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# SYSTEMATIC LITERATURE REVIEW: INNOVATION MANAGEMENT OF MICRO, SMALL, AND MEDIUM ENTERPRISES (MSMES) IN FISH PROCESSING

Rina SA'adah<sup>1\*</sup>, Yudi Azis<sup>2</sup>, Yudi Nurul Ihsan<sup>3</sup>, Martha Fani Cahyandito<sup>4</sup>

<sup>1</sup>*Faculty of Economics and Business, Universitas Padjadjaran Bandung, Indonesia. Email: rina.adisurya@gmail.com*

<sup>2</sup>*Faculty of Economics and Business, Universitas Padjadjaran Bandung, Indonesia.*

<sup>3</sup>*Faculty of Fisheries and Marine Science, Universitas Padjadjaran Bandung, Indonesia.*

<sup>4</sup>*Faculty of Economics and Business, Universitas Padjadjaran Bandung, Indonesia.*

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Corresponding Author: Rina Sa'adah  
(rina.adisurya@gmail.com)

## ABSTRACT

*Micro, Small, and Medium Enterprises (MSMEs) in fish processing in Indonesia are known as industries with low value-added. As a large maritime nation with abundant marine and fisheries resources, the fish processing sector—dominated by MSMEs—holds significant potential to enhance community welfare through increased value-added activities. Innovation management plays a key role in optimizing fish processing businesses through product, strategic, and process innovations. This study employs the Systematic Literature Review (SLR) method to describe, identify, review, evaluate, and interpret existing research in the field of innovation management in MSMEs. The literature review draws on both national (GARUDA) and international (Science Direct) research databases. The SLR process follows established protocols, including: (1) defining the research scope, (2) conducting a comprehensive online search, (3) assessing journal quality, (4) extracting data, (5) synthesizing findings, and (6) producing a comprehensive report. The study also identifies research gaps and potential future research agendas in innovation management. The findings reveal that opportunities for innovation management research remain wide open, both empirically and conceptually. Empirically, studies on MSMEs are still limited despite their crucial economic role, while conceptually, there is no established standard or model for implementing innovation management strategies.*

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**KEYWORDS:** Innovation Management, MSMEs, Systematic Literature Review, Fish Processing Units, Value Added.

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## 1. INTRODUCTION

All industries strive to develop innovations as a guarantee of their success in the market to be able to compete with their competitors. The ability of a company to innovate can be a potential to create new products and valuable knowledge (Zheng, Liu, & George, 2010). Innovation is also not only needed and can develop in large-scale companies, but small companies also need to create an innovation for the sake of their business continuity if they want to grow and have a large market. According to Lawson & Samson (2011), the ability to innovate is an ability to continuously transform knowledge and ideas into new products, processes, and systems for the benefit of the company. Thus, micro, small, and medium scale companies also need to create innovation if they want to have more advantages and compete with competitors who have greater resources.

Nada et al., (2012) said that there are several features that distinguish MSMEs from large companies, which are categorized based on their management, structure, culture, and human resources. Management in large companies, a manager has great power to delegate responsibility to the structure below him, while in MSMEs, the owner of the company also often doubles as a manager, so the span of control of the structure is shorter in making and delegating decisions. In terms of structure, MSMEs have a more flexible and simple type of structure, while large companies have a more hierarchical and complex bureaucratic structure. In terms of work culture, MSMEs tend to be familial, while large companies are more formal. Then in terms of human resources, MSMEs have difficulty binding workers with high skills and experience, because high-skill labor prefers to work in large companies with higher salaries and bonuses. Based on the four things that distinguish MSMEs and large companies, MSMEs actually have a more supportive climate in efforts to create innovation. MSMEs have more flexibility and a more concise span of control so that they are faster in adjusting to the dynamics of market changes that occur. However, often innovation also requires high skill labor and this is a weakness of MSMEs compared to large companies.

## 2. LITERATURE REVIEW

### 2.1. *Innovation Management in Msmes: Definition and Characteristic*

Innovation management is the process of discovering and implementing new management practices, processes, structures or techniques for further organizational goals (Birkinshaw et al., 2008). In micro,

small and medium scale enterprises, innovation management can be divided into stages of strategic management, product and process innovation. At the heart of innovation management is a systematic approach to the implementation of changes that should lead to improvements in products, processes or the position of the entire company. According to Havlíček et al., (2013) innovation is said to be successful if it is responded to by the market in the form of higher sales, customers who are more satisfied with the products purchased, strengthening the image and creating better relationships with relevant stakeholders. Sawhney et al., (2006) explained that innovation management is the active organization, control and implementation of processes, activities, and policies that lead to the creation of substantial new value for customers and companies by changing one or more dimensions of the business system creatively. Innovation management is the successful introduction of something new, it is the embodiment and synthesis of knowledge in new products, processes, or services that are original, relevant, valuable (Luecke and Katz, 2003). There are many definitions of the innovation process and innovation management in the literature, but there is no uniform definition regarding them (Niewöhner et al., 2019). In general, innovation management can be understood as the totality of all innovation activities of a company and its organization (Stern, 2010).

