

Organizational Ambidexterity: A Review and Research Agenda

Rubina Chakma , Justin Paul , and Sanjay Dhir

Abstract—We review the literature on organizational ambidexterity using the hybrid review approach, which integrates bibliometric analysis with a framework-based review. We provide directions for future studies by identifying key gaps in the existing literature. The bibliometric analysis provides the trends and progress of the research field through citation analysis, analysis of keyword co-occurrence, and other bibliometric indicators such as most influential journals, countries, and authors. The TCCM (Theories, Contexts, Characteristics, and Methodology) framework helps us to identify the widely used theories, constructs, and methods in ambidexterity research and provides new avenues for future research by analyzing the most used theories, methods, constructs, and research contexts. We suggest that future researchers should explore the behavioral components of firms' environment as an antecedent factor and there should be more emphasis on summarization of the divergent views pertaining to ambidexterity enablers. In addition to identifying the key research themes and knowledge structure of organizational ambidexterity, this review would help to create a value to the ambidexterity literature in terms of quantification and consolidation of research evolution. This is the first comprehensive literature review using hybrid approach (bibliometric review with TCCM framework) in the field of organizational ambidexterity research.

Index Terms—Ambidexterity, business, strategy.

I. INTRODUCTION

SIGNIFICANT number of studies on ambidexterity has been carried out during the last two decades due to the growing consensus on performance improving aspects that an ambidextrous firm derives [84]. Organizational ambidexterity is propounded as simultaneously achieving both exploitation or gaining efficiency in current business operations and exploration of new business ideas even in the face of markets as well as technological shifts [64], [65]. The ability of firms to engage themselves in both exploitative–explorative innovation is being associated with achieving competitive advantage, sales growth,

and firm survival for a long term [19], [37]. This is also due to the fact that concentrating more on existing competencies indicates a success trap which acts as organizational inertia that prevents it from adapting to changing environmental conditions and thereby causing poor performance outcome, whereas focusing more on exploratory innovation activities indicate failure trap [50]. Therefore, in the face of environmental turbulence, firms that are able to implement both incremental (exploitation) and revolutionary (exploration) change at the same time are considered to be ambidextrous [112] and organizational ambidexterity helps to facilitate technological innovation, competitive advantage, and firm survival [49].

Literature suggests that organizational ambidexterity emerges from the contradictory and complex knowledge processing activities because exploitation of current experiences and knowledge enable incremental innovation and exploration of new knowledge fosters radical innovation within firms [3]. As per knowledge-based view (KBV), firms that achieve superior performance as well as sustained competitive advantage are the ones that consider knowledge as a key resource for innovation performance and the idea of ambidexterity is linked with implementation of both incremental and radical innovation. Resource-constrained firms like small and medium enterprises (SMEs) become ambidextrous by searching and accessing external knowledge in addition to learning through internal interactions [111]. Acquired business knowledge through organizational learning as well as open innovation could be capitalized by firms for better innovation performance [111]. Therefore, firms must possess greater knowledge management (KM) capabilities in order to be more efficient in balancing the ambidextrous innovation orientations. In fact, literature acknowledges KM capability as a driver of innovation ambidexterity by showing a positive impact of KM capability on exploratory as well as exploitative learnings [101], [102]. In fact, the notion of organizational ambidexterity has been investigated in multiple domains such as organizational learning [58], technological innovation [88], strategic management [37], organizational design [112], and most recently in university entrepreneurship [16], [110] which shows the growing importance as well as the application of ambidexterity concept in different research domains. For instance, Centobelli *et al.* [16] suggests that integration of research publication and research commercialization can be achieved by developing research ambidexterity at both individual and departmental level. Although there is huge growth of scholarly research in the area of organizational ambidexterity, but, it

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has been observed that very less attention has been paid in terms of quantification and evolution of this research, except articles by [25], [63] which attempted to define the ambidexterity knowledge structure with the help of bibliometric review. Also, literature on ambidexterity research is fragmented in terms of theories, concepts, and constructs. For instance, the definition of organizational ambidexterity is inconsistent in literature [93] because researchers were not explicit while referring to terms like contextual ambidexterity, sequential ambidexterity, or realized ambidexterity (Lin & McDonough, 2011). Therefore, this review synthesizes and assimilates the fragmented knowledge on ambidexterity with a hybrid integrated review that combines bibliometric analysis with framework-based review [using Theories, Contexts, Characteristics and Methodology (TCCM) framework]. As according to [45], logical synthesis of prior research not only helps to advance a topic or subject but also facilitates researchers with state of the art insights on a particular research topic and help in research gap identification. So the adoption of hybrid review enables more robust understanding of the ambidexterity research in addition to development of future research agenda [72]. Bibliometric review analysis deals with popular authors, citations, keywords, affiliations, countries, etc. with respect to the area of interest but it does not take into account the prominent theories, constructs, and applied research methods of selected data points [73] which are being addressed in this analysis. Hence, this article brings complimentary insights to the existing review articles and helps in advancement of research in the area of organizational ambidexterity.

Through various bibliometric indicators, we were able to reveal the articles that generated highest impact in ambidexterity research, the journals which published papers in this area and the contribution of authors in developing the knowledge base pertaining to this research. In addition, this review focuses on analyzing and classifying the extant literature by using TCCM [36], [76]. For instance, by studying and identifying the widely used methods in ambidexterity research, it is inferred that future studies should use sophisticated methods to review the ambidexterity antecedents and to list the homogeneous as well as heterogeneous antecedents from the literature. Also, from our critical examination of widely used theories with the help of TCCM framework, it can be posited that current literature provides limited attention to open innovation and resource dependency theory (RDT). Resource dependency perspective helps us to comprehend the significance of essential knowledge and resources that lie outside the firm boundaries and open innovation fosters identification and assimilation of external knowledge sources as they cannot be produced internally [111]. A multidimensional conceptual framework has been developed to better apprehend the role played by various organizational factors, environmental factors, and managerial approaches while implementing ambidexterity strategy within firms.

In the next section, an overview of ambidexterity research has been provided. It addresses the conceptualization of organizational ambidexterity and various studies associated with it. In subsequent sections, we discuss the methodology used and findings of bibliometric study followed by systematic review analysis using TCCM framework. Finally, discussions,

research directions, and conclusion of the analysis have been discussed.

II. ORGANIZATIONAL AMBIDEXTERITY: THE IDEA AND CONCEPT

The idea of “ambidextrous organization” was first communicated by [20], who proposed that organizations should adapt to environmental changes and be relevant to market and technological shift. Subsequently, ambidexterity concept gained importance after March [58], who emphasized to balance resource exploitation as well as resource exploration (also known as disruptive innovation) to create sustainable capacity. Accordingly, Tushman and O’Reilly [112] examined ambidexterity as an organization’s potentiality to survive and thrive for a long period by exercising both incremental and revolutionary change with the arrangement of different and contradictory structures, cultures, or processes. However, Li *et al.* [51] argued that balance between knowledge exploitation and knowledge exploration is not sufficient to gain innovative breakthroughs at the team level because achieving breakthrough innovations requires giving greater importance to knowledge exploration than knowledge exploitation in the management of knowledge. Also, it has been noted that simultaneous engagement in exploratory and exploitative activities generate tensions in organizations as they are path dependent in nature; compete for constraint organizational resources; and requires different systems, mindsets, and organizational routines [58]. As a consequence, in spite of a huge growth in ambidexterity research in the past decades, there is little success which explains or resolves the contradictory aspects of different strategies and even very less practical insights on how these strategies are interconnected and under what circumstances they should be implemented [2].

Research suggests two strategies (structural and contextual approach) help organizations to become ambidextrous. Structural ambidexterity suggests that organizations should form separate organizational units or “dual structures” to make a tradeoff between two opposing demands of exploitation and exploration, so that some units could focus on current competencies, while others could focus on searching of new opportunities. Other researchers like Gibson and Birkinshaw [26] proposed the idea of contextual ambidexterity as opposite to structural ambidexterity [20], [58]. Contextual ambidexterity signifies a firm’s capacity to implement ambidexterity across a single business unit that could be achieved by not only building different structures but also executing processes that encourage and support in making judgments to distribute the time between two opposing demands of an ambidexterity construct [26]. Further, He and Wong [37] explained ambidexterity as a firm’s capability to engage in existing markets, which requires operational efficiency as well as exercising radical innovation in emerging markets through new product and service development. They studied ambidexterity hypothesis empirically for 206 manufacturing firms to examine the role of exploitation as well as exploration on sales growth; and they found that the relative balance between exploitation and exploration strategies enhanced sales growth rate. However,

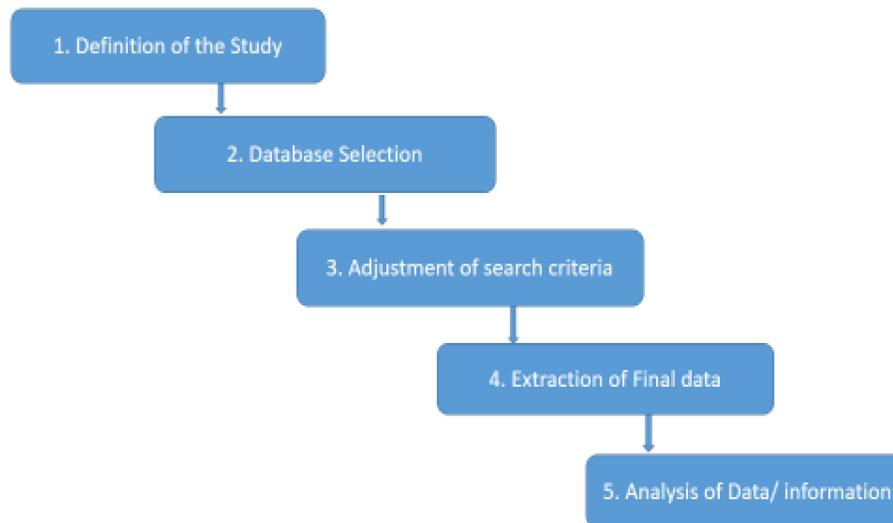


Fig. 1. Steps followed in bibliometric analysis.

in a quantitative investigation of ambidexterity-firm performance relationship for knowledge intensive firms, Vrontis *et al.* (2017) found no significant impact of ambidexterity on firm performance instead they found that external knowledge sourcing acts as a mediator between ambidexterity and firm performance. Given the huge development and mixed empirical results associated with this area of research, a hybrid review of the literature was conducted which consolidates the principles of both bibliometric analysis and a structured review with the objective of establishing quantity and research output for organizational ambidexterity.

