to the organizational innovativeness, as it has developed as an organization's significant non-financial aim and as the central measure of organizational performance [18].

There are many factors that have positive impact on the organizational innovativeness; such as culture [19], human resources practices [20], and leadership styles [21]. Many scholars have identified different factors of organizational innovativeness, which are explored later after justifying the methodology.

3. Methodology

This study is using a systematic literature review to point out the factors of organizational innovativeness. As a qualitative method of research,

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the systematic literature review (SLR) is the science of reviewing the existing literature for summarizing the key factors and findings [22] and ensuring the best synthesisation [23]. The SLR is an effective tool to find out the most relevant literature for a specific study from millions of scholarly publications [24] that stands as a guide for the researchers [25]. The SLR has the capability to deal with large and big data sets [26] and offers analyses also. Inclusion and exclusion of articles are easily and scientifically managed through the systematic literature review [27] through establishing research protocols, and therefore, the systematic literature review has been increasingly used widely for synthesizing the literature and the body of knowledge [28].

Review Protocol

Before going further, it is necessary to set the review protocol for the SLR. The protocol includes following criteria:

1. The studies, carried/focused on different factors affecting organizational innovativeness/innovation capabilities as in titles;
2. The studies must be undertaken in specific industry to address the innovativeness and its influencing factors;
3. The studies carried out ether through quantitative or qualitative analyses; detailing measuring instruments, i.e., questionnaires, interviews, survey, literature and cases studies;
4. The studies preferably include scholarly articles and conference proceedings/papers, books, as reports with the high relevancy to this research;
5. The papers/articles/reports are published in English only.

PRISMA Model

Adapting the PRISMA (Preferred Reporting Items for Systematic-Reviews and Meta-Analyses) references [29], following figure demonstrates the way of gathering researches, which have been incorporated in the SLR.

Accordingly, the PRISMA model (Figure 1 in the Appendix), preliminary exploration in mentioned 3 databases (SCOPUS, Google Scholar, Web of Science), identified 1,017 "title" related papers during 1973 – 2020 (May). After screening titles and key words, 523 research accepted at abstract level; out-of-that, 207 scholarly research, with determined titles have been selected for full-text study. After careful full-text study and exploration of 207 studies, 99 studies have been finalized for acceptance in the research.

4. Factors of Organizational Innovativeness

After reviewing selected 99 scholarly papers, a total of 102 factors that contributes to increasing innovation capabilities of the organizations in different industries. 102 factors of innovativeness 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 [30]. 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 [31]. In addition, the Research synthesis has been accompanied with a 'Realist Synthesis' [32] encompassing a tally of vibrant elements or instruments (either positively or negatively) that reinforce each single research (through open coding). Through thematic coding [33], 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. Later the researcher will search for measures of organizational innovativeness. Table – 1 in the Appendix, illustrates the summary of the systematic literature review.

The 10 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 described based on literature and including the factors identified under those.

Culture

Culture of an organization is highly affected by the national culture [34], and the culture refers to the organization's internal norms and practices [35] that has a crucial impact on organizational performance. Through the SLR, the following cultural factors have been identified:

1. **Innovation Culture**

The culture in the organization that encourage, often push employees to undertake innovative activities [36], [37], [38], [39], [40], [41], [42], [43], [44].

2. **Building Cultural Infrastructure**

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Scholars have also emphasized on building infrastructure for culture that enables the innovative capabilities of the organizations [45].

3. Strategic Culture

The culture should be an integral part of the organizational strategies and should be executed with the operations [45] for innovative performance.

4. Culture for Creativity

Culture is directly linked to the creative activities, e.g. innovative activities in other words which denotes that culture for creativity forces organizational towards innovativeness [46], [47], [48], [49], [50], [44], [51].

5. Entrepreneurial Culture

Culture can be established and nourished by the entrepreneurs to direct organizational function towards innovative performance [52], [53].

6. Organizational Climate

Organizational climate referring the organizational internal environment that cultivate and nourish different aspects of innovation and people involved within [54], [48], [55], [56], [57], [58], [59], [60], [61], [62], [63], [64].

7. Risk/ Risk Taking

Organizations needs to allow the people in innovation activities in taking risks, but it does not mean that without any good probability of innovative outcome, risks are to be allowed [65], [59], [66].

8. Freedom / Autonomy

Employees' freedom in their jobs requires autonomy and control to improve innovation capabilities[67], [68], [69], [70], [71], [45], [66], [72].

9. Tolerate Failure

Organizations and people involved in innovation activities should have the mind set for accepting/tolerating failures to some extent [68],[59] for encouraging innovative activities.

10. Governance

Researchers has also pointed in ensuring governance in organizational culture that guide and inspire people towards innovativeness [73].

11. Education/ Learning Transfer Climate

Organizations train their employees for innovation practices and definitely ensure a climate for effective transfer of the knowledge into practices [45], [42].

12. Approach of the Project Team

Organizations should have proper orientation and approach towards innovative culture in the organizations [60], [74].

13. Diffusion of innovation

Organizations should disseminate the result and benefit among the whole organization, and if necessary within the industry [61], [62].

14. Organizational Learning and Capacity

Organizational culture should encourage people in learning and increase the capabilities for learning which will impact on improving innovative performance [56], [75], [69].

HRM Functions

Human resources management (HRM) is an organizational function incorporating challenges and strategies regarding proper management of human resources employed in the organization [76]. For innovation purpose, the main and first criterion is human knowledge [77], and nourishing such knowledge increases organizational innovative capabilities.

Through the SLR, the following factors of HRM Functions have been identified:

15. Human Resources

The most valuable resource of an organization is its human resources who can introduce new ideas and thinking [78], [79], [80], [81], [82], [83], [84], [41], [73], [74], [85], [86], [53], [50], [87].

16. Human Resource Management Practices

HRM practices should be linked to the innovative initiatives and activities [88], [89], [51].

17. Competent Technical Staff

For being innovative, organizations should have competent technical staffs who can introduce new techniques and ideas [90], [60], [91], [64].