According to Havlíček et al., (2013) innovation management must pay attention to aspects of looking for business opportunities, analysis of resources, and innovation plan and decision. Studies which conducted in Europe show that there are at least 10 types of typologies used in knowledge-based innovation management (Hidalgo and Albers, 2008). First, knowledge management techniques; second, market intelligence techniques; third, cooperative and networking tools; fourth, human resource management techniques; fifth, interface management techniques; sixth, creativity development techniques; seventh, process improvement techniques; eighth, innovative project management techniques; ninth; design management techniques; and tenth, business creation techniques. This typology was found by looking at 32 characteristics that classify Innovation Management Techniques (European Commission, 2004). Hidalgo and Albers (2008) narrowed the list down to 8 criteria (knowledge-based focus, strategic impact, level of availability, level of documentation, practical use, age of business management innovation, resources required for implementation, measurement), which are particularly relevant for innovation management based on knowledge.

### 2.2. *Rationale And Urgency of The Study*

This study will provide insight into various types of innovation management practices in micro, small, and medium enterprises. The literature study used will also provide the latest understanding of the dynamics of innovation studies in various cases in the world and it is hoped that this study will also be able to provide an overview of how micro and medium enterprises are trying to manage innovation through practices, processes, and structures so that they can increase their power even with industry. which has a larger scale. Many understand that innovation can only be successful and successful if it has large resources, and this can only be realized by large-scale efforts through the establishment of a special division that handles research and development. However, micro, small and medium enterprises actually have the potential to do this with a more flexible and less rigid structure as experienced by large scale.

Therefore, this study tries to understand the problem through the following questions:

- RQ1. How is the development of the latest research on innovation management in MSMEs?
- RQ2. What factors influence the implementation of innovation management in MSMEs?
- RQ3. What areas have received less attention from the literature?
- RQ4. What research opportunities can be done in the future?

The structure of the SLR in this study is as follows: Section 2 describes the research methods used in SLR, then Section 3 describes the latest developments in research related to innovation management in MSMEs. Section 4 reviews the discussion of recent studies on innovation management and research propositions. In Section 5 contains the summary and conclusions on the SLR study conducted.

### 3. RESEARCH METHODOLOGY

The method in the SLR study is a method based on a comprehensive search and tracing relevant literature with clearly stated and comprehensive search choices and selection criteria (Ruhlandt, 2018; Kumar & Kumaret, 2017). This study uses two main journals search database sources based on domestic research and foreign research. The domestic database source used is the Digital Reference GARUDA developed by the National Research and Innovation Agency (BRIN) Indonesia. Then the foreign database reference used is Science Direct. The keywords assigned to search the GARUDA database are using "Manajemen Inovasi" (innovation management) based on article titles with no time limitation. As for Science Direct using the keyword "Innovation Management". The search for Science Direct is limited to publications between 2010-2021 (last 12 years) with a focus on research articles in all subject areas including Business, Management and Accounting.

Based on SLR searches, there are 113 articles on GARUDA with unlimited searches. Then in Science Direct found 131,525 articles. However, journal quality control is also carried out to maintain the quality of the literature used. First, control was carried out on research discussing innovation management and filtered 10 journals through GARUDA, while through Science Direct related to innovation management there were 50 filtered journals. Second, control at GARUDA is limited to the quality of SINTA 1 - 2, while for Science Direct it is limited to journals with quality in the Q1 - Q2 range, based on Scimago. The search results through the filtering mechanism were obtained and only one relevant journal was selected through GARUDA with the SINTA category 1 - 2, while in Science Direct, 26 journal articles were filtered which were classified as Q1 - Q2. There are 27 journals that were further reviewed, both GARUDA and Science Direct.