III. METHODOLOGY

There are various types of systematic reviews—structured review based on theories, constructs, and methods (Canabal and White, 2008; [43], [75], [80]), review based on frameworks ([46], [54], [71], [97]), hybrid/integrated review ([5], [18], [45]), theory focused review ([27], [76]), review based on meta-analysis ([44], [81]), bibliometric studies ([28], [89]), and review aiming for a new model or framework [74]. In order to provide the most comprehensive overview of ambidexterity, it was decided to develop a hybrid and integrative review paper to take into account all the dimensions comprehensively, following SPAR-4-SLR protocols ([72], [73]) by integrating bibliometric analysis with TCCM framework.

A. Bibliometric Analysis

To study the evolution of research trends for organizational ambidexterity in extant literature and its role in various areas of business management like strategy, human resource management, and innovation, bibliometric analysis has been carried out for the period between 2001 and 2020. Bibliometric analysis provides a macro perspective to the topic under study as compared to a structured literature review [96] and helps to format the structure of knowledge around the topic developed over the years [59], [62]. The bibliometric indicators also help us to measure

the quantity of articles published, impactful authors, productive journals, influential countries, and institutions. Therefore, it can be said that bibliometric analysis helps to extract the patterns of the topic, identifying the shifts and finding the most influential bibliometric indicators for a topic [92]. The following steps were adopted (Fig. 1).

1) *Database*: Scopus database was used to collect the samples of all published studies on organizational ambidexterity from 2001 to 2020. We used Scopus database for our article because it has wide coverage compared to SSCI and covers more detailed smaller research areas [96]. The search query was built as TITLE-ABS-KEY (organizational ambidexterity), which signifies titles, abstracts, and keywords; and totally 460 documents were found. Then, the final search criteria were filtered and redefined by the criteria subject area “business, management, and accounting” with type of source “Journal” and language “English” so that most significant studies from all the available journals could be retrieved in the area of business research. The search was performed during the second week of May 2020. As a result, total number of documents collected was 330. The final data list was exported to CSV format, which was used later for the bibliometric analysis.

2) *Bibliometric Indicators*: The respective bibliometric indicators that were being used for our current analysis include number of articles published, most productive authors, cocitation analysis, influential journals and impactful countries, citation analysis, and analysis of keyword co-occurrence. Bibliometric cocitation analysis helps to understand how frequently two articles are cited by a third paper to indicate the important research streams for a given topic [92] and keyword co-occurrence analysis helps to interpret the most common keywords within the published documents [96].

3) *Software Used*: VOS Viewer (1.6.15) produced by Van Eck and Waltman [116] has been used in building, visualizing, and exploring bibliometric networks. The benefit of using this software is that it helps to assess bibliometric networks such as publications, authors, institutions, cited references, journals,

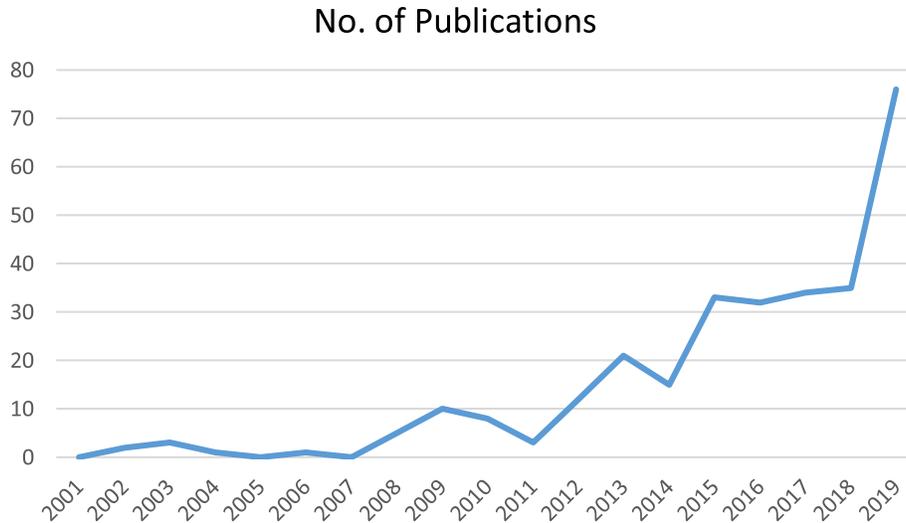


Fig. 2. Evolution of publications from 2001 to 2019 (May 2020).

and countries [116]. VOSviewer has been developed in Java programming language and is available at www.vosviewer.com. Many studies that conducted bibliometric analysis to understand the research trends also used VOSviewer software [92], [96].

B. Findings of Bibliometric Analysis

Here, we have discussed various bibliometric parameters such as articles published each year, productive or influential authors, impactful journals and influential countries, citation analysis, and co-citation analysis. The highest number of publications was seen in 2019 out of the 330 articles published between 2001 and 2020.

1) *Number of Publications*: The trend with respect to the number of publications for organizational ambidexterity is shown in Fig. 2, which indicates that the number of articles during early 2000s was very few and it started increasing in the late 2000s with the highest number of publications being observed in 2019.

2) *Most Influential Articles*: The analysis has been performed for articles that were published between 2001 and 2020 in SCOPUS database. As per [56], quantity of citations could be a measure to map the influence of a particular article. Table I represents top 15 most cited papers of organizational ambidexterity with their themes, considering the articles with at least 100 citations. It can be seen from Table I that the articles investigated by [26] and [83] have the highest citations (110.19 and 87.59 citations per year, respectively).

Third most influential article was “Organizational ambidexterity: Balancing exploration and exploitation for sustained performance” by [84] with 86.28 citations per year. In this article, they explored seven articles to address four central tensions of ambidexterity such as static and dynamic, differentiation and integration, internal and external, and individual and organizational; and this article helped to gain important insights to structures, strategies, and processes for maintaining the two

contradictory aspects of ambidexterity (exploration vs. exploitation).

The fourth most influential article according to the number of citations was “Exploitation-exploration tensions and organizational ambidexterity: Managing paradoxes of innovation” with 774 citations and 70.37 citations per year published in *Organization Science*. In this article, authors examined five ambidextrous firms and came up with a framework to explain the tensions between exploration and exploitation and how these could be managed.

3) *Most Prominent Journals*: The articles related to organizational ambidexterity that were extracted from SCOPUS were found in 164 sources or journals and their influence was assessed by the number of articles published with their citations for each publication. The most significant journals that have been included in Table II consist of at least four articles with more than 100 citations. It was found that the journal “*Organizational Science*” has highest number of citations (average citation/article was 503.20). “*Journal of Management Studies*” is in second position, which has 9 articles with the citation count of 1290 and average citations per article was found to be 143.34.

4) *Most Productive Countries*: To gain insights on the most productive countries, we analyzed the countries that had minimum three documents with minimum three citations in the domain of organizational ambidexterity; and out of 61 countries, 33 have fulfilled this criteria. For each of these 33 countries, the strength of citation links with other countries had been estimated.

The most impactful country with highest citations was the USA with 64 documents and 7474 citations. Subsequent productive countries were the U.K., Switzerland, China, Canada, The Netherlands, Norway, Italy, Austria, and Taiwan with large number of citations (see Table III).

5) *Analysis of Co-Occurrence of Keywords*: The network of keyword co-occurrence has been built on the basis of collected data to understand the research trends and development of the topic “organizational ambidexterity” with the use of VOSviewer [116]. Of the total 1202 keywords, minimum occurrence of a

TABLE I
MOST CITED ARTICLES IN ORGANIZATIONAL AMBIDEXTERITY LITERATURE

Authors	Date	Theme of Articles	Source	Total Citations	Citation/year
Gibson & Birkinshaw	2004	Authors developed the concept of contextual ambidexterity at a level of business unit.	Academy of Management Journal	1763	110.19
Raisch & Birkinshaw	2008	A comprehensive model of organizational ambidexterity was developed by reviewing various literature that explain its antecedents, moderators and outcomes.	Journal of Management	1051	87.59
Raisch <i>et al.</i>	2009	In this article, authors suggested that few tensions can be managed in the process of achieving ambidexterity.	Organization Science	949	86.28
Andriopoulos & Lewis	2009	Comparative case analysis was conducted for developing a framework that addresses the management of paradox or tensions in exploitation as well as exploration in the process of new product development.	Long Range Planning	774	70.37
O'Reilly & Tushman	2013	Existing knowledge was reviewed to explain the research advancement and also the areas of confusion were highlighted.	Academy of Management Perspective	584	83.43
Cao <i>et al.</i>	2009	Authors tried to shed light on the existing conceptualization of ambidexterity by proposing two dimensions of ambidexterity such as balanced and combined dimension that may enable firms to have synergistic benefits if these dimensions are concurrently integrated to a higher level.	Organization Science	556	50.54
Jansen <i>et al.</i>	2009	Empirical analysis was conducted to understand how creation of separate structural units help organizations to achieve ambidexterity by studying the mediation impact of both organizational and team integration mechanism.	Organization Science	470	42.73
Simsek, Z	2009	A model is being proposed to explain the multilevel perspective of ambidexterity by the integration of	Journal of Management Studies	350	31.81

keyword was selected at 6. Keywords that are located near each other and have similar colors denote more similarity than keywords that are located far from each other with different colors [95]. In Fig. 3, the keywords “ambidexterity,” “exploration,” “exploitation,” “innovation,” and “organizational ambidexterity” have the greatest total link strength among all the keywords, which signifies they are the most frequently searched keywords in the field of organizational ambidexterity.