18. Motivation

Motivation of the people working in the organizations is essential,as it inspires and encourages to drive for bring new things in form of innovation [54], [88].

19. Teamwork/Coordination

Teamwork with good coordination in dissemination and sharing of information generate new ideas that lead to innovation [92], [68], [56], [69], [73], [93].

20. Selective Recruitment

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Organizations should go recruit selectivelyfor getting people with proven track of contributing new ideas and innovations [94], [63], [87].

21. Employee participation/ Engagement
To foster the innovative activities in the organizations, employees' active participation in whole working procedure is a must [95].

22. Innovation Champions
The innovation champions, are the examples to other employees and their presence accelerates the innovation orientation and performance [96], [37], [62], [41].

23. Available Skill Levels
Available skills of the employees and the level of skills are a crucial determinant in innovation performance [57].

24. Organization Career Management
When the organization offers a very good career path, the talented and innovative people will be attracted [43].

25. Good Internal Communication Systems
Employees get their necessary information in their innovative works through proper communication channels[38], [68], [61], [62], [41], [73], [43], [63].

26. Reward/Incentive Schemes/Systems
Organization should keep working and improving the reward mechanism for better innovation activities[97], [36], [80], [38], [67], [60], [71], [74], [52], [50], [63].

27. Training and Development
Innovation requires new knowledge which can be easily provided to the employees through well designed and facilitated training programs [90], [36], [38], [50], [98], [63], [87].

28. Human/Employees' Potentials/Interests
While employees have interests or potentials in the problem issues, then they will attempts to solve innovatively [97], [68], [45].

29. Flexible Working Contracts
Flexible hours or contracts allow employees more freedom and autonomy, which will permit them to use their potentials with new ideas [99].

Top Management Orientation

The top managers in the organizations influence the working patterns and teams outcomes to attain organizational goals [100] and directs to maximize market share and innovative activities to achieve competitive advantages [101]. Such activities create the environment for learning and design the proper manner to implement learning and work independently, which increase the propensity of innovation [102].
Through the SLR, the following factors of top management orientation have been identified:

30. Strategic Vision
Vision should be reframed through strategies [103] which often termed as vision of leadership in organizations [104]; leads to innovativeness [105], [65], [78], [79], [106], [59], [107], [45], [108], [52], [64].

31. Decision Making
Decision-making capabilities directs the activities and people to work for improving innovativeness [107].

32. Entrepreneurship
Entrepreneurship is vital for the change management [109]and entrepreneurial roles turn operations and guide people towards organizational innovativeness [90], [48], [82], [66], [110], [52], [43], [85], [64], [111].

33. Management Priority
Top management should prioritize innovative functions for better organizational innovative capabilities[65], [112], [113], [114], [62], [52].

34. Profit /Economic Motivation
Strong motivation toward maximizing profit accelerates innovative performances [55], [115].

35. Improving Firm Performance
Increasing the organizational capabilities enables business operations toward innovativeness [74], [116].

36. Improving Project Performance
Improving innovation projects' performance directly affects organizational innovativeness [74].

37. Corporate Social Responsibility
Through social responsibilities, organizations become innovation oriented, as sometimes attracted from the different social activities [74]

38. Delegation
When employees are empowered, results in high possibility for innovative performances [56].

39. Proactiveness
To be innovative,it is better to get the solutions of the problems in advance[66], [111].

External Environment

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External environmental issues affect the organizational development and performance [117], and such environment surrounds the organizations and keeps continuous pressure. While formulating organizational strategies, it is essential to consider the external environmental factors [118].

Through the SLR, the following factors of external environment have been identified:

40. Factors of External Environment

The scholars have identified numerous forces of external environment, like changes in demand, climate change, opportunities in markets, new and advanced technological issues etc., compelling the organizations to improve their innovative capabilities in facing the external environment [78], [119], [120], [81], [82], [107], [114], [41], [121], [122], [123], [124].

41. Environmental Sustainability

Environmental sustainability ensures to cope with the environment for pushing organizations toward innovative performance [125], [74], [98], [116].

42. Collaborative Relationship Network

Networking through collaborations and relationships with other institutions and innovation specialists,boost up organizational activities and innovation outcomes [90], [108], [86], [53], [124], [87].

43. Social Network

Different social medias, like Facebook, Twitter, Instagram etc., force organizations in bringing innovations [90], [120] through sharing information.

44. Partnering/Networking with Specialist Experts

Organization should develop and maintainpartnerships and networks with the people or organizations, specialists and experts in introducing and nourishing innovations [90], [57], [60], [126], [112], [113], [127].

45. Industry Relationships

Relationships within the same industry as well as with the other industries, enables organizations in developing own abilities and flexibilities for innovativeness [90], [37].

46. Opportunity

Different market opportunities provoke organizationsfor maximizing their profit and market share; achievable through innovativeness[61], [115], [64].

47. New Technology

The new technologies available in the external environment foster innovative activities [94], [112], [128], [83], [127], [41].

48. Government / Regulatory Role

The governments of different countries and the regulatory bodies often push organizations to be innovative but under some regulations [36], [37], [60], [129], [98], [130], [44], [116].

49. Regulations and Legislations

Though regulations and legislations of different bodies restrict innovativeness, but due to current complex situation, regulations and legislations should modify for forcing innovative activities [112], [74], [115].

50. Labour Market

The current labour market is more technology intensive rather than people intensive; and therefore, , organization must be ready to undertake innovative activities to ensure their existence [80].

Organizational Proficiencies

Organizational proficiencies refer to the capabilities of the organizations that enable organizations in performing [131], offer the solutions through proper knowledge management for better performance [132]. Through the SLR, the following factors of organizational proficiencies have been identified:

51. Organizational Resources

Organizational resources like strong financial capabilities, highly motivated and talented human resources, etc., empowers organizations in improving their innovative functions [105], [96], [36], [37], [68], [75], [133], [125], [108], [52], [63].

52. Organizational Support for Innovation

Organizations must support for innovation to carry out the innovative activities [90], [47], [60], [107], [114], [61], [62], [71], [39], [108], [127], [64].