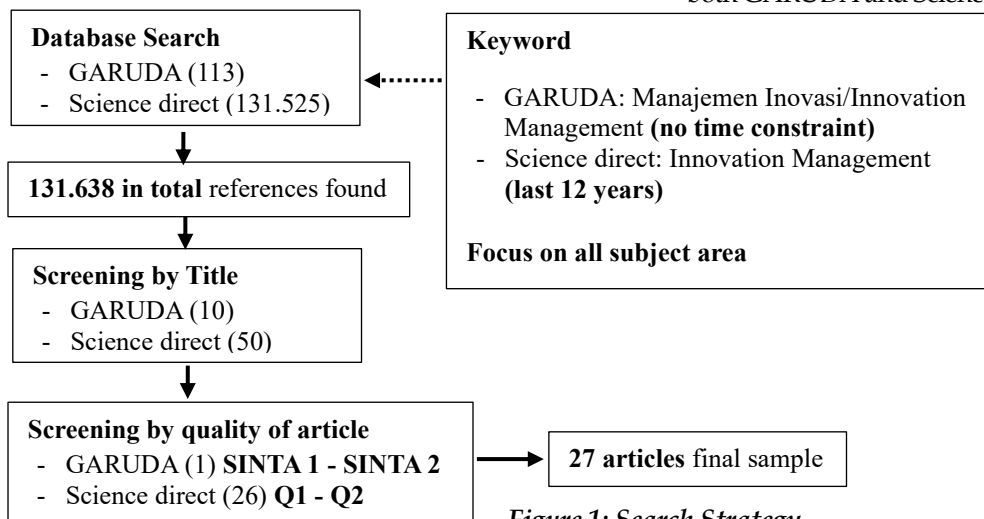


Figure 1: Search Strategy.

### 3.1. State Of Research on Innovation Management

#### 3.1.1. Summary Of Selected Articles

We have reviewed and summarized 27 articles based on methodology used as indicated in Tabel 2. According to group of years, 44% articles published in 2011-2016, and 56% articles published in 2017-2021

with most publication is concentrated in the last two years in 2020 and 2021 (Figure 2). Conceptual articles consist of 37%, while 63% are empirical studies which indicates few conceptual research conducted in academic journals in innovation management issues. In terms of research methodology, 48% articles use qualitative methodology, such as survey, case study and review literature, then 52% use quantitative methodology.

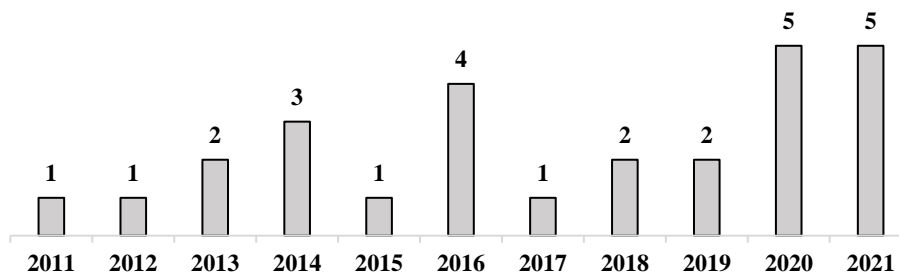


Figure 2: Yearly Distribution of Selected Article.

### 3.2. Publication Analytics

Table 1. shows a summary of the analysed articles related to innovation management. In general, 96% of journal articles published from Elsevier (26 articles) and the rest from the Center for Religious Research

and Development Jakarta, Indonesia (1 article). With the greatest number of articles come from Technology and Management journal (56%) with 15 articles, this indicates that more research interest in innovation management is more often done on technology and management topics.

Table 1: Distribution Of Articles Based on Publication in Journals.

No.	Journal	Publisher	No. of Articles
1	European Management Journal	Elsevier Ltd	1
2	Government Information Quarterly	Elsevier Inc	1
3	Information Sciences	Elsevier Inc	1
4	International Business Review	Elsevier Ltd	1
5	Journal of Business Research	Elsevier Inc	4
6	Journal of Cleaner Production	Elsevier B.V.	2
7	Journal of Engineering and Technology Management	Elsevier B.V.	5
8	Journal of Family Business Strategy	Elsevier Ltd	1
9	Jurnal PENAMAS	Center for Religious Research and Development Jakarta	1
10	Technological Forecasting and Social Change	Elsevier Inc	6
11	Technology in Society	Elsevier Ltd	1
12	Technovation	Elsevier Ltd	2
13	Wine Economics and Policy	Elsevier B.V.	1

## 4. ANALYSIS OF THE RESULTS

### 4.1. Descriptive Analysis

The development of several recent studies on innovation management in MSMEs shows that the discussion of innovation is still very closely related to the topic of information technology. This is shown by a study in the journal Technological Forecasting and Social Change as researched by an & Ahn, (2016); Haefner et al., (2021); Hidalgo & Herrera, (2020); Inoue, (2021); Santos-Vijande et al., (2021); and Vishnevskiy et al., (2015). In addition, the trend of the existing literature shows that the focus of the study is more on

large-scale businesses or industries or using a unit of analysis without categorizing the size of the business whether it is micro, small, medium, or large. There is only one study that uses MSMEs as a unit of analysis, namely the work of Dressler (2013). From the existing trend, the study of innovation management is still very closely related to the perspective of the development of innovation technology because it is considered a bridge to a better innovation process, then the study is still focused on large industrial scales, especially in the manufacturing sector because of the tendency to have better capabilities in manufacturing, innovate with the available resources.

Another trend that appears in the latest research in innovation management is the research method, a quantitative perspective is still often found in empirical research. While the research that tends to be studied with a qualitative approach. Seeing that there are no definite guidelines on how innovation management should be carried out, research on this theme has the potential to review or review specific matters.