In Fig. 4, density distribution of author keywords co-occurrence is given. Minimum occurrence of keywords was

established on 5 of the total 848 keywords. The map is useful to study the trends in organizational ambidexterity.

6) *Cocitation of References*: Network of cocitations helps to interpret the pattern of knowledge generation in the context of authors who were cited simultaneously in the same publication. To know the most frequently cited reference, cocitation analysis of cited references has been conducted because references reflect source and domain of knowledge for a publication to a certain level and analysis of references is considered to be an important method in bibliometric analysis [38]. In our cocitation

TABLE I
MOST CITED ARTICLES IN ORGANIZATIONAL AMBIDEXTERITY LITERATURE

		factors and performance consequences associated with ambidexterity.			
Junni <i>et al.</i>	2013	Authors conducted a meta-analysis of the literature depicting organizational ambidexterity-performance linkage and they also revealed the impact of some moderator variable on ambidexterity-performance linkage.	Academy of Management perspectives	303	43.29
Sinsek <i>et al.</i>	2009	Authors build a multifaceted typology by synthesizing various insights from the ambidexterity conceptualizations that are available in the literature.	Journal of Management studies	278	25.28
O'Reilly & Tushman	2011	With the illustrations of real life case lets, this article tries to explore the underlying actions, choices and behaviors of senior leaders that may help in implementing ambidexterity within an organizations.	California Management review	223	24.78
Birkinshaw & Gupta	2013	Documentation of scholarly growth in ambidexterity research.	Academy of Management perspectives	220	31.43
Carmeli & Halevi	2009	Authors theoretically explored the role of behavioral complexity and behavioral integration of top management in fostering ambidexterity.	The leadership Quarterly	150	13.64
Andriopoulos & Lewis	2010	With the case study analysis of few product-design companies, authors illustrated how ambidextrous orientations (exploitation and exploration) could be managed through the paradoxical lenses.	Organization Science	135	12.28
Cao <i>et al.</i>	2010	Authors empirically examined the role of networking extensiveness in enabling ambidexterity.	Journal of management studies	117	11.7

analysis, minimum number of citations for a cited reference was established on 10 out of 21 072 cited references and 105 met the threshold. Then, number of cited references selected was 50 and we calculated total intensity of the cocitation links in each of the 50 references. Density visualization of top cited references created by VOSviewer software is shown in Fig. 5. The most highly cited reference was found to be March, J.G. [58], "Exploration and exploitation in organizational learning" published by "Organizational Science" Journal with 125 citations.

The second most highly cited reference was "Antecedents, consequences and mediating role of organizational ambidexterity" published in "Academy of Management Journal" by [26], which has 101 citations followed by article titled "Organizational ambidexterity: antecedents, outcomes and moderators" published in "Journal of Management" by [83]. Subsequent highly cited references were [13], [31], and [84].

IV. RESEARCH AGENDA

In this section, we focus on finding research gaps in existing literature and providing new avenues for future studies in the context of organizational ambidexterity. To attain this objective, TCCM framework [76] has been used. Earlier studies that used TCCM framework include cause-related marketing, alliance termination research, and culture and international business research [85], [95], [104].

A. Theory Development

Existing literature in ambidexterity includes the development and conceptualization of the topic as a whole with outcomes in the form of firm performance. Earlier works that paved the way for increased attention for ambidexterity research focused on various theoretical approaches such as organizational adaptation

TABLE II
LIST OF MOST INFLUENTIAL JOURNALS AS PER HIGHEST NUMBER OF CITATIONS

Rank	Journals	Articles published	Citations	Total Citations/Article (TC/Article)
1	Organization Science	5	2516	503.20
2	Journal of Management Studies	9	1290	143.34
3	Journal of Management	6	1226	204.34
4	Academy of Management Perspective	4	1110	277.50
5	Long Range Planning	8	228	28.50
6	Technology Forecasting and Change	11	212	19.28
7	Journal of Product Innovation Management	6	198	33
8	Human Resource Management	6	171	28.50
9	Management Decision	12	171	14.26
10	International Journal of Human Resource Management	15	135	9

TABLE III
MOST INFLUENTIAL COUNTRIES WITH NUMBER OF CITATIONS

Ranking	Countries	Articles/Documents	Citation
1	United States	68	7474
2	United Kingdom	61	5606
3	Switzerland	12	2133
4	China	32	842
5	Canada	11	778
6	Netherlands	14	606
7	Norway	7	478
8	Italy	19	420
9	Austria	10	298
10	Taiwan	10	287

[58], [83], organizational learning [14], [31], [93], behavioral integration [118], and dynamic capability [108] listed in Table IV. Organizational learning fosters acquisition of both exploratory and exploitative knowledge that help firms to implement ambidexterity and achieve superior competitive advantage [93], whereas upper echelon perspective shows the importance of top management team (TMT) characteristics in influencing the organizational outcomes or adopting ambidextrous strategies [34]. Although significant improvements have been made since the last two decades, there exists insufficiency in terms of development and application of various theories related to ambidexterity. For instance, present literature has limited application of RDT which indicates the importance of open innovation in simultaneous exercise of exploitative and exploratory strategies. Therefore, future studies need new theoretical lenses to explore the uncovered areas in organizational ambidexterity.

B. Context

The evolution of organizational ambidexterity research has advanced our knowledge with the identification of various key factors like characteristics, antecedents, and outcomes. Raisch and Birkinshaw [26] argued that the level of analysis is important in organizational ambidexterity studies because a business unit could attain ambidexterity by focusing on two functions and a manufacturing plant could attain ambidexterity by creating two teams to focus on both flexibility and efficiency. However, existing literature is still diverse and scattered that only few integrative conclusions could be drawn. In the past, ambidexterity was looked in the context of technical innovation strategies [37], policy networks (Heras *et al.*, 2020), sourcing of technologies [88], small medium enterprises (Berard and Fréchet, 2020, [14], [23], [91], [102], [111]), and most recently in crisis management [70] at various levels of analysis, which is highlighted in Table V.

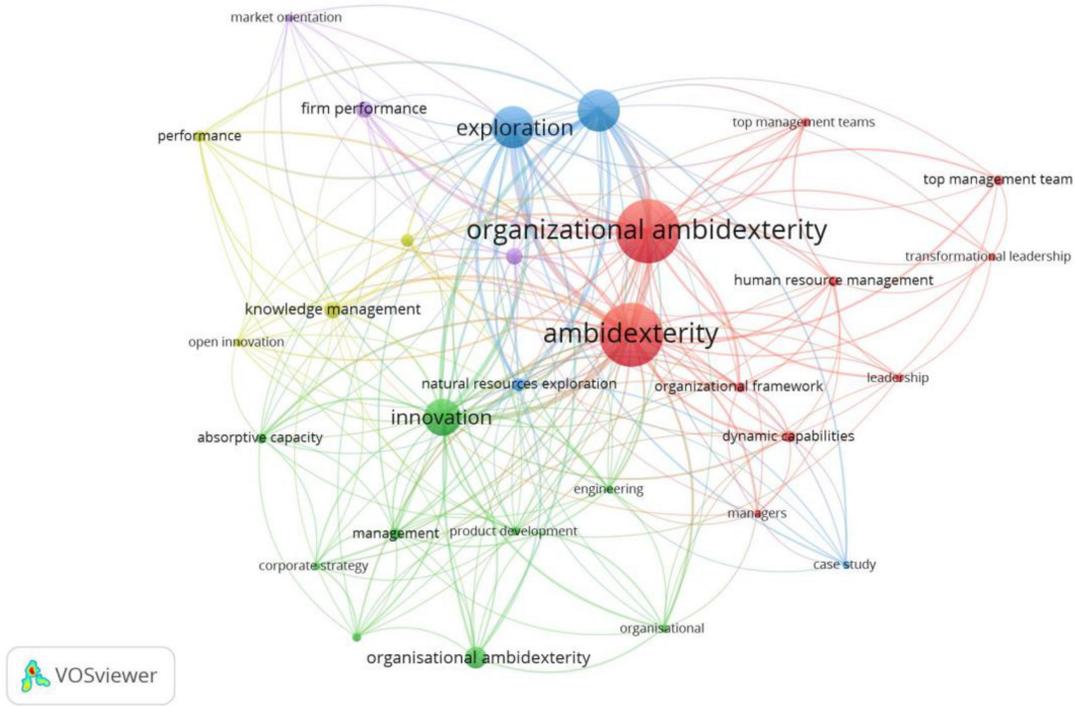


Fig. 3. Visualization of network of keywords based on bibliographic data.

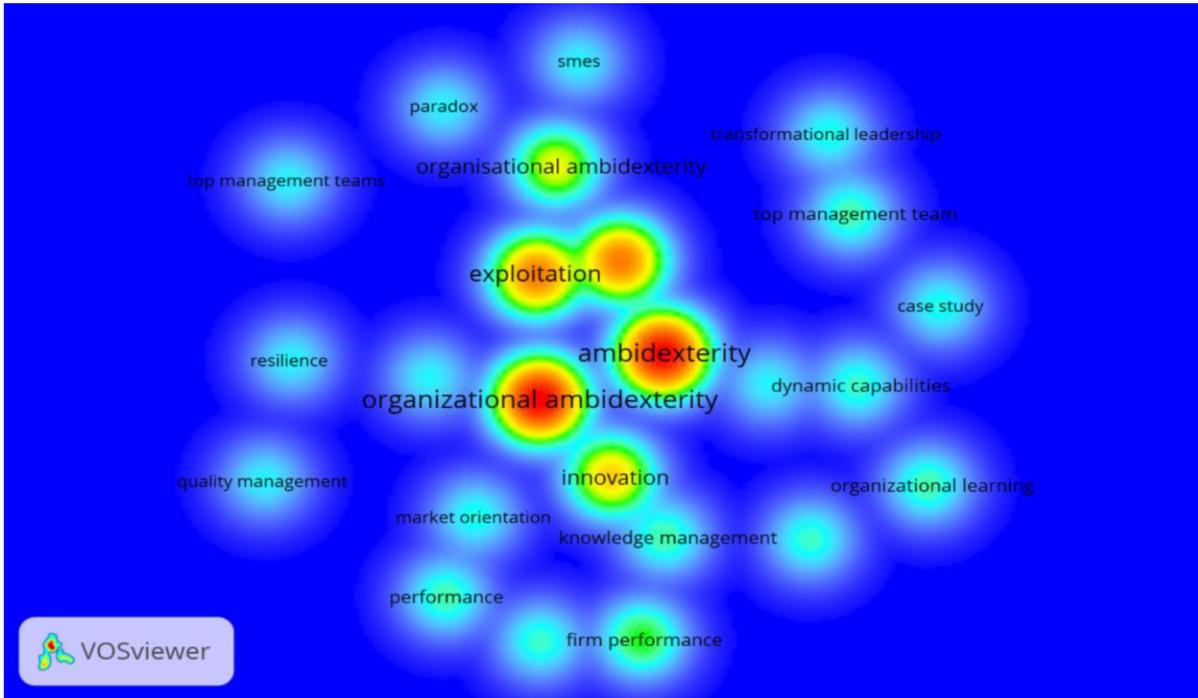


Fig. 4. Density distribution map of author keywords co-occurrence.