53. Organizational Structure

Organizational structure has been pointed as an essential driver for innovativeness[90], [59], [125].

54. Organizational Age

As organizations get older, they become more efficient in practicing leadership and culture for organizational innovativeness [134],[46], [81], [125].

55. Firm Size

Big organizations enjoy the benefit of multi-dimensional operations which helps them to be innovative [106], [82], [112], [125], [86], [98].

56. Capital Resources

Capitalresources, e.g. structures, good leadership practices, finance, skilled human etc., are essential for organizational innovativeness, [75], [106], [112], [107], [83], [73], [74], [130], [64].

57. Available Finance

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Though finance is included in capital resources and organizational resources, scholars have argued that organizations needs to make the finance available while undertaking innovative activities [90], [80].

58. Productivity

Productivity is the ratio between inputs and outputs [135], is highly consideredin relation to the innovation [115], [121], [122], [116].

59. Safety and Working Condition

Good safety equipment always inspire employees in putting their best efforts [136] and drive towards innovative performances [115], [137], [138].

60. Information & Communication Resources

Resources, facilitating information disseminating and sharing among the organizational people and teams, strongly impact on performing and improving innovativeness [90], [80], [83], [127], [89].

61. Project Management

Project management practices and systems directly influence on organizational innovativeness [139], [140],[114].

62. Integration (Internal & External)

Organizational-wide integrations of different operations (internal), as well as integration with the external organizations enable in sharing information, ideas and views, which foster the organizational innovativeness [65], [36], [119], [114], [141], [84].

63. Innovation Strategy/Policy

Organizations should have specific innovation strategies and/or policies which will guide towards innovative performances [54], [37], [75], [59], [112], [142], [44], [64].

64. Process Management

Process management directly impact on the organizational innovativeness [124].

65. Innovation Management

Innovation management, e.g. thinking for new ideas, implementing the ideas etc., is essential to occur innovation in the organizations [95], [72].

66. Organizational Innovation Capacity (OIC)

OIC or the capabilities of the organization in innovative activities cultivates further more innovative performances [38], [58].

67. Organizational Innovation Activity

Well-structured and targeted organization activities towards innovations are essential for organizational innovativeness [120].

68. Structure of Production

Production structure, often the nature of product itself, forces organizations towards innovativeness [37].

69. Procurement Systems

Nature of procurement shows innovation orientation and directs to innovative performances [36], [37], [57], [143].

70. Practicality

Organizations should think practical targets otherwise they will fail to improve their performances [105].

71. Project Complexity

For solving complexities within the projects, organizations, compelled towards organizational innovativeness must solve such complexities for their own interests [74].

72. Total Quality Management (TQM)

The highest quality in each and every organizational operation, the highest possibilities for innovation occurs within the organizations [144], [92], [145], [142], [146], [124].

73. Continuous Improvement

Continuous improvements in organizational functions continuously seeks the opportunity for organizational innovativeness [144].

74. Intellectual Property Rights

Protected by the intellectual property rights (IPRs), organizations are motivated to conduct more innovation activities [106], [60], [70], [114].

75. Sustainability

After ensuring sustainability, organizations can frequently undertake innovative activities [147], [112].

Leadership

Leadership is a multi-disciplinary approach that refers to activities to inspire people in their work and entrench the tensions within the organizations [148]. Through the SLR, the following leadership factors have been identified:

76. Leadership Style

Different leadership styles that inspire organizational people and as well as the organizations towards problem-solving through different innovative practices [65], [96], [36], [58], [59], [125], [40], [84], [41], [74], [42], [53], [51].

77. Idea Generation

Ideation is the most important creativity of the organizational leaders in directing the organizations to improve their innovating capabilities [47], [38], [56], [59], [61]

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78. Vision

Effective leadership in organizations creates vision that inspire organizational people and operations in improving innovative performance [104], towards innovativeness [105], [65], [78], [79], [106], [59], [107], [45], [108], [52], [64].

Knowledge Management

The scholars have defined knowledge as dynamic, and self-adapting state which refers to structured information in employees' brain [149]; guidelines for collecting, processing and disseminating and developing culture of sharing knowledge [149], [150].

Knowledge management and organizational innovative performance are highly correlated; because knowledge management has a very strong mediating role organizational practices and innovation [151], which impact on increasing innovation capacity [152].

Through the SLR, the following factors of Knowledge Management have been identified:

79. External Knowledge Sources

For inspiring innovative activities and improving capabilities, organizations tend to acquire knowledge from the external sources to support organizational innovativeness [106], [93].

80. Knowledge Management

Knowledge management is the process of acquiring knowledge, modifying, developing and nourishing the knowledge for developing organizational performance in innovativeness [153], [119], [154], [38], [88], [113], [108], [74], [49], [123], [124], [111], [51].

81. Knowledge Codification/Transfer

Knowledge that is found in such structure, needs to clarify the organizational people and at the same time, for practisingfor organizational innovativeness [37], [113], [41].

82. Process of Knowledge Codification

Knowledge acquired from different sources, often seems not meaningful and understandable, therefore, the knowledge should be processed into useable and understandable codes to the organizational people through a well-defined process [74].

83. Knowledge Development

Organizations have to identify required knowledge and develop that in accordance with their own necessities to use and apply for better organizational innovativeness [153], [119], [154], [38], [88], [113], [108], [74], [49], [123], [124], [111], [51].

84. Learning/Action Learning

For effective knowledge management, it is very crucial that organizations facilitate learning systems easily converted into actions in problem-solving [59], [43].

Market Pressure and Competition

Pressure and competition are common factors in the market force organizations to establish a strong link between external and internal environment while developing strategies for the operations [155]; and pressure and competitions shape the organizational decisions, whether it is private or state-owned, towards attaining competitive advantages and maximizing market share [156].

Through the SLR, the following factors of Market Pressure and Competition have been identified:

85. Market (Structure)

Market as a structureforces organizational operations, to make adjustments for undertaking innovative activities [79], [75], [106], [60], [70], [114], [125], [66], [83], [141], [115].