#### 4.2. Variable Interest in Innovation Management

In general, in some literature it cannot be determined with certainty related to the exact factors or variables that affect the implementation of innovation management, especially in MSMEs. The first reason is that there is no definite concept that can guide how innovation management can be created properly. Second, in specific studies, it is still very limited to discuss

innovation management in MSMEs. In a study conducted by Dressler (2013), he views that innovation is not only related to creating new products but innovation must also touch aspects of service, in investment and finance, in processes, and in marketing and sales. In our opinion, this view will bring the study of innovation management more broadly and developing. Basically, innovation management is also centered on a discussion of good strategies to create better sales, better product quality, better service, and better relations between relevant stakeholders. However, when talking about the main variables that tend to be widely reviewed in innovation management studies, they are aspects such as open innovation, knowledge management, service management, human resource management, stakeholder engagement, in addition to talking about the ability to create product innovations.

*Table 2: Characteristic Of Articles.*

No.	Years	Authors	Article Title	Type of Article	Journal Title	Type of Research & Method
1	2016	Sofanudin, A.	Manajemen Inovasi Pendidikan Berorientasi Mutu pada MIN Malang 1 Kota Malang	Empirical	Jurnal PENAMAS	Quantitative
2	2021	Pitt et al.,	A bibliographic analysis of 20 years of research on innovation and new product development in technology and innovation management (TIM) journals	Conceptual	Journal of Engineering and Technology Management	Qualitative
3	2021	Haefner et al.,	Artificial intelligence and innovation management: A review, framework, and research agenda	Conceptual	Technological Forecasting and Social Change	Qualitative
4	2021	Rondi et al.,	One for all, all for one: A mutual gains perspective on HRM and innovation management practices in family firms	Empirical	Journal of Family Business Strategy	Qualitative
5	2020	Hidalgo, A., & Herrera, R.	Innovation management and co-creation in KIBs: An approach to the ICT services sector	Empirical	Technological Forecasting and Social Change	Quantitative
6	2020	Riad Shams et al.,	Stakeholder engagement for innovation management and entrepreneurial development: A meta-analysis	Conceptual	Journal of Business Research	Qualitative
7	2021	Inoue, Y.	Indirect innovation management by platform ecosystem governance and positioning: Toward collective ambidexterity in the ecosystems	Empirical	Technological Forecasting and Social Change	Quantitative
8	2020	Caputo, F., Mazzoleni, A., Pellicelli, A. C., & Muller, J.	Over the mask of innovation management in the world of Big Data	Empirical	Journal of Business Research	Quantitative

9	2020	Leonidou et al.,	An integrative framework of stakeholder engagement for innovation management and entrepreneurship development	Conceptual	Journal of Business Research	Qualitative
10	2019	Solaimani et al.,	An integrative view on Lean innovation management	Empirical	Journal of Business Research	Quantitative
11	2021	Santos-Vijande et al.,	Service innovation management in a modern economy: Insights on the interplay between firms' innovative culture and project-level success factors	Empirical	Technological Forecasting and Social Change	Quantitative
12	2019	Frishammar et al.,	Opportunities and challenges in the new innovation landscape: Implications for innovation auditing and innovation management	Conceptual	European Management Journal	Qualitative
13	2018	Páez-Avilés et al.,	Cross-fertilization of Key Enabling Technologies: An empirical study of nanotechnology-related projects based on innovation management strategies	Empirical	Journal of Engineering and Technology Management	Quantitative
14	2020	Ahmed, W., Najmi, A., & Ikram, M.	Steering firm performance through innovative capabilities: A contingency approach to innovation management	Empirical	Technology in Society	Quantitative
15	2018	Kralisch et al.,	The need for innovation management and decision guidance in sustainable process design	Conceptual	Journal of Cleaner Production	Quantitative
16	2016	Mir et al.,	The impact of standardized innovation management systems on innovation capability and business performance: An empirical study	Empirical	Journal of Engineering and Technology Management	Quantitative
17	2014	Nagano et al.,	Innovation management processes, their internal organizational elements and contextual factors: An investigation in Brazil	Empirical	Journal of Engineering and Technology Management	Qualitative
18	2013	Laperche, B., & Picard, F.	Environmental constraints, Product-Service Systems development and impacts on innovation management: learning from manufacturing firms in the French context	Empirical	Journal of Cleaner Production	Qualitative
19	2017	Yilmaz Eroglu & Kilic	A novel Hybrid Genetic Local Search Algorithm for feature selection and weighting with an application in strategic decision making in innovation management	Conceptual	Information Sciences	Quantitative
20	2012	Thongpapanl, N.	The changing landscape of technology and innovation management: An updated ranking of journals in the field	Conceptual	Technovation	Qualitative
21	2016	Mergel, I.	Agile innovation management in government: A research agenda	Empirical	Government Information Quarterly	Qualitative
22	2015	Vishnevskiy et al.,	Integrated roadmaps and corporate foresight as tools of innovation management: The case of Russian companies	Conceptual	Technological Forecasting and Social Change	Qualitative
23	2014	Maine et al.,	Radical innovation from the confluence of technologies: Innovation management strategies for the emerging nanobiotechnology industry	Empirical	Journal of Engineering and Technology Management	Qualitative