C. Characteristics

Over the years, numerous publications tried to unlock the antecedents or enablers of organizational ambidexterity; and few approaches being proposed include the structural differentiation

approach [67], contextual approach [26], and leadership approach [14], [15]. The structural approach insists on the need to have distinct separation or differentiation in balancing both the factors of ambidexterity [84], whereas contextual ambidexterity relies on organizational context such as processes, systems,

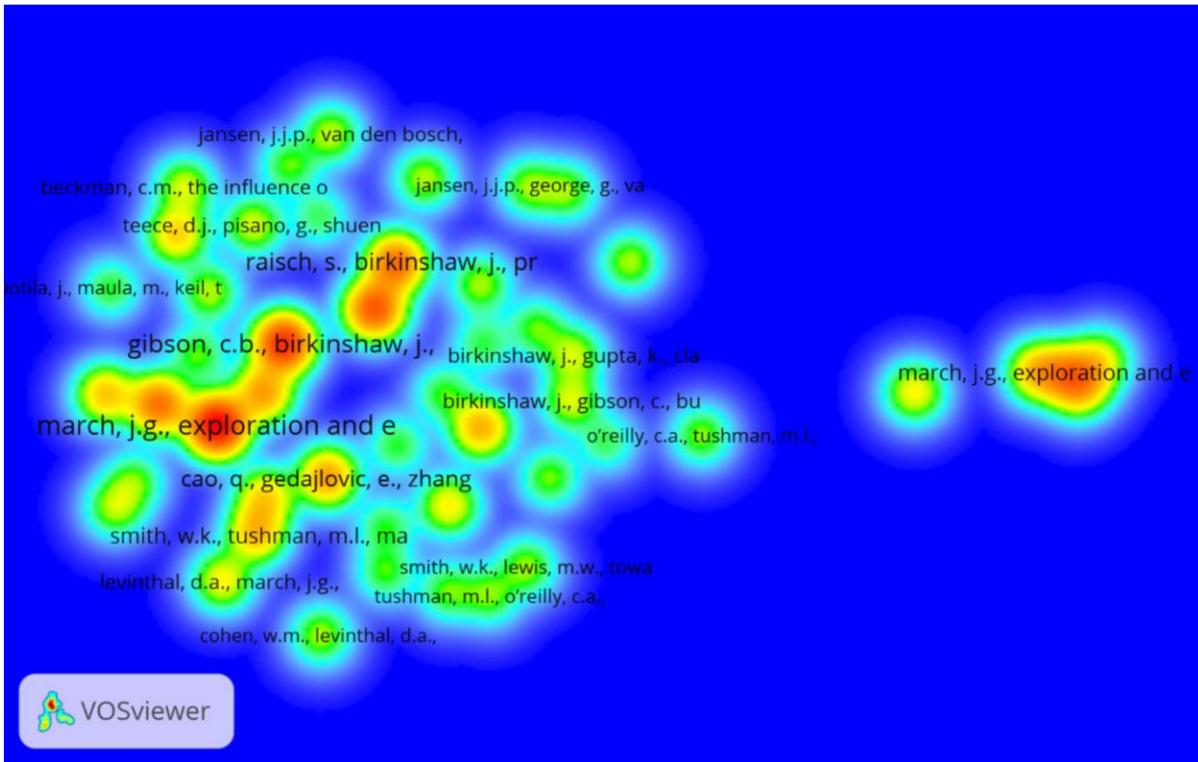


Fig. 5. Density visualization of cocited references.

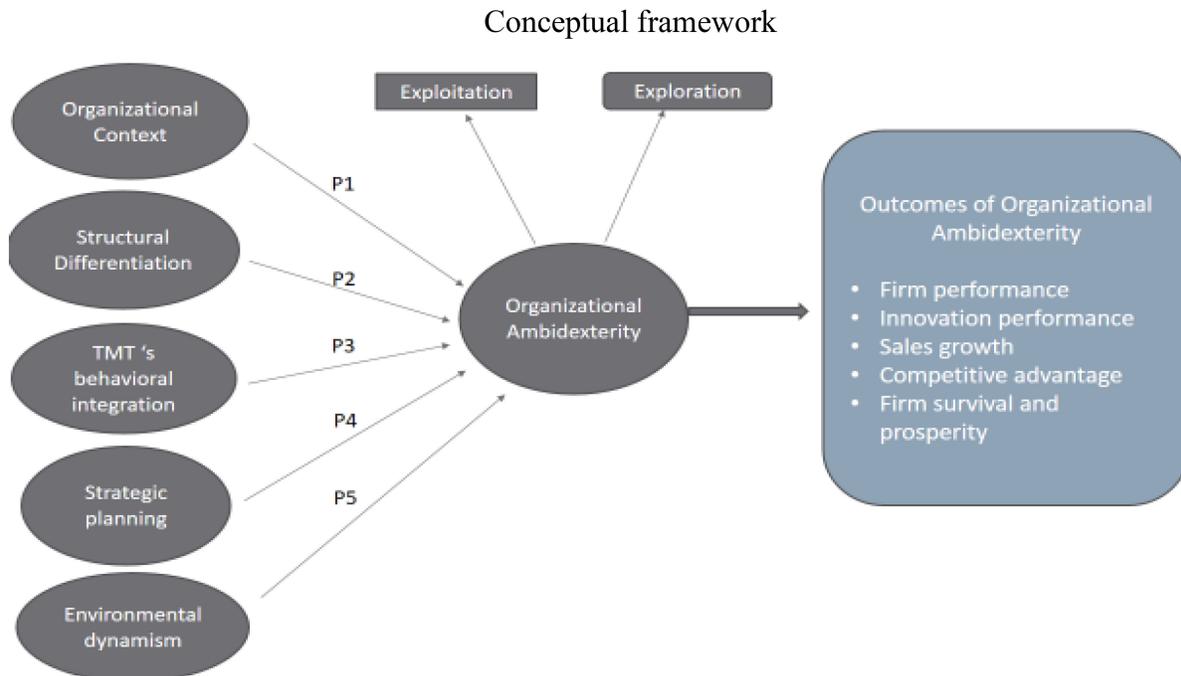


Fig. 6. Conceptual framework.

and cultures that act as primary enablers of ambidexterity. As per the findings of [78], antecedents to ambidexterity can be both internal and external, where organizational structure can be termed as internal antecedent and environmental dynamism can be the external antecedent (Table VI).

Prior research indicates various internal antecedents or enablers of organizational ambidexterity such as formal vs. informal mechanisms, capability, and behavioral integration of managers, contextual approach to ambidexterity, and cultural consideration [3], [14], [93] and outcomes or consequences

TABLE IV
WIDELY USED THEORIES IN ORGANIZATIONAL AMBIDEXTERITY LITERATURE

Theory	Authors
Behavioral integration perspective suggests that TMT (top managements team) enhances the ambidextrous capability of firms through exchanging knowledge and exercising common frames of mind.	Venugopal <i>et al.</i> (2019), Katou <i>et al.</i> (2020), Lubatkin <i>et al.</i> (2006), Koryak <i>et al.</i> (2018), Cao <i>et al.</i> (2010), Mihalache <i>et al.</i> (2014), Wu & Chen (2020), Sinha (2016), Halevi <i>et al.</i> (2015), Carmeli & Halevi (2009)
Paradoxical view of ambidexterity suggests that exploratory and exploitative activities are contradictory as they demand different capabilities, strategies, structures and processes and create significant organizational tensions which need to be solved through various differentiating and integrating mechanisms.	Raisch <i>et al.</i> (2009), Andriopoulos & Lewis, (2009), Andriopoulos & Lewis, (2010), (Koryak <i>et al.</i> 2018)
Organizational learning theory stressed the need to perform exploitative learning to be efficient in the existing knowledge and exploratory learning to invent new areas and ideas for gaining efficiency in both adaptability and alignment.	Gomes <i>et al.</i> (2020), Wei <i>et al.</i> (2014), March (1991), Levinthal & March (1993), Cao <i>et al.</i> (2010), Brix (2019), Tian <i>et al.</i> (2020), Felício <i>et al.</i> (2019), Gupta <i>et al.</i> (2006), Simsek (2009)
As per attention based view (ABV), organizational structures and processes are created by bounded rationality shaped by human cognitive limitation and this addresses how attention influences organizational adaptation.	Ocasio, (2011), Koryak <i>et al.</i> , (2018), Wei <i>et al.</i> (2014)
Contingency theory proposes that organizations are most effective when they are programmed to attain a fit between their internal perspective and outside situation to being able to operate in both stable and turbulent circumstances.	Burns & Stalker (1961), Hughes (2018), Posch & Garaus, (2020)
Upper echelon theory indicates that the attributes of top management team affect the organizational outcome because top management makes strategic and organizational decisions for firms.	Hambrick & Mason, (1984), Venugopal <i>et al.</i> (2019), Venugopal <i>et al.</i> (2020), Venugopal, Krishnan & Kumar (2018), Lubatkin <i>et al.</i> (2006)
Knowledge based view, considered as an extension of resource based view (RBV), states knowledge as a source of ambidexterity because both exploitation and exploration require opposite and paradoxical views of knowledge.	Eisenhardt & Santos, (2000) , Li <i>et al.</i> (2020), Zhang, Wu and Cui (2015), Soto-Acosta, Popa and Martinez-Conesa (2018), Li, Fu and Liu, (2020)
Dynamic capability approach helps to understand how organizations combine, reconfigure, and integrate the resources and skills for both incremental and radical innovation performance to achieve competitive advantage and sustain superior performance.	Teece, Pisano & Shuen, (1997), Heras <i>et al.</i> ,(2020), Vahlne & Jonsson (2017), Bernal & Toro-Jaramilo (2019), Zhang <i>et al.</i> (2020), O'Reilly & Tushman (2008, 2011),

of ambidexterity include firm survival and sales growth, competitive advantage, organizational performance, and enhanced innovation capacity [23], [37], [41], [65], [111], [123]. Still, existing literature is inconsistent in terms of empirical evidences of performance implication for organizational ambidexterity as few researchers found favorable impact [57], [114], whereas others found contingent effect between them [13]. Therefore, we expect more studies to unveil other enablers that may have significant influence on ambidexterity.