86. Marketing

Marketing, is the process of developing strategies for attracting customers, fixing prices and maximizing market share; and thus, organizations are very likely to be innovative [90], [78], [47], [114], [127], [73].

87. Clients and Manufacturers Relationship

Organizations should developing the relationship with clients and manufacturers[37], [114]for improving their capabilities in innovativeness..

88. Clients' Requirements

Customers/clients are the main target of all organizations, therefore, organizations also altering their products and/or services through innovativeness in a continuous basis [90], [46], [68], [75], [57], [133], [157], [70], [62], [95], [74], [115], [121], [53], [116].

89. Market Demands

The changes and shifts in the market demands compel the organizations to find the solutions to meet the market dynamism in innovative manner [55], [112], [128], [66], [141], [41], [115], [121].

90. Competition Level

Since the market are very competitive,to operate successfully, organizations are becoming very innovative to ensure their sustainability and market share [75], [126], [70], [129], [114], [74], [85], [86], [121], [53], [158], [87]

91. Suppliers

Suppliers often force organizations to be innovative, while the power of the suppliers increases; the organizations have to find alternative supplies of their

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raw materials and other things for continuing innovative activities [90].

92. Brand Advertisement

Brand Advertisement and extra ordinary performance which lead to organizational innovativeness and innovative performances [82], [70], [121].

Technology Adaptation

The technological advancements, even in the case of social media, enable customers to interact with the product and/or service very promptly with the society which compel organizations in proper adaptation of technologies very immediately [159] and force to develop long sustainable business models [160],

Through the SLR, the following factors Technology Adaptation have been identified:

93. Technological Competence

To compete with the market rivals, organizations have to be very competent in technological aspects; which compels them in establishing and improving continuous innovative practices [65], [96], [78], [119], [120], [94], [91], [83], [41], [121], [122], [98], [130], [111].

94. Scientific and Technology Resources

Resources, resulting from scientific research and technological advancements assist organizations in initiating and continuing practices on innovativeness [80], [128], [129].

95. Technology/Design Trends

Technology and technological designs forces organizations for innovativeness[74], [116].

96. Technology Transfer

The process of technology transfer into their practices facilitates innovations [79], [56], [127], [158].

97. Technology Strategy

It is vital to introduce and manage the technology strategies which ranging from selecting suitable technologies to putting them into the practices [56], [112] in endeavor of innovativeness.

98. Use of ICT/CAD

The extensive uses of ICT and computer aided designs are triggering towards new ideas leading to organizational innovativeness [57], [95], [86], [123], [161], [116], [64].

Research and Development

Organizations subsidies their research and development, in accumulating knowledge for better performance and profitability[162]and to contribute to the nations [163].

Scholars have established that research and development is the key indicator for organizational innovations [164] andboth innovation and sustainability are dependent on research and development along with new technologies [165]; and strongly affect the organizational comparative advantages [166] towardinnovativeness.

Through the SLR, the following factors of Research and Development have been identified:

99. Internal Research and Development

Different countries and different industries are facilitating the research and development in the organization fosters in improving organizational innovativeness [36], [120], [106], [81], [133], [126], [113], [129], [61], [91], [73], [167].

100. Research Capabilities for Innovation

If the organizations are incapable to conduct research activities, they are likely to be less innovative [133].

101. Academia - Industry Collaboration

Conducting research is the collaborations with the academic institutions are valuable for organizational innovativeness [90], [55], [113], [41], [143].

102. R&D Collaboration with Other R&D Institutions

Collaborations with other organizations in sharing recent developments and innovations, and same as with other research and development institutions foster innovative performances [126], [127].

II. CONCLUSION

The study resulted from a very wide and in-depth systematic literature review, reveals the factors that influence organizations in their innovation and innovative capabilities. The 102 factors under the 10 thematic groups are very essential for the organizations to concentrate and cultivate accordingly their operations toward innovativeness.

The study pointed out and accumulated all the factors of innovativeness and thus contributed to the body of knowledge. In addition, these factors and their thematic groups will be very beneficial for the practicing managers in initiating and developing innovation activities and performances.