24	2014	An, H. J., & Ahn, S.-J.	Emerging technologies – beyond the chasm: Assessing technological forecasting and its implication for innovation management in Korea	Empirical	Technological Forecasting and Social Change	Quantitative
25	2016	Strese et al.,	Corporate culture and absorptive capacity: The moderating role of national culture dimensions on innovation management	Empirical	International Business Review	Quantitative
26	2011	Chiaroni et al.,	The Open Innovation Journey: How firms dynamically implement the emerging innovation management paradigm	Conceptual	Technovation	Qualitative
27	2013	Dressler, M.	Innovation management of German wineries: from activity to capacity – an explorative multi-case survey	Empirical	Wine Economics and Policy	Quantitative

***What are the areas that have received less attention, and hence offer opportunities for future research?***

The study of innovation management in MSMEs is one of the topics that has received less attention in existing studies. This is evident from the literature analyzed in this study, there is only one that discusses innovation management in MSMEs. Furthermore, a comprehensive innovation management study discusses not only product innovation but also service innovation so that a more open perspective of innovation adapts to external conditions or market demands that receive less attention. Industry is indeed famous for its "creating demand" work style, but in industries such as MSMEs which have limited resources, of course they cannot allocate investment in large R&D (research and development) aspects. So, adapting innovation management to market demand is a more optimal and possible step to do.

Research that discusses innovation management that is able to create a guarantee of innovation sustainability is also very rarely done. Again, many researches only focus on innovation to create new things, both in how to make products, adopt new technologies, how to manage stakeholders, and new ways to provide services, but how to develop innovations that have been carried out before have rarely received serious attention. Because there is no agreement on the standard formula related to the concept of innovation management, further research can focus on how each stage of

organizational or industrial management is able to have the ability to provide impetus to the creation of new things (not only new products) that can have a positive impact, especially with regard to profits company.

## **5. SUMMARY AND CONCLUDING REMARKS**

This SLR study based on 27 articles from various journals sourced from science direct and GARUDA indicates that there are still many opportunities in innovation management studies that can be carried out both empirically and conceptually. Empirically, very little attention has been paid to the scope of MSMEs. Whereas conceptually, there is no standard provision for how innovation management in the form of a strategy must be carried out. However, at least there is an understanding that innovation management is starting not only to be seen as a topic that only becomes the hegemony of the study of information technology, but also social studies, not only related to creating new products but also to institutional ways of working to encourage business profits that open opportunities for new ways of doing business or a new strategy to achieve this. Of course, this research is full of limitations considering that the literature search is only on science direct in the last 12 years and GARUDA (with no time constraint). While specifically, studies in Indonesia are very rare and have not even been found on the GARUDA portal which reviews innovation management in MSMEs.

## APPENDIX 1: SUMMARY OF SELECTED ARTICLES.

No.	Authors	Name of Journal	Research Purposes	Findings/Contributions
1	(Sofanudin, 2016)	Jurnal PENAMAS	The aims of this study is to explore the management of education innovation for quality oriented at State Islamic Elementary School Malang 1, Malang City, East Java.	Through case study qualitative approach, this study found some practiced innovations at MIN Malang 1, Malang City, those are (1) learning innovation, (2) technology innovation, (3) curriculum innovation, (4) administration innovation, (5) structural innovation, (6) human resources innovation, (7) infrastructure innovation, and (8) social involving innovation.
2	(Pitt et al., 2021)	Journal of Engineering and Technology Management	The purposes of this article is to investigate the questions related to three issues: (i) Performance: Which authors, institutions, countries, journals, and papers have been most productive (number of papers) and most influential (number of citations)? (ii) Networks: What are the links between authors, between countries, between institutions, between journals and co-citation? (iii) Attention: What has been the shift in research attention (i.e., stated keywords) over time?	This study discusses how the dominant keywords are restricted to Technology Innovation Management (TIM) topics and highly influenced by seminal papers and authors outside the TIM domain. Thus, the field is predominantly inward-looking, drawing from other cognate business and management fields, and hardly drawing from other academic fields. These findings elucidate and extend the concerns other innovation management scholars have raised, noting that the lack of varied and cooperative authorship within the TIM domain has led to stale, repeated methods and metrics in TIM papers, potentially reducing the field's future influence.
3	(Haefner et al., 2021)	Technological Forecasting and Social Change	Artificial Intelligence (AI) reshapes companies and how innovation management is organized. Consistent with rapid technological development and the replacement of human organization, AI may indeed compel management to rethink a company's entire innovation process. In response, the study review and explore the implications for future innovation management	Artificial Intelligence has a constructive role to play where the tried-and-true benefits of innovation management resources are overwhelmed, are impossible because of digitization, or when Artificial Intelligence emerges irrefutably as the preferred option
4	(Rondi et al., 2021)	Journal of Family Business Strategy	The paper conducted a longitudinal case study on Carl Schlenk AG, a fourth-generation family firm consistently awarded for both its HR management (HRM) and innovation initiatives.	The investigation led the study to identify distinct family firm characteristics of credibility, solidarity, and loyalty which engender a unique virtuous cycle of reciprocal reinforcement between sophisticated HRM and innovation practices, ultimately fostering mutual gains for the family firm and its employees. The paper offer contributions to HRM and innovation management research in the context of family firms and beyond.