D. Methods

In this area of research, the various methods used were case analysis, empirical analysis, systematic literature review, structural equation modeling, and regression analysis ([2], [23], [37], [39], [53], [55], [70], [94], [105], [109], [115]), which are listed in Table VII. It could be seen that there is a gap in addressing mixed methodologies for analyzing determinants and outcomes of organizational ambidexterity. Also, survey

TABLE V
WIDELY STUDIED CONTEXTS IN AMBIDEXTERITY-FIRM PERFORMANCE RESEARCH

Contexts	Authors
Organization level / Firm level	He & Wong (2004), Osiyevskyy <i>et al.</i> (2020), Cao <i>et al.</i> (2009), Li <i>et al.</i> (2020), Cantarello <i>et al.</i> (2012), Alizadeh & Jetter (2019), Gibson & Birkinshaw (2004), Gomes <i>et al.</i> (2020), Tushman & O'Reilly (1996), Gupta <i>et al.</i> (2006), O'Reilly <i>et al.</i> (2009), Lubatkin <i>et al.</i> (2006), Soares <i>et al.</i> (2018), Souza & Takahashi (2019), March (1991), Nosella, Cantarello & Filippini (2012)
Multi-level	Simsek (2009), Andriopoulos & Lewis (2009), Koryak <i>et al.</i> (2018)
Product level	Wei <i>et al.</i> (2014), Suzuki, (2019), Zhang <i>et al.</i> (2015), Andriopoulos & Lewis (2010)
Country-level analysis	Senaratne & Wang (2018), Rothaermel & Alexandre (2009), Ajayi, Odusanya & Morton, (2017), MohammedAbazeed (2020), Liang <i>et al.</i> (2020), Wei <i>et al.</i> (2014), Harmancioglu <i>et al.</i> (2020), Souza-Luz & Gavronski (2020), Heras <i>et al.</i> (2020), Tian <i>et al.</i> (2020), Baškarada <i>et al.</i> (2016)
Individual level	Schnellbacher <i>et al.</i> (2019), Zhang <i>et al.</i> (2020), Caniels & Assen (2019), Caniels <i>et al.</i> (2017), Ajayi <i>et al.</i> (2017), Enkel <i>et al.</i> (2017), Rogan & Mors (2014), Kauppila & Tempelaar (2016)
Both product level & organization level	Harmancioglu, Sääksjärvi & Hultink (2020)
Business unit level of analysis	Gibson and Birkinshaw (2004), Halevi <i>et al.</i> (2015), Duncan (1976)

TABLE VI
RESEARCH CHARACTERISTICS AND AUTHORS IN ORGANIZATIONAL AMBIDEXTERITY

Characteristics (Antecedents or enablers)	Authors
Contextual ambidexterity (organizational context such as culture, processes and systems act as an enabler to ambidexterity)	Carmeli & Halevi, (2009), Raisch & Birkinshaw, (2008), Wei, Zhao & Zhang (2014), Raisch <i>et al.</i> (2009), Gibson & Birkinshaw (2004)
Structural differentiation (implementing dual structures for exploitation and exploration activities)	O'Reilly & Tushman (2004), March (1991), Lubatkin <i>et al.</i> (2006), O'Reilly, Harreld & Tushman (2009), He & Wong (2004), Duncan (1976), Tushman & O'Reilly (1996)
Strategic leadership/behavioral integration of TMT (exchanging knowledge and information, collaboration and joint decision making)	Hambrick & Mason (1984), Carmeli & Halevi (2009), Wu & Chen (2020), Halevi <i>et al.</i> (2015), Mihalache <i>et al.</i> (2014), Cao <i>et al.</i> (2010), Venugopal <i>et al.</i> (2019), Koryak <i>et al.</i> (2018), Lubatkin <i>et al.</i> (2006), Ramachandran <i>et al.</i> (2019)
Organizational structure and environmental dynamism as internal and external enabler	Pertusa-Ortega & Molina-Azorin (2018), Haarhaus & Liening (2020), Katou <i>et al.</i> (2020), Halevi <i>et al.</i> (2015),
Strategic planning	Posch & Garaus (2020)

TABLE VII
WIDELY APPLIED RESEARCH METHODS IN ORGANIZATIONAL AMBIDEXTERITY RESEARCH

Research methods	Authors
Data/ text mining approach	Snehvrat <i>et al.</i> (2018)
Case study method	Liang <i>et al.</i> (2020), O'Reilly <i>et al.</i> (2009), O'Reilly & Tushman (2011), Sulphrey (2019), Andriopoulos & Lewis (2009), Thelisson <i>et al.</i> (2019), Vahlne & Jonsson (2017)
Conceptual/ Text mining	Tushman & O'Reilly (1996), Bodwell & Chermack (2010), Carmeli and Halevi (2009), Gupta <i>et al.</i> (2006), Jurksiene and Pundziene (2016), Brix (2019), March (1991)
Bibliographic analysis	Nosella, Cantarello & Filippini (2012)
Structural equation modeling	Felício <i>et al.</i> (2019), Dhir & Dhir (2018), Katou <i>et al.</i> (2020), Mohammed Abazeed, (2020), Schnellbacher <i>et al.</i> (2019), Úbeda-García <i>et al.</i> (2020), Venugopal <i>et al.</i> (2019), Günsel <i>et al.</i> (2018)
Meta-Analysis method	Junni <i>et al.</i> (2013)
Co-relation and regression analysis	He & Wong (2004), Mihalache <i>et al.</i> (2014), Wei <i>et al.</i> (2014), Osiyevskyy <i>et al.</i> (2020), Wu & Chen (2020), Cao <i>et al.</i> (2010), Koryak <i>et al.</i> (2018), Posch & Garaus (2020), Berard & Fréchet (2020), Gibson & Birkinshaw (2004), Rothaermel & Alexandre (2009)

method and multiple case study method would be impactful for development of new frameworks. Further, it may be worthwhile for future researchers to implement more analytical approaches like meta-analysis and other econometric tools for enhancing the methodological rigor in organizational ambidexterity research.

V. DISCUSSION

Our analysis of literature on organizational ambidexterity research revealed that there is a scope for theory development in the areas such as innovation ambidexterity, environmental dynamism, structural differentiation, organizational context, strategic planning, leadership approach, and firm performance to derive suggestions for future research (Fig. 6). Based on the findings and insights of literature review, some theoretical propositions are generated in this section which may be used as hypotheses for future studies. Several ambidexterity researchers have explored various factors of organizational ambidexterity like contextual, structural approach, strategic planning, behaviorally integrated TMTs and environmental uncertainty [26], [49], [57], [114], [118]; and various performance outcomes are found as a consequence of ambidexterity such as sales growth, innovation performance, firm survival and prosperity, and competitive advantage [14].

It has been realized that organizational context [26] perspective as an enabler of business unit performance allows building of mechanisms to collectively build a context that helps both alignment and adaptability to flourish together and sustaining firm performance. Two approaches of organizational context are

“social context” that relates to providing support for employees in reaching their full potential and “performance management context” that allow employees or managers to strive for greater achievement and adaptability [113]. Therefore, it is proposed that:

Proposition 1: Organizational context will have a favorable impact on ambidexterity which in turn relates positively to firm performance and other performance outcomes of ambidexterity.

Ambidexterity research in terms of structural differentiation [20], [112] suggests that companies should have different organizational units or “dual structures” to achieve superior performance. Therefore, based on the theory of organizational learning [50], [58], many researchers argued that structural differentiation is an effective mechanism through which issues between exploratory and exploitative approaches can be addressed as they require different capabilities, resources, and organizational routines [78], [84]. On the basis of existing evidences that aims to find a correlation between organizational ambidexterity and structural differentiation [31], we propose proposition 2:

Proposition 2: Structural differentiation will have a favorable influence on ambidexterity, which in turn relates positively to firm performance and other outcomes of ambidexterity.

Leadership plays a very significant role in managing the mechanisms that help to reconcile the contradictions in pursuing both exploratory and exploitative factors together [26]. Upper echelons view [34] suggests organizational outcomes (ex. financial performance) are the functions of their managerial capabilities such as professional background of managers,

expertise, decision-making abilities, and skill sets. Further, theory of TMT behavioral integration as an expansion of upper echelons proposes that behaviorally integrated TMTs (the extent to which top management exhibits collective interaction and decision making, sharing resources, and exchanging available information) have the capability to manage contradictory and competing innovation demands [34], [117], [119]. Research suggests that internal dynamics of TMT enables better and efficient information processing which is a key to handling or balancing exploration and exploitation processes [15]. This is consistent with the behavioral integration theory that facilitates comprehensive understanding of both external and internal environment as the team is engaged in building processes and social system that invites information exchange, group behaviors, and joint decision-making. Therefore, we posit the next proposition.