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Appendix

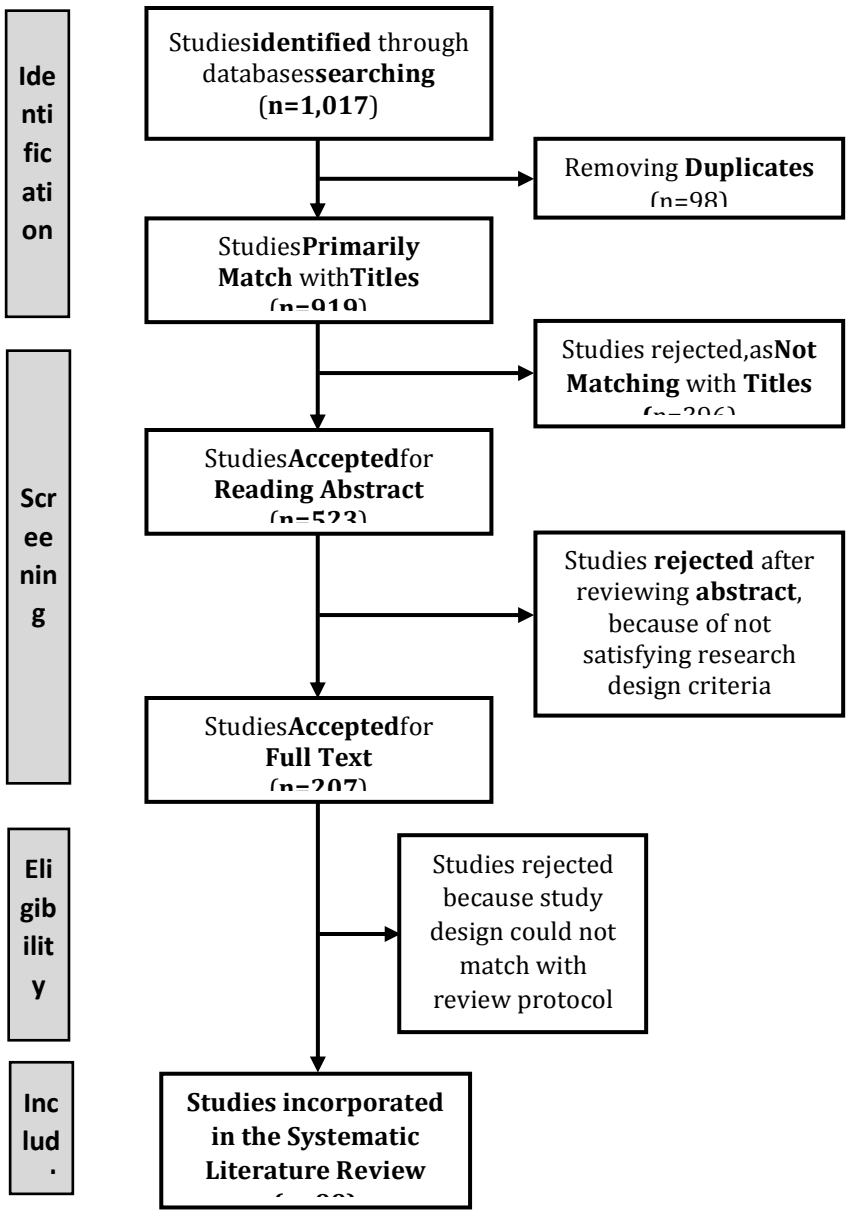

Figure –1 (PRISMA MODEL) :*Selection process for studies included in systematic literature review.*

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Serial	Researcher(s) & Year	Research Method, Sample (if any), Measuring Tools/Source (if any)	Region/ Country(s)	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	Literature Study, Construction Industry	UK	-	-	Y	Y	Y	-	-	-	-	-
2	Falus, 1982	Literature Study, State-owned Industries	Hungary	-	Y	-	-	-	-	-	-	-	-
3	Tatum, 1989	Literature Study, Construction Industry	USA	Y	-	Y	Y	Y	-	-	-	-	Y
4	Nam and Tatum, 1997	Literature Study, Construction Industry	USA	-	Y	-	Y	Y	-	-	-	-	Y
5	Nijkamp &Reggiani, 2000	Qualitative Study, Different Industries	Europe	-	Y	Y	Y	-	Y	Y	-	Y	-
6	Prajogo and Sohal, 2001	Literature Study, All Industries	World	-	Y	-	Y	-	-	-	-	-	-
7	Storey et al., 2002	Qualitative Study, 667 Firms, All Industries Measuring Instrument: Postal Survey & Case Studies	UK	-	Y	-	-	-	-	-	-	-	-
8	Dulaimi et al., 2002	Quantitative Study, 200 Construction Stakeholders Measuring Instrument: Questionnai	Singapore	Y	Y	-	Y	Y	Y	-	-	Y	-

		re											
9	Cormican& O'Sullivan, 2003	Literature Study, Manufacturing Industries	World	-	-	-	-	-	-	-	Y	-	-
10	Sundström and Zika-Viktorsson, 2003	Quantitative Study, 2 Software Firms Measuring Instrument: Questionnaires	Sweden	Y	-	-	Y	-	-	Y	-	-	-
11	Seaden et al., 2003	Quantitative Study, 1739 Firms Measuring Instrument: Questionnaire	Canada	-	Y	Y	-	Y	Y	Y	-	-	Y
12	Prajogo and Sohal, 2003	Quantitative Study, 194 Managers in Different Sectors Measuring Instrument: Questionnaire	Australia	-	-	-	Y	-	-	-	-	-	-
13	Bossink, 2004	Quantitative Study, 66 persons - Construction Experts Measuring Instrument: Interview	Netherlands	-	-	-	Y	-	Y	-	Y	-	Y
14	Giardini and Kyllönen, 2004	Quantitative Study, Different SMEs Measuring Instrument: Survey Questionnaires	Japan	Y	Y	-	Y	-	-	-	-	-	-
15	Pu et al., 2004	Quantitative Study, 251 Firms Measuring	China and 5 Western	Y	-	-	Y	Y	-	Y	-	-	-

		Instrument: Questionnaires	Countries										
16	Sexton & Barrett, 2004	Quantitative Study, 7 Small Firms Measuring Instrument: Case Study	UK	-	Y	Y	-	Y	-	Y	-	-	Y
17	Blayse and Manley, 2004	Literature Study, Construction Firms/Projects	Australia	Y	Y	-	Y	-	Y	Y	Y	-	-
18	Korsvold and Sletbakk Ramstad, 2004	Literature Study, Construction Firms/Projects	Norway	-	-	-	-	-	-	-	Y	-	-
19	Singh and Smith, 2004	Quantitative Study, 418 Manufacturing Organizations Measuring Instrument: Survey	Australia	-	-	-	Y	-	-	-	-	-	-
11	Seaden et al., 2003	Quantitative Study, 1739 Firms Measuring Instrument: Questionnaire	Canada	-	Y	Y	-	Y	Y	Y	-	-	Y
12	Prajogo and Sohal, 2003	Quantitative Study, 194 Managers in Different Sectors Measuring Instrument: Questionnaire	Australia	-	-	-	Y	-	-	-	-	-	-

(**Table – 1**: Summary of Systematic Literature Review)