5	(Hidalgo & Herrera, 2020)	Technological Forecasting and Social Change	<p>The purposes of this article is to investigate the questions related to three issues:</p> <ul style="list-style-type: none"> <li>(i) How do KIBS-ICT firms manage the process of co-creation and management innovation?</li> <li>(ii) What is the role of external actors in the co-creation and innovation management process?</li> <li>(iii) How do various aspects of the company (size, relationship with actors, exports, type of strategy) influence the co-creation process?</li> </ul>	<p>An innovation management model has been proposed in this paper that makes it possible to analyse the process of co-creation in companies in this sector. The results obtained indicate that the generation of added value in ICT services requires the implementation of co-creation processes in which different actors are involved. In this context, customers, partners, and suppliers play an important role, while this is not the case with universities.</p>
6	(Riad Shams et al., 2020)	Journal of Business Research	<p>This paper reviews contemporary studies in entrepreneurship literature related to innovation management (IM), stakeholder engagement (SE), and entrepreneurial development (ED), using bibliometric techniques and longitudinal statistical analysis of 1059 articles published in the Journal of Business Research (JBR) and other relevant business and management journals indexed in Scopus from 1974 until July 2020</p>	<p>The findings suggest that dynamics of the interaction of SE, IM, and ED are shaping the scholarship of academic research in entrepreneurship. Our meta-analysis reaffirms that contemporary research conducted at the intersection of SE, IM, and ED indicates the consolidation of these tenets in future research in entrepreneurship leading to an integrative view. Finally, the study present future research directions at the intersection of SE, IM, and ED for entrepreneurship research.</p>
7	(Inoue, 2021)	Technological Forecasting and Social Change	<p>The study tested how the degree of openness as an indicator of governance and the degree of distinctiveness as an indicator of the positioning influenced the direction and sales performance of complementary goods by employing 9,780 samples of Japanese video game software</p>	<p>The statistical results showed that an increase in both openness and distinctiveness facilitates radical-oriented behaviour, while the sales of complementary goods rise as openness increases at the medium level of distinctiveness. Consequently, this study indicates that high openness and appropriate distinctiveness contribute to securing ambidexterity on the platform ecosystems to facilitate balanced software development and larger sales performance.</p>

8	(Caputo et al., 2020)	Journal of Business Research	The paper aims at enriching previous managerial and organizational studies, providing a wider conceptual framework for the study of Big Data in the light of Systems Thinking and Service Logic for clarifying the conditions required for the effective management of Big Data	The results of this study reveal that companies involved in the world of Big Data should define managerial models and strategies inspired by a collaborative logic. The results also show that in order to improve economic performance, companies should consider in their managerial model the active contribution of highly skilled human resource individuals. This paper offers tangible evidences about the impossibility for encapsulating innovation and technology through traditional forms, as the high variability of social and economic scenarios will not allow this.
9	(Leonidou et al., 2020)	Journal of Business Research	This article is the first to consolidate the state of scholarly research on stakeholder engagement in innovation management and entrepreneurship development	This study performs a systematic literature review of the relationship between stakeholder engagement and innovation management for entrepreneurship development. Moreover, future researchers could empirically test other opportunities unearthed in this study by testing the proposed framework across different cultures and industries, further exploring the mechanisms that connect the various elements of the framework, the interrelationships between the various stakeholders and the combined outcomes from these interrelationships, and their underlying mechanisms.
10	(Solaimani et al., 2019)	Journal of Business Research	This study proposes the Lean philosophy, which integrates a firm's "hard" and "soft" processes, as a promising way to enhance firm innovativeness.	The results indicate that the Lean philosophy can be considered an inter-related socio-technical system, where coaching leadership enables the correct functioning of the hard and soft factors needed to achieve higher innovativeness.
11	(Santos-Vijande et al., 2021)	Technological Forecasting and Social Change	Despite the growing importance of the service industry in modern economies, research on service innovation success has been far less prolific than has work on product innovation, and there is still a relative paucity of knowledge about the key factors to achieve new service success. In this article, the study of the relationships among these factors has also received very little attention and provides a significant opportunity for theoretical developments and managerial insights in service innovation.	In this study, empirical evidence reveals several routes of effects useful to trigger external new service performance or market success, and internal new service performance, or the satisfaction, motivation, and commitment of front-line employees. Some relevant insights for managers include illustrating the crucial role of service firms' innovative culture to configure project-level success factors; highlighting the social aspects of top management's support to the new service project; underlying the importance of human resource management practices during new service development for new service success, and the motivating effects that new service advantage has among front-line employees.