Proposition 3: TMTs behavioral integration influences organizational ambidexterity in a positive manner which in turn relates positively to firm performance and other outcomes of ambidexterity.

Organizational ambidexterity significantly influences innovation management and firm survival in the long term because it enables firm adaptability in continuously evolving and changing external situation [52]. Research suggests that although larger firms can manage the simultaneous pursuit of both exploratory and exploitative processes with their available slack resources and existing administrative systems; these facilitative mechanisms are not available with SMEs, which basically rely on the TMT to attain ambidexterity [83]. Therefore, performance implication of these antecedents could vary according to the firm size and type of industries. Also, it was found that questions regarding drivers of organizational ambidexterity are still subject to additional research [93], especially in the context of leaders' innovation orientation or strategic planning [79]. Therefore, we posit as follows.

Proposition 4: Strategic planning enables firms to achieve ambidexterity, which in turn facilitates firm performance and other outcomes of ambidexterity.

Many studies have explained how ambidexterity enables firm survival, sales growth, competitive advantage, and performance gain [41], but it has been said that attaining innovation ambidexterity is more difficult for small firms compared to other large firms [102]. Hence, the performance outcome of organizational ambidexterity could be investigated in the context of SMEs by applying the contingency perspective [9], which seeks to gain a congruence or strategic fit between strategy, environmental dynamism, and organizational structure to achieve higher performance [93]. Environmental dynamism signifies the degree to which external environment is turbulent where products become obsolete faster, due to rapid changes in technology and marketing activities [33]. In fact, it has been argued by several ambidexterity researchers that the degree of environmental dynamism and competitiveness is an important dimension of organizational ambidexterity [26], [58], because under a dynamic situation, products become obsolete. This needs exploratory innovation but the results of exploration should also be exploited to reduce the chance of imitation by rivals or launching a new version

of a product at low cost [78]. Therefore, with high environmental dynamism, firms must exercise ambidexterity construct for sustaining financial performance and other outcomes of ambidexterity. Hence, it is proposed as follows.

Proposition 5: Environmental dynamism positively influences ambidexterity, which in turn relates positively to firm performance and other outcomes of ambidexterity.

Fig. 6 illustrates the conceptual framework that gives the direction for future research in the area of organizational ambidexterity. It shows the most important factors or drivers that were found in the literature and how these drivers affect the domains of ambidexterity and firm performance. Various enablers that were used as independent variables in ambidexterity research are organizational context, structural differentiation, behavioral integration of management, strategic planning, and environmental dynamism, and the performance outcomes that could be achieved by being ambidextrous are enhanced firm performance, innovation performance, sales growth, competitive advantage, and long-term firm survival.

VI. FUTURE RESEARCH DIRECTIONS

Our analysis of extant literature leads to the understanding of various perspectives of ambidexterity research in terms of TCCM framework and identifying the research gaps in organizational ambidexterity literature for building key themes for future research. While the existing work in literature includes different approaches to ambidexterity such as contextual ambidexterity, structural ambidexterity, individual ambidexterity, and leadership view, there have been many unexplored research themes which could add new research perspectives. In addition to the propositions which could be tested in future studies, we also provide research direction on the basis of TCCM.

We call for future studies to use models and frameworks based on complexity approach to understand new challenges as well as new dynamics and finding appropriate solutions for them altogether as the complexity of the external environment is continuously evolving due to the unpredictable, varied, and complex interaction of different actors (firms, governments, stakeholders, suppliers, financial institutions, and all potential players); and these approaches are generating new, unprecedented, and dynamic challenges in current managerial activities [17]. This in turn will also facilitate building a complex model of an ambidextrous organization that may bring new insights on ambidexterity research in terms of mechanisms, features, processes, and consequences [17]. Future studies should also explore the ambidexterity perspective with the help of some not so widely used theoretical lenses such as resource dependence view, attention-based view, and KBV in order to bring new thought processes and perspectives into the extant literature.

Fernández-Pérez de la Lastra *et al.* [24] proposed a multilevel model that describes three intellectual capital dimensions such as social capital, human capital, and organizational capital that work synergistically at different organizational levels to create ambidextrous competencies. However, theoretical perspectives illustrate a two-way relationship between human capital and

social capital because it is argued that social mechanisms and processes function efficiently and smoothly if there exists higher individual social skills [24]. Building on these approaches, it is important to analyze each dimension (individual, social, and organizational capital) to have a specific knowledge on how they interact and influence each other. We feel new theoretical frameworks should be developed to examine the link between these dimensions, how they interact with each other at different organizational levels and affect the process of ambidexterity emergence.

In spite of huge research proliferation in ambidexterity area, there exists insufficient clarity in research findings which require more in-depth analysis to find various contingency factors that enable firms to tackle conflict between incremental innovation as well as disruptive innovation and realizing the potential advantages of both approaches [84]. It has been observed that prior research on ambidexterity-firm performance is mostly focused on well-established firms based on developed countries like US, U.K., and Canada. This provides an opportunity to conduct further studies for firms based in developing countries. Moreover, future researchers could try to explore the antecedents and consequence of ambidexterity for SMEs and comparing them with established firms.

Present literature is also characterized by insufficient conceptualization [83] as most of the studies focused on exploration and exploitation, not much importance has been given to the dualities and their integration process [17]. Empirical proof to support the linkage between firm's competitive advantage and organizational ambidexterity is also lacking, although several studies measured competitive advantage with the variables similar to firm performance [42]. As [68] argued that various approaches to organizational ambidexterity may need different kinds dynamic capabilities, therefore, further theoretical development is required to clarify the conceptualization and connection between dynamic capabilities and organizational ambidexterity.

As reported in Table VII, the widely studied methodologies in organizational ambidexterity research are regression and correlation analysis [37], [49], systematic literature review [94], and structural equation modeling [19], [23]. We also recommend researchers to use other diverse and advanced methods such as data mining, content analysis, factor analysis, total interpretive structural modeling, semantic network analysis, and comparative case studies to better comprehend the interlinkage between various factors and their outcomes in organizational ambidexterity research.

VII. CONCLUSION

This review aimed to understand the knowledge structure and research trends of ambidexterity through the integration of bibliometric analysis with TCCM framework for advancing the research domain. The current knowledge on organizational ambidexterity had been systematized by identifying and reviewing the various parameters according to their influence. Our analysis provided knowledge gaps in the form of propositions to understand the determinants and outcomes of organizational ambidexterity. The topic had received wide attention from various

areas like strategy, technology and innovation, human resource, tourism and hospitality, and marketing. This indicated organizational ambidexterity had been a relevant topic for the last few years and its importance could be recognized in highly volatile and uncertain market conditions, where dynamic capabilities of firms played a very important role in adapting to the situation and to remain relevant in unwanted circumstances. This article provided a comprehensive review of trends for organizational ambidexterity research using bibliometric indicators such as the most productive countries, authors, impactful articles, and most productive journals with promising opportunities for future research. USA is ranked as the top productive country according to number of citations followed by the U.K., Switzerland, China, and Canada. Although a developing country like India apart from China contributed to the literature, it is expected to have more research in the context of firms from emerging countries that had successfully achieved ambidexterity and were able to stand in the face of uncertainty. Most prominent authors who had contributed to the field are James G. March, Michael L. Tushman, Charles A. O'Reilly III, Cristina B. Gibson, Julian Birkinshaw to name a few. The most productive and influential journals were *Organization Science*, *Academy of Management Perspective* followed by *Journal of Management Studies* for publishing many research articles on the topic. Thus, our analysis complemented the earlier qualitative interpretations regarding ambidexterity approach through the analysis and visualization of intellectual structure with its evolution in literature. This article has some important and practical implication for both scholars and practicing managers. Practitioners or managers could emphasize the identified factors in various organizational practices by ensuring supportive organizational policies that help to promote them. This article will also encourage the academician and scholars to add their contribution by empirically validating the identified enablers across various industries or sectors. Scholars could also look into the identified research gaps in terms of theories or context or methods to further explore and uncover the area of ambidexterity research.

REFERENCES

- [1] O. M. Ajayi, K. Odusanya, and S. Morton, "Stimulating employee ambidexterity and employee engagement in SMEs," *Manage. Decis.*, vol. 55, no. 4, pp. 662–680, 2017.
- [2] Y. Alizadeh and A. J. Jetter, "Pathways for balancing exploration and exploitation in innovations: A review and expansion of ambidexterity theory," *Int. J. Innov. Technol. Manage.*, vol. 16, no. 5, pp. 1–33, 2019.
- [3] C. Andriopoulos and M. W. Lewis, "Exploitation-exploration tensions and organizational ambidexterity: Managing paradoxes of innovation," *Org. Sci.*, vol. 20, no. 4, pp. 696–717, 2009.
- [4] C. Andriopoulos and M. W. Lewis, "Managing innovation paradoxes: Ambidexterity lessons from leading product design companies," *Long Range Planning*, vol. 43, no. 1, pp. 104–122, 2010.
- [5] S. Bahoo, I. Alon, and A. Paltrinieri, "Corruption in international business: A review and research agenda," *Int. Bus. Rev.*, vol. 29, no. 4, 2020, Art. no. 101660.
- [6] M. Barari, M. Ross, S. Thaichon, and J. Surachartkumtonkun, "A meta-analysis of customer engagement behaviour," *Int. J. Consum. Stud.*, vol. 45, pp. 457–477, 2020.
- [7] W. Bodwell and T. J. Chermack, "Organizational ambidexterity: Integrating deliberate and emergent strategy with scenario planning," *Technol. Forecasting Social Change*, vol. 77, no. 2, pp. 193–202, 2010.
- [8] J. Brix, "Ambidexterity and organizational learning: Revisiting and re-connecting the literatures," *Learn. Org.*, vol. 26, no. 4, pp. 337–351, 2019.