Serial	Researcher(s) & Year	Research Method, Sample (if any), Measuring Tools/Source (if any)	Region/ Country(s)	Culture	HRM Functions	Top Management Orientation	Organizational Proficiencies	Leadership	External Environment	Market Pressure and Competition	Knowledge Management	Research and Development	Technology Adaptation
20	Funk &Plünnecke, 2005	Literature Study, All Industries	22 OECD Countries	-	Y	-	Y	-	Y	-	-	-	Y
21	Conceição et al., 2006	Quantitative Study, 820 Manufacturing Firms Measuring Instrument: Survey Questionnaires	Portugal	-	-	-	Y	-	Y	-	-	Y	Y
22	Cropley, 2006	Literature Study, Different Industries	Europe	Y	-	Y	-	-	-	-	-	-	-
23	Manley &Mcfallan, 2006	Quantitative Analysis, 208 Construction Firms Measuring Instrument: Survey conducted	Australia	-	Y	-	-	-	Y	-	-	-	Y
24	Shyu et al., 2006	Case Study, 2 Universities	Taiwan	Y	Y	-	Y	Y	-	-	Y	-	-
25	Abbot et al., 2006	Qualitative Study, 1 Construction SME Measuring Instrument: Case Study	UK	Y	-	Y	-	-	-	Y	-	Y	-
26	Hartmann, 2006	Qualitative Study, 1 Construction Contractor Measuring Instrument: Case Study	Switzerland	Y	Y	-	-	-	-	-	-	-	-
27	Fortuin et al., 2007	Quantitative Study, 12 Agrifood Companies Measuring Instrument:	Netherlands and France	Y	Y	-	Y	-	-	Y	-	-	-

		WIAT											
28	Koc and Ceylan, 2007	Quantitative Study, 119 Large-Scale Firms Measuring Instrument: Questionnaires	Turkey	Y	Y	Y	-	Y	-	-	-	-	Y
29	Paladino, 2007	Quantitative Study, 249 Senior Executives; All Industries Measuring Instrument: Questionnaires	Australia	Y	-	-	Y	-	-	Y	-	-	-
30	Van Moorsel et al., 2007	Quantitative Study, 253 Biotechnology Firms Measuring Instrument: Questionnaires	Canada	-	-	Y	Y	Y	-	Y	Y	Y	-
31	Ilter et al., 2008	Literature Study, Construction Industry	World	Y	Y	-	Y	-	Y	Y	-	-	Y
32	Panuwatwanich et al., 2008	Quantitative Study, 181 Construction Professionals Measuring Instrument: Questionnaire	Australia	Y	-	-	Y	Y	-	-	-	-	-
33	Capitanio et al., 2009	Quantitative Study, 234 Food Sector Firms Measuring Instrument: Survey (Capitalia) & Analysis	Italy	-	Y	-	Y	-	Y	-	-	Y	-
34	Chang and Yeh, 2009	Quantitative Study, 275 Teaching Staffs, Education Sector Measuring Instrument: Survey (Capitalia) &	Taiwan	Y	Y	-	-	-	-	-	-	-	-

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		Analysis											
35	Fortuin and Omta, 2009	Quantitative Study, 31 Top Executives, Food Sector Measuring Instrument: Questionnaires & Interviews	Netherlands	-	-	-	Y	-	-	Y	-	Y	-
36	Kamath et al., 2009	Literature Study, Manufacturing Sectors	World	-	Y	-	-	-	-	-	Y	-	-
37	Nidumolu et al., 2009	Literature Study, All Sectors	World	-	-	-	Y	-	-	-	-	-	-
38	Zhang et al., 2009	Quantitative Study, 342 Manufacturing Enterprises Measuring Instrument: Questionnaires	China	-	Y	Y	Y	-	Y	Y	-	-	-
39	Bel, 2010	Literature Study, Innovative Companies	USA	Y	-	Y	Y	Y	-	-	Y	-	-
40	Chen et al., 2010	Quantitative Study, 20 Animation Companies Measuring Instrument: Interviews with Top Executives	China	Y	Y	-	Y	-	Y	Y	-	-	-

(**Table – 1** : Summary of Systematic Literature Review (cont.)

Serial	**Researcher(s) & Year**	**Research Method, Sample (if any), Measuring Tools/Source (if any)**	**Region/ Country(s)**	**Culture**	**HRM Functions**	**Top Management Orientation**	**Organizational Proficiencies**	**Leadership**	**External Environment**	**Market Pressure and Competition**	**Knowledge Management**	**Research and Development**	**Technology Adaptation**
41	Kinkel and Som, 2010	Quantitative Study, 1663 Mechanical Engineering Firms Measuring	Germany	-	-	-	-	-	Y	Y	-	Y	-

		Instrument: European Manufacturing Survey 2006 by Institute for Systems and Innovation Research (ISI)											
42	Liddle and El-Kafafi, 2010	Qualitative Study, Biotechnology-Sector Measuring Instrument: Interviews with Top Executives	New Zealand	-	-	Y	Y	-	Y	Y	-	-	Y
43	Drnevich et al., 2011	Quantitative Study, 753 SMEs; All Sectors Measuring Instrument: NFIB Poll Survey Result Analysis	USA	-	-	-	-	-	Y	Y	-	-	Y
44	Engström and Levander, 2011	Qualitative Study, Construction-Sector Measuring Instrument: Analyses of Data from 27 Firms	Sweden	-	-	-	-	-	-	Y	-	-	-
45	Kask, 2011	Case Study, 1 IT Firm (MicroLink)	Estonia	-	-	Y	Y	Y	Y	-	-	-	-
46	Kramer et al., 2011	Qualitative Study, ICT, Automotive & Life Science Sectors Measuring Instrument: Interviews with 44 Employees	Germany and UK	-	-	Y	-	-	Y	-	Y	Y	-
47	Ropret et al., 2011	Quantitative Study, 87 Service Companies Measuring	Slovenia	Y	-	-	Y	-	-	Y	-	-	-

		Instrument: Questionnaire											
48	Zhang, 2011	Quantitative Study, Different High-Tech Industries Measuring Instrument: Trade Spillovers Model	Beijing	-	-	-	-	-	Y	Y	-	Y	Y
49	Zizlavsky, 2011	Quantitative Study, 192 SMEs; All Sectors Measuring Instrument: Survey Questionnaire	Czech Republic	-	-	Y	Y	-	Y	Y	-	-	-
50	Gambatese and Hallowell, 2011a	Qualitative Study, 10 Construction Projects Measuring Instrument: Case Study and Interviews	USA	Y	Y	-	Y	Y	Y	-	-	Y	-
51	Gambatese and Hallowell, 2011b	Quantitative Study, 34 Construction Professionals Measuring Instrument: Questionnaire	Web-Based (World)	Y	Y	Y	Y	-	-	Y	-	-	-
52	Chaminade and De Fuentes, 2012	Quantitative Study, 171 ICT Companies Measuring Instrument: Survey Questionnaire	Sweden	-	Y	-	-	-	-	-	-	Y	Y
53	Chang and Hughes, 2012	Quantitative Study, 243 SMEs (Manufacturing & Service) Measuring Instrument: Questionnaire Survey	Scotland	-	-	-	Y	Y	Y	Y	-	-	-
54	Von	Quantitative	Australi	Y	Y	-	Y	-	-	-	-	-	-