12	(Frishammar et al., 2019)	European Management Journal	The purpose of the paper is to provide an updated innovation audit framework. The framework addresses the opportunities and challenges that stem from increased openness, sertivication, and digitalization and entails critical questions managers may ask when auditing innovation in a rapidly changing innovation landscape	By assessing and synthesizing existing innovation audit frameworks from academia and practice, and by studying the challenges of three global manufacturing firms, the study has identified four key innovation audit dimensions and then discussed the audit implications for each of these dimensions. The paper concludes that openness, sertivication and, digitalization brings about both opportunities and challenges. Auditing innovation in the light of these trends, therefore, requires a reassessment of firm-specific trade-offs.
13	(Páez-Avilés et al., 2018)	Journal of Engineering and Technology Management	The aim of the research is analysing three innovation management strategies that could be influencing the process of cross-fertilization of KETs (Key Enabling Technologies), currently being fostered by European initiatives	In this study, results from a MCA (Multiple Correspondence Analysis) have shown that higher levels of cross-fertilization of KETs are associated with customer/market-oriented projects developed in informal networks characterized by a moderately heterogeneous knowledge, with a high level of involvement in nanotechnologies. With these outcomes, the study argue that absorptive capacities and dynamic capabilities of organizations are decisive in a technologically convergent approach, leads by open innovation strategies.
14	(Ahmed et al., 2020)	Technology in Society	The study attempts to reveal the phenomena of innovation capabilities and performance decisions on departmental and firm success. The resource-based view and contingency theory build the foundation to explore this study for developing the research framework.	Results of this study reveal that process innovation and product innovation complements each other for improving innovation speed and quality. Moreover, in the case innovative products, manufacturing performance is a key to enhance marketing performance and firm competitive capabilities.
15	(Kralisch et al., 2018)	Journal of Cleaner Production	To facilitate the success of translation of novel technologies into innovation and industrial adoption within Europe, the authors advocate an innovation management and a new decision-making approach, which promotes holistic understanding of economic, environmental and societal challenges that a new technology must respond to	In this study, the MEASURE approach was developed based on experiences in sustainability assessment and innovation management within previous collaborative projects, and the outcomes of two stakeholder workshops. It allows comparison of alternative solutions, understanding of their benefits and drawbacks, as well as the evaluation of the (remaining) distance to a defined target and, as a result, robust holistic decision-making for innovative sustainable process design.

16	(Mir et al., 2016)	Journal of Engineering and Technology Management	This paper tried to provides a novel analysis concerning the impact of a Standardized Innovation Management System (SIMS) on company innovation capability, innovation performance, and corporate results that is an unprecedented contribution to innovation management literature.	In summary, the Standardized Innovation Management System (SIMS) has a significant positive relationship to company Innovative Capability (IC) and (BP) Business Performance.
17	(Nagano et al., 2014)	Journal of Engineering and Technology Management	The aim of this study is to analyse the relationships between internal organizational elements and the influence of contextual factors related to innovation management and its challenges	Main results indicate the high interdependence between organizational context and consistency of innovation processes and the influence of organizational structures on how initiatives flow through innovation processes
18	(Laperche & Picard, 2013)	Journal of Cleaner Production	In this paper, the development of Product-Service Systems (PSS) in 10 manufacturing firms that are part of the French CAC40 Index is studied. A special effort is made to investigate the reasons and the forms of PSS development, their impact on innovation management as well as the prerequisites and limits of their implementation	The first proposal states that in manufacturing firms, there is a link between PSS development and eco-innovation that takes several features: solution development, services to support product diffusion, product life cycle management. The second proposal is related to the types of PSS developed. The PSS developed are mainly basic hybrid products, services that complement rather than replace the products developed by firms. Product life cycle management services are the most recent form of PSS and appear as the most closely linked to environmental concerns. The third proposal indicates that PSS development induces internal and external changes in innovation management, specifically in taking into account new uses like mobility in the auto-motive industry, sustainable homes in the building industry or energy efficiency in electronic and energy industries. Open innovation is clearly needed, and if organizational support does not exist, firms develop new supports. Finally, the fourth proposal states that PSS development depends on firms' internal learning and on their position within the value chain.
19	(Yilmaz Eroglu & Kilic, 2017)	Information Sciences	This paper presents a novel Hybrid Genetic Local Search Algorithm (HGA) in combination with the k-nearest neighbour classifier for simultaneous feature subset selection and feature weighting, particularly for medium-sized data sets. The performance of the proposed algorithm is compared with the performance of alternative feature subset selection algorithms and classifiers through experimental analyses in the various benchmark data sets publicly available on the UCI database.	This study results demonstrated that the developed HGA is capable of eliminating the irrelevant features and successfully assess feature weights. Moreover, this study is an example how data mining can play a role in the context of strategic management decision making.