- [9] T. Burns and G. M. Stalker, "Review reviewed work (s): The management of innovation," *Econ. J.*, vol. 79, no. 314, pp. 403–405, 1961.
- [10] T. Buyl, C. Boone, and P. Matthyssens, "The impact of the top management team's knowledge diversity on organizational ambidexterity: A conceptual framework," *Int. Stud. Manage. Org.*, vol. 42, no. 4, pp. 8–26, 2012.
- [11] M. C. J. Caniels and M. F. Assen, "How motivational orientations are related to ambidexterity," *Kybernetes*, vol. 48, no. 10, pp. 2177–2189, 2019.
- [12] M. C. J. Caniels, C. Neghina, and N. Schaetsaert, "Ambidexterity of employees: The role of empowerment and knowledge sharing," *J. Knowl. Manage.*, vol. 21, no. 5, pp. 1098–1119, 2017.
- [13] Q. Cao, E. Gedajlovic, and H. Zhang, "Unpacking organizational ambidexterity: Dimensions, contingencies, and synergistic effects," *Org. Sci.*, vol. 20, no. 4, pp. 781–796, 2009.
- [14] Q. Cao, Z. Simsek, and H. Zhang, "Modelling the joint impact of the CEO and the TMT on organizational ambidexterity," *J. Manage. Stud.*, vol. 47, no. 7, pp. 1272–1296, 2010.
- [15] A. Carmeli and M. Y. Halevi, "How top management team behavioral integration and behavioral complexity enable organizational ambidexterity: The moderating role of contextual ambidexterity," *Leadership Quart.*, vol. 20, no. 2, pp. 207–218, 2009.
- [16] P. Centobelli, R. Cerchione, E. Esposito, and Shashi, "Exploration and exploitation in the development of more entrepreneurial universities: A twisting learning path model of ambidexterity," *Technol. Forecasting Social Change*, vol. 141, pp. 172–194, Sep. 2018.
- [17] O. Claudia and H. Mihaela, "Ambidexterity—A new paradigm for organizations facing complexity," *Stud. Bus. Econ.*, vol. 14, no. 3, pp. 145–159, 2019.
- [18] M. Dabic, B. Vlacic, J. Paul, L. P. Dana, S. Sahasranamam, and B. Glinka, "Immigrant entrepreneurship: A review and research agenda," *J. Bus. Res.*, vol. 113, pp. 25–38, 2020.
- [19] S. Dhir and S. Dhir, "Role of ambidexterity and learning capability in firm performance: A study of e-commerce industry in India," *VINE J. Inf. Knowl. Manage. Syst.*, vol. 48, no. 4, pp. 517–536, 2018.
- [20] R. B. Duncan, "The ambidextrous organization: Designing dual structures for innovation," *Manage. Org.*, vol. 1, pp. 167–188, 1976.
- [21] K. M. Eisenhardt and F. M. Santos, "Knowledge-based view: A new theory of strategy?," in *Handbook of Strategy and Management*. Newbury Park, CA, USA: Sage, 2000, pp. 139–164.
- [22] E. Enkel, S. Heil, M. Hengstler, and H. Wirth, "Exploratory and exploitative innovation: To what extent do the dimensions of individual level absorptive capacity contribute?," *Technovation*, vol. 60–61, pp. 29–38, Aug. 2015.
- [23] J. A. Felício, V. Caldeirinha, and A. Dutra, "Ambidextrous capacity in small and medium-sized enterprises," *J. Bus. Res.*, vol. 101, pp. 607–614, 2019.
- [24] S. Fernández-Pérez de la Lastra, N. García-Carbonell, F. Martín-Alcázar, and G. Sánchez-Gardey, "Intellectual capital role in ambidexterity emergence: A proposal of a multilevel model and research agenda," *J. Intellectual Capital*, vol. 18, no. 4, pp. 733–744, 2017.
- [25] F. García-Lillo, M. Úbeda-García, and B. Marco-Lajara, "Organizational ambidexterity: Exploring the knowledge base," *Scientometrics*, vol. 107, no. 3, pp. 1021–1040, 2016.
- [26] C. Gibson and J. Birkinshaw, "The antecedents, consequences and mediating role of organizational ambidexterity," *Acad. Manage. J.*, vol. 47, no. 2, pp. 209–226, 2004.
- [27] F. G. Gilal, J. Zhang, J. Paul, and N. G. Gilal, "The role of self-determination theory in marketing science: An integrative review and agenda for research," *Eur. Manage. J.*, vol. 37, no. 1, pp. 29–44, 2019.
- [28] K. Goyal and S. Kumar, "Financial literacy: A systematic review and bibliometric analysis," *Int. J. Consum. Stud.*, vol. 45, no. 1, pp. 80–105, 2021.
- [29] P. J. Gomes, G. M. Silva, and J. Sarkis, "Exploring the relationship between quality ambidexterity and sustainable production," *Int. J. Prod. Econ.*, vol. 224, 2020, Art. no. 107560.
- [30] A. Günsel, E. Altındağ, S. Kılıç Keçeli, H. Kitapçı, and M. Hızıroğlu, "Antecedents and consequences of organizational ambidexterity: The moderating role of networking," *Kybernetes*, vol. 47, no. 1, pp. 186–207, 2018.
- [31] A. K. Gupta, K. G. Smith, and C. E. Shalley, "The interplay between exploration and exploitation," *Acad. Manage. J.*, vol. 49, no. 4, pp. 693–706, 2006.
- [32] T. Haarhaus and A. Liening, "Building dynamic capabilities to cope with environmental uncertainty: The role of strategic foresight," *Technol. Forecasting Social Change*, vol. 155, 2020, Art. no. 120033.
- [33] M. Y. Halevi, A. Carmeli, and N. N. Brueller, "Ambidexterity in SBU: TMT behavioral integration and environmental dynamism," *Human Resour. Manage.*, vol. 54, no. 1, pp. 223–238, 2015.
- [34] D. C. Hambrick and P. A. Mason, "Upper echelons: The organization as a reflection of its top managers," *Acad. Manage. Rev.*, vol. 9, no. 2, pp. 193–206, 1984.
- [35] N. Harmancioglu, M. Sääksjärvi, and E. J. Hultink, "Cannibalize and combine? The impact of ambidextrous innovation on organizational outcomes under market competition," *Ind. Marketing Manage.*, vol. 85, pp. 44–57, 2020.
- [36] S. M. Hassan, Z. Rahman, and J. Paul, "Consumer ethics: A review and research agenda," *Psychol. Marketing*, to be published, doi: [10.1002/mar.21580](https://doi.org/10.1002/mar.21580).
- [37] Z. L. He and P. K. Wong, "Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis," *Org. Sci.*, vol. 15, no. 4, pp. 481–495, 2004.
- [38] C. Huang, C. Yang, S. Wang, W. Wu, J. Su, and C. Liang, "Evolution of topics in education research: A systematic review using bibliometric analysis," *Educ. Rev.*, vol. 72, no. 3, pp. 281–297, 2019.
- [39] M. Hughes, "Organisational ambidexterity and firm performance: Burning research questions for marketing scholars," *J. Marketing Manage.*, vol. 34, no. 1–2, pp. 178–229, 2018.
- [40] M. Iborra, V. Safón, and C. Dolz, "What explains resilience of SMEs? Ambidexterity capability and strategic consistency," *Long Range Planning*, vol. 53, 2019, Art. no. 101947.
- [41] P. Junni, R. M. Sarala, V. Taras, and S. Y. Tarba, "Organizational ambidexterity and performance: A meta-analysis," *Acad. Manage. Perspectives*, vol. 27, no. 4, pp. 299–312, 2013.
- [42] L. Jurksiene and A. Pundziene, "The relationship between dynamic capabilities and firm competitive advantage: The mediating role of organizational ambidexterity," *Eur. Bus. Rev.*, vol. 28, no. 4, pp. 431–448, 2016.
- [43] E. T. Kahiya, "Five decades of research on export barriers: Review and future directions," *Int. Bus. Rev.*, vol. 27, no. 6, pp. 1172–1188, 2018.
- [44] J. Knoll and J. Matthes, "The effectiveness of celebrity endorsement: A meta-analysis," *J. Acad. Marketing Sci.*, vol. 45, no. 1, pp. 55–75, 2017.
- [45] A. Kumar, J. Paul, and A. Unnithan, "Masstige marketing: A review, synthesis and research agenda," *J. Bus. Res.*, vol. 113, pp. 384–398, 2019.
- [46] M. Kumar, J. Paul, M. Misra, and R. Romanello, "The creation and development of learning organizations: A review," *J. Knowl. Manage.*, to be published, doi: [10.1108/JKM-10-2020-0795](https://doi.org/10.1108/JKM-10-2020-0795).
- [47] A. A. Katou, P. S. Budhwar, and C. Patel, "A trilogy of organizational ambidexterity: Leader's social intelligence, employee work engagement and environmental changes," *J. Bus. Res.*, vol. 128, pp. 688–700, 2021.
- [48] O. P. Kauppila and M. P. Tempelaar, "The social-cognitive underpinnings of employees' ambidextrous behaviour and the supportive role of group managers' leadership," *J. Manage. Stud.*, vol. 53, no. 6, pp. 1019–1044, 2016.
- [49] O. Koryak, A. Lockett, J. Hayton, N. Nicolaou, and K. Mole, "Disentangling the antecedents of ambidexterity: Exploration and exploitation," *Res. Policy*, vol. 47, no. 2, pp. 413–427, 2018.
- [50] D. A. Levinthal and J. G. March, "The myopia of learning," *Strategic Manage. J.*, vol. 14, pp. 95–112, 1993.
- [51] D. Li, J. Lin, W. Cui, and Y. Qian, "The trade-off between knowledge exploration and exploitation in technological innovation," *J. Knowl. Manage.*, vol. 22, no. 4, pp. 781–801, 2018.
- [52] R. Li, L. Fu, and Z. Liu, "Does openness to innovation matter? The moderating role of open innovation between organizational ambidexterity and innovation performance," *Asian J. Technol. Innov.*, vol. 28, no. 2, pp. 1–21, 2020.
- [53] X. Liang, L. Xiu, W. Fang, and S. Wu, "How did a local guerrilla turn into a global gorilla? Learning how transformational change happened under dynamic capabilities from the rise of huawei," *J. Org. Change Manage.*, vol. 33, no. 2, pp. 401–414, 2020.
- [54] W. M. Lim, S. F. Yap, and M. Makkar, "Home sharing in marketing and tourism at a tipping point: What do we know, how do we know, and where should we be heading?," *J. Bus. Res.*, vol. 122, pp. 534–566, 2021.
- [55] A. Lis, B. Jozefowicz, M. Tomanek, and P. Gulak, "The concept of the ambidextrous organization: Systematic literature review," *Int. J. Contemporary Manage.*, vol. 17, no. 1, pp. 77–97, 2018.
- [56] G. R. Llanos-Herrera and J. M. Merigo, "Overview of brand personality research with bibliometric indicators," *Kybernetes*, vol. 48, no. 3, pp. 546–569, 2019.
- [57] M. H. Lubatkin, Z. Simsek, Y. Ling, and J. F. Veiga, "Ambidexterity and performance in small-to medium-sized firms: The pivotal role of top management team behavioral integration," *J. Manage.*, vol. 32, no. 5, pp. 646–672, 2006.