	Treuer and McMurray, 2012	Study, 98 SMEs (National - Consulting Firms) Measuring Instrument: Questionnaire Survey	a										
55	Chan and Liu, 2012	Quantitative Study, 99 Professionals; Construction Measuring Instrument: Questionnaire, developed by Siegel and Kaemmerer (1978)	Hong Kong	Y	-	-	Y	-	-	-	-	-	-
56	Asgari et al., 2013	Quantitative Study, 387 Professionals in Construction Measuring Instrument: Questionnaire	Iran	Y	Y	Y	-	Y	-	-	-	-	-
57	Boso et al., 2013	Quantitative Study, 164 Exporters; All Sectors Measuring Instrument: Questionnaire	Ghana	Y	-	Y	-	-	-	Y	-	-	-
58	Dachyar et al., 2013	Qualitative Study, Telecommunication Companies Measuring Instrument: SSM with CST, SAST with AHP	Indonesia	-	Y	-	Y	-	Y	Y	-	-	Y

(**Table – 1** : Summary of Systematic Literature Review (cont.)

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52	Chaminade and De Fuentes, 2012	Quantitative Study, 171 ICT Companies Measuring Instrument: Survey Questionnaire	Sweden	-	Y	-		-	-	-	-	Y	Y
53	Chang and Hughes, 2012	Quantitative Study, 243 SMEs (Manufacturing & Service) Measuring Instrument: Questionnaire Survey	Scotland	-	-	-	Y	Y	Y	Y	-	-	-
54	Von Treuer and McMurray, 2012	Quantitative Study, 98 SMEs (National - Consulting Firms) Measuring Instrument: Questionnaire Survey	Australia	Y	Y	-	Y	-	-	-	-	-	-
55	Chan and Liu, 2012	Quantitative Study, 99 Professionals; Construction Measuring Instrument: Questionnaire, developed by Siegel and Kaemmerer (1978)	Hong Kong	Y	-	-	Y	-	-	-	-	-	-
56	Asgari et al., 2013	Quantitative Study, 387 Professionals in Construction Measuring Instrument: Questionnaire	Iran	Y	Y	Y	-	Y	-	-	-	-	-
57	Boso et al., 2013	Quantitative Study, 164 Exporters; All Sectors Measuring Instrument: Questionnaire	Ghana	Y	-	Y	-	-	-	Y	-	-	-
58	Dachyar et al., 2013	Qualitative Study, Telecommunicati	Indonesia	-	Y	-	Y	-	Y	Y	-	-	Y

		on Companies Measuring Instrument: SSM with CST, SAST with AHP											
59	Abdul Hamid and Abd. Rahman, 2014	Qualitative Study, 182 Research Articles Measuring Instrument: SLR	World	-	-	Y	Y	Y	Y	-	Y	-	-
60	Liu et al., 2014	Quantitative Study, 53 Projects of 38 Vegetable Breeders Measuring Instrument: Questionnaire	China	-	-	-	Y	-	-	Y	-	-	-
61	Narayanan and Parvin Hosseini, 2014	Quantitative Study, 303 Firms from Service Sector Measuring Instrument: Questionnaire	Malaysia	-	-	-	Y	-	Y	Y	-	Y	Y
62	Chan et al., 2014	Quantitative Study, 113 Professionals; Construction Measuring Instrument: Questionnaire developed by 1) Avolio and Bass, 2004 and 2) Scott and Bruce, 1994	Hong Kong	Y	-	-	-	Y	-	-	-	-	-
63	Ozorhon et al., 2014	Qualitative Study, 10 Construction Projects Measuring Instrument: Case Study	Australia	-	Y	-	Y	Y	-	-	-	-	-
64	Xue et al., 2014	Qualitative Study, Construction Industry Measuring Instrument:	Australia	Y	Y	-	-	Y	Y	Y	Y	Y	Y

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		Systematic Review of Literature											
65	Bourke and Crowley, 2015	Qualitative Study, 996 Manufacturing Firms Data Source: MOI Survey by World Bank and EBRD 2008-09	Central and Eastern Europe (10 Countries)	-	Y	-	Y	-	-	-	-	-	-
66	Ciliberti et al., 2015	Quantitative Study, All Food Manufacturing Firms Measuring Instrument: Analysis of CIS (4-8) Surveys	25 European countries	-	-	-	Y	-	-	-	-	Y	-
67	Joppe et al., 2015	Qualitative Study, 32 Tourism Professionals Measuring Instrument: Workshop	Ontario, Canada	Y	Y	-	Y	-	-	Y	-	Y	-
68	O'Brien, 2015	Quantitative Study, 208 SMEs; Different Sectors Measuring Instrument: Survey	North West of England	-	-	Y	-	-	-	-	-	-	-

(**Table – 1** : Summary of Systematic Literature Review (cont.)