20	(Thongpapanl, 2012)	Technovation	This paper presents an up-to-date ranking of the leading technology and innovation management (TIM) specialty journals.	The updated ranking of TIM journals reported in this study further supports the notion that TIM is a multidisciplinary field which continues to grow and evolve over time. This evolution is to be expected since academia, industry, and government constantly confront wave after wave of new topics and issues related to the advancement of technology and innovation management.
21	(Mergel, 2016)	Government Information Quarterly	The article reviews the development of agile approaches, the underlying principles, the components of an agile development process in contrast to a traditional waterfall project management approach preferred by IT contractors, and then highlights the benefits and challenges of agile development in government	The article provides a research framework including research questions that provide guidance for future research on the managerial implementation considerations necessary to scale up the initial efforts and move toward a collaborative and agile innovation management approach in government.
22	(Vishnevskiy et al., 2015)	Technological Forecasting and Social Change	The purposes of this article is to investigate the questions related to three issues: (i) What are the limitations of the current research on corporate Foresight and road-mapping? (ii) How can Corporate Foresight and integrated road-mapping be combined to impact corporate decision making and roadmap/strategy implementation? (iii) How should roadmaps be structured and integrated into business planning?	In this paper, the proposed management instrument goes beyond the existing road-mapping and corporate Foresight approaches by integrating them and showing the interface to corporate strategy building. Corporate Foresight and integrated roadmaps are closely interlinked and show reasonable potential to maintain the current level of organizational innovation culture and also enable future improvements. The study proposes a new roadmap structure and reveals the main ways to use this technique in business planning.
23	(Maine et al., 2014)	Journal of Engineering and Technology Management	The paper explores the innovation management strategies that connect the confluence of technologies to radical innovation by developing and analysing a series of case studies.	The paper argue that three innovation management strategies are central to the development of radical innovation from the confluence of technologies, namely: importing ideas from broad networks, creating environments which allow for deep collaboration, and technology-market matching.

24	(An & Ahn, 2016)	Technological Forecasting and Social Change	By employing the Innovation Readiness Level, the study assessed the innovation performance of the 10 Emerging Future Technologies reported in 2009.	This study confirmed that technological innovation activities involving the 10 EF Techs have increased after their announcement. This implies that the forecasting of the 10 EF Techs in 2009 has had a significant effect. Although no evidence to show whether the announcement of the 10 EF Techs helped stimulate technology innovation activities, the 2009 technology foresight was found to be valid as at the current time.
25	(Strese et al., 2016)	International Business Review	The aim of the present paper is to present a comparative study on the relationship between corporate culture and absorptive capacity in different national culture settings. More concretely, the study examines domestic firms from different national culture settings and the fit among the constructs of corporate culture, national culture, and potential as well as realized ACAP.	The study reveal that the adhocracy culture supports potential and realized ACAP, whereas the market and hierarchy cultures hinder both potential and realized ACAP. Moreover, the relationship between corporate culture and potential ACAP is stable across national culture dimensions, whereas selected national and corporate cultures are more effective in fostering realized ACAP.
26	(Chiaroni et al., 2011)	Technovation	The paper addresses the above-mentioned limitations of extant research on Open Innovation, studying the process through which a firm operating in a mature industry has adapted its organisational and managerial systems to the Open Innovation paradigm. Specifically, the paper reports the case of Italcementi, the leading Italian cement manufacturer, discussing the phases the firm went through in the last 18 years to evolve from being a Closed to become an Open Innovator.	The paper shows that the Open Innovation paradigm is implemented along a three-phase process that comprises the stages of unfreezing, moving and institutionalising. Moreover, it emerges that the changes through which Open Innovation has been implemented involve four major dimensions, i.e. networks, organisational structures, evaluation processes and knowledge management systems. They should be therefore conceived as the managerial and organisational levers an innovating firm can act upon to streamline its journey toward Open Innovation.
27	(Dressler, 2013)	Wine Economics and Policy	The study explores the innovation activities of German wineries	The innovation activities of the wineries indicate diminishing product centrality in the industry, since innovation is pursued not only for products but for services, in investment and finance, in processes, and in marketing and sales.

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