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69	Ribarić, 2015	Quantitative Study, 114 Tourism Stakeholders Measuring Instrument: Questionnaire	Istria	-	Y	-	Y	-	-	Y	-	-	Y
70	Zuñiga-Collazos et	Quantitative Study, 364	Colombia	-	-	-	-	-	-	-	-	Y	-

	al., 2015	Managers from Tourism Business Measuring Instrument: Questionnaire											
71	Ozorhon and Oral, 2016	Quantitative Study, 110 Construction Projects Measuring Instrument: Questionnaire	Turkey	Y	Y	Y	Y	Y	Y	Y	Y	-	Y
72	Bhuiyan et al., 2017	Quantitative Study, 247 SMEs - Food Processing Measuring Instrument: Survey	Malaysia	-	-	Y	Y	-	Y	Y	-	-	-
73	Fellnhofer, 2017	Quantitative Study, 301 Employees, 4 Industries Measuring Instrument: Questionnaire	Austria	Y	Y	Y	Y	Y	-	-	-	-	-
74	Lašáková et al., 2017	Qualitative Study, 10 Universities Measuring Instrument: Case Study	Europe	Y	-	-	Y	-	-	-	-	-	-
75	Liu and Chan, 2017	Quantitative Study, 158 Persons, Construction Measuring Instrument: Questionnaire development by Bass and Avolio, 2004, Siegel and Kaemmerer, 1978, Holton et al., 2000 and Kaiser and Holton, 1998	China	Y	-	-	-	Y	-	-	-	-	-
76	Zhu and	Quantitative	China	Y	Y	Y	-	-	-	-	Y	-	-

	Cheung, 2017	Study, 102 Professionals, Construction Measuring Instrument: Questionnaire											
77	Antunes et al., 2017	Quantitative Study, 287 SMEs, All Sectors Measuring Instrument: Questionnaire	Portugal	-	-	-	Y	-	-	-	-	-	-
78	Taddese, 2017	Quantitative Study, 17 Companies, Different Sectors Measuring Instrument: Exploratory Empirical Research	Japan, India and Thailand	-	-	-	Y	-	-	-	-	-	-
79	Kallmuenzer, 2018	Qualitative Study, 22 Hospitality Family Firms (Interviews) Measuring Instrument: Text Analysis Software GABEK	Western Austria	-	Y	Y	-	-	-	Y	-	-	-
80	Albors-Garrigós, et al., 2018	Qualitative Study, Haute Cuisine Measuring Instrument: Case Study	France	Y	-	-	-	-	-	-	Y	-	-
81	Divisekera and Nguyen, 2018	Quantitative Study, 389 Tourism SMEs Measuring Instrument: Regression Analysis	Australia	-	Y	-	Y	-	Y	Y	-	-	Y
82	Meng and Brown, 2018	Quantitative Study, 64 Construction Practitioners	UK	-	-	-	Y	-	Y	Y	-	-	Y

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		Measuring Instrument: Interview and Questionnaire											
83	Nordli, 2018	Quantitative Study, 632 Tourism Companies Measuring Instrument: Survey Questionnaire + Stat Analysis	Europe	-	Y	-	-	-	-	-	Y	-	-
84	Pikkemaat, et al., 2018	Qualitative Study, 37 Tourism Entrepreneurs Measuring Instrument: Sample Interviews	Austria	Y	Y	-	-	Y	Y	Y	-	-	-
85	Quirapas, et al., 2018	Qualitative Study, Land Transport Measuring Instrument: Case study and in-depth interviews	Singapore	-	-	-	Y	-	Y	-	-	-	Y
86	Revilla and Rodríguez-Prado, 2018	Quantitative Study, 23,537 Firms Measuring Instrument: Statistical Analysis	Europe	Y	Y	-	-	-	-	-	-	-	-

(**Table – 1** : Summary of Systematic Literature Review (cont.)

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87	Soto-Acosta, et al., 2018	Quantitative Study, 429 Manufacturing	Spain	-	-	-	-	-	Y	-	Y	-	Y

		SMEs Measuring Instrument: Survey (Computer Aided Software)											
88	Tutusaus, et al., 2018	Qualitative Study, 3 Organizations (1 Water Utility) Measuring Instrument: 3 Cases Analysis	Greece, Italy and Netherlands	-	-	-	-	-	-	-	-	-	Y
89	Argothy and Álvarez, 2019	Quantitative Study, 66 Public Enterprises Measuring Instrument: Statistical Analysis	Ecuador	-	Y	-	Y	-	Y	-	-	-	Y
90	Arzhantsev and Bondarenko, 2019	Quantitative Study, Public Sector Measuring Instrument: GDP Analysis	Russia	-	-	-	Y	-	Y	-	-	-	Y
91	Beyina, 2019	Quantitative Study, 44 Food Processing SMEs Measuring Instrument: Questionnaire Survey	Cameroon	-	-	-	-	-	-	Y	-	-	Y
92	Diaz-Delgado, et al., 2019	Qualitative Study, 95 Articles on SMEs, All Sectors Measuring Instrument: Literature Review	World	Y	Y	-	Y	-	-	-	-	-	-
93	Hanifah, et al., 2019	Quantitative Study, 140Bumiputera	Malaysia	Y	-	-	Y	-	Y	-	-	-	-

		SMEs, All Sectors Measuring Instrument: Questionnaire and SEM											
94	Kafetzopoulos and Skalkos, 2019	Quantitative Study, 436 Greek Agri-Food Firms Measuring Instrument: Questionnaire and Stat Analysis	Greece	-	-	-	Y	-	Y	-	Y	-	-
95	Owolabi, et al., 2019	Quantitative Study, 89 Construction Professionals Measuring Instrument: Questionnaire Survey	Nigeria	-	-	Y	Y	-	Y	Y	-	-	Y
96	Velev and Veleva, 2019	Quantitative Study, 100 Industrial Enterprises Measuring Instrument: Survey and Stat Analysis	Bulgaria	Y	Y	Y	Y	Y	Y	-	-	-	Y
97	Atiase and Dzansi, 2020	Quantitative Study, 31 African Countries Measuring Instrument: Survey Data Analysis	Africa	-	Y	-	-	-	Y	Y	-	-	-
98	Nevzorova and Karakaya, 2020	Qualitative Study, 42 Articles, Biogas Measuring Instrument: Systematic Literature Review	Europe	-	-	Y	-	-	-	-	Y	-	Y
99	Tajeddini and Martin, 2020	Quantitative Study, 201 Tourism	Japan	Y	Y	-	-	Y	-	-	Y	-	-

		Service Firms Measuring Instrument: Interview and Questionnaire Survey											

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