- [58] J. G. March, "Exploration and exploitation in organizational learning," *Org. Sci.*, vol. 2, no. 1, pp. 71–87, 1991.
- [59] G. Marzi, A. Caputo, E. Garces, and M. Dabić, "A three decade mixed-method bibliometric investigation of the IEEE transactions on engineering management," *IEEE Trans. Eng. Manage.*, vol. 67, no. 1, pp. 4–17, Feb. 2020.
- [60] O. R. Mihalache, J. P. Jansen, V. D. Bosch, and H. W. Volberda, "Top management team shared leadership and organizational ambidexterity: A moderated mediation framework," *Strategic Entrepreneurship J.*, vol. 8, pp. 128–148, 2014.
- [61] R. A. M. Abazeed, "Impact of strategic capabilities on organizational ambidexterity in the commercial banks in Jordan: The mediating role of knowledge management," *Manage. Sci. Lett.*, vol. 10, no. 7, pp. 1445–1456, 2020.
- [62] B. Musigmann, H. Von Der Gracht, and E. Hartmann, "Blockchain technology in logistics and supply chain management—A bibliometric literature review from 2016 to January 2020," *IEEE Trans. Eng. Manage.*, vol. 67, no. 4, pp. 988–1007, Nov. 2020.
- [63] A. Nosella, S. Cantarello, and R. Filippini, "The intellectual structure of organizational ambidexterity: A bibliographic investigation into the state of the art," *Strategic Org.*, vol. 10, no. 4, pp. 450–465, 2012.
- [64] C. A. O'Reilly and M. L. Tushman, "Ambidexterity as a dynamic capability: Resolving the innovator's dilemma," *Res. Org. Behav.*, vol. 28, pp. 185–206, 2008.
- [65] C. A. O'Reilly and M. L. Tushman, "Organizational ambidexterity in action: How managers explore and exploit," *California Manage. Rev.*, vol. 53, no. 4, pp. 5–22, 2011.
- [66] C. O'Reilly, J. B. Harrell, and M. L. Tushman, "Organizational ambidexterity: IBM and emerging business opportunities," *California Manage. Rev.*, vol. 51, no. 4, pp. 75–100, 2009.
- [67] C. A. O'Reilly and M. L. Tushman, "The ambidextrous organization," *Harvard Bus. Rev.*, vol. 4, no. 82, pp. 74–81, 2004.
- [68] C. A. O'Reilly and M. L. Tushman, "Organizational ambidexterity: Past, present and future," *Acad. Manage. Perspectives*, vol. 75, no. 3, pp. 1–30, 2013.
- [69] W. Ocasio, "Attention to attention," *Org. Sci.*, vol. 22, no. 5, pp. 1286–1296, 2011.
- [70] O. Osiyevskyy, G. Shirokova, and P. Ritala, "Exploration and exploitation in crisis environment: Implications for level and variability of firm performance," *J. Bus. Res.*, vol. 114, pp. 227–239, 2020.
- [71] J. Paul and G. R. Benito, "A review research on outward foreign direct investment from emerging countries including China: What do we know, how do we know and where should we be heading?," *Asia Pacific Bus. Rev.*, vol. 24, no. 1, pp. 90–115, 2018.
- [72] J. Paul, A. Merchant, Y. K. Dwivedi, and G. Rose, "Writing an impactful review article: What do we know and what do we need to know?," *J. Bus. Res.*, vol. 133, pp. 337–340, 2021.
- [73] J. Paul and A. R. Criado, "The art of writing literature review: What do we know and what do we need to know?," *Int. Bus. Rev.*, vol. 29, 2020, Art. no. 101717.
- [74] J. Paul, "Marketing in emerging markets: A review, theoretical synthesis and extension," *Int. J. Emerg. Markets*, vol. 15, no. 3, pp. 446–468, 2019.
- [75] J. Paul and G. Singh, "The 45 years of foreign direct investment research: Approaches, advances and analytical areas," *World Econ.*, vol. 40, no. 11, pp. 2512–2517, 2017.
- [76] J. Paul and A. Rosado-Serrano, "Gradual internationalization vs. born-global/international new venture models: A review and research agenda," *Int. Marketing Rev.*, vol. 36, no. 6, pp. 830–858, 2019.
- [77] J. Paul, W. M. Lim, A. O'Cass, A. W. Hao, and S. Bresciani, "Scientific procedures and rationales for systematic literature reviews (SPAR-4-SLR)," *Int. J. Consum. Stud.*, vol. 45, pp. O1–O16, 2021.
- [78] E. M. Pertusa-Ortega and J. F. Molina-Azorín, "A joint analysis of determinants and performance consequences of ambidexterity," *BRQ Bus. Res. Quart.*, vol. 21, no. 2, pp. 84–98, 2018.
- [79] A. Posch and C. Garaus, "Boon or curse? A contingent view on the relationship between strategic planning and organizational ambidexterity," *Long Range Planning*, vol. 53, 2020, Art. no. 101878.
- [80] A. Rosado-Serrano, J. Paul, and D. Dikova, "International franchising: A literature review and research agenda," *J. Bus. Res.*, vol. 85, pp. 238–257, 2018.
- [81] J. Rana and J. Paul, "Health motive and the purchase of organic food: A meta-analytical review," *Int. J. Consum. Stud.*, vol. 44, no. 2, pp. 162–171, 2020.
- [82] K. Randhawa, R. Wilden, and J. Hohberger, "A bibliometric review of open innovation: Setting a research agenda," *J. Prod. Innov. Manage.*, vol. 33, no. 6, pp. 750–772, 2016.
- [83] S. Raisch and J. Birkinshaw, "Organizational ambidexterity: Antecedents, outcomes, and moderators," *J. Manage.*, vol. 34, no. 3, pp. 375–409, 2008.
- [84] S. Raisch, J. Birkinshaw, G. Probst, and M. L. Tushman, "Organizational ambidexterity: Balancing exploitation and exploration for sustained performance," *Org. Sci.*, vol. 20, no. 4, pp. 685–695, 2009.
- [85] R. Rajan, S. Dhir, and Sushil, "Alliance termination research: A bibliometric review and research agenda," *J. Strategy Manage.*, vol. 13, pp. 351–375, 2020.
- [86] I. Ramachandran, C. A. Lengnick-Hall, and V. Badrinarayanan, "Enabling and leveraging ambidexterity: Influence of strategic orientations and knowledge stock," *J. Knowl. Manage.*, vol. 23, no. 6, pp. 1136–1156, 2019.
- [87] M. Rogan and M. L. Mors, "A network perspective on individual-level ambidexterity in organizations," *Org. Sci.*, vol. 25, no. 6, pp. 1860–1877, 2014.
- [88] F. T. Rothaermel and M. T. Alexandre, "Ambidexterity in technology sourcing: The moderating role of absorptive capacity," *Org. Sci.*, vol. 20, no. 4, pp. 759–780, 2009.
- [89] G. Ruggeri, L. Orsi, and S. Corsi, "A bibliometric analysis of the scientific literature on fairtrade labelling," *Int. J. Consum. Stud.*, vol. 43, no. 2, pp. 134–152, 2019.
- [90] B. Schnellbacher, S. Heidenreich, and A. Wald, "Antecedents and effects of individual ambidexterity—A cross-level investigation of exploration and exploitation activities at the employee level," *Eur. Manage. J.*, vol. 37, no. 4, pp. 442–454, 2019.
- [91] C. Senaratne and C. L. Wang, "Organisational ambidexterity in U.K. high-tech SMEs: An exploratory study of key drivers and barriers," *J. Small Bus. Enterprise Develop.*, vol. 25, no. 6, pp. 1025–1050, 2018.
- [92] S. H. H. Shah, S. Lei, M. Ali, D. Doronin, and S. T. Hussain, "Prosumption: Bibliometric analysis using histcite and VOSviewer," *Kybernetes*, vol. 49, no. 3, pp. 1020–1045, 2019.
- [93] Z. Simsek, "Organizational ambidexterity: Towards a multilevel understanding," *J. Manage. Stud.*, vol. 46, no. 4, pp. 597–624, 2009.
- [94] Z. Simsek, C. Heavey, J. F. Veiga, and D. Souder, "A typology for aligning organizational ambidexterity's conceptualizations, antecedents, and outcomes," *J. Manage. Stud.*, vol. 46, no. 5, pp. 864–894, 2009.
- [95] S. Singh and S. Dhir, "Structured review using TCCM and bibliometric analysis of international cause-related marketing, social marketing, and innovation of the firm," *Int. Rev. Public Nonprofit Marketing*, vol. 16, no. 2–4, pp. 335–347, 2019.
- [96] S. Singh, S. Dhir, V. M. Das, and A. Sharma, "Technological forecasting & social change bibliometric overview of the technological forecasting and social change journal: Analysis from 1970 to 2018," *Technol. Forecasting Social Change*, vol. 154, 2020, Art. no. 119963.
- [97] J. Södergren, "Brand authenticity: 25 years of research," *Int. J. Consum. Stud.*, vol. 45, pp. 645–663, 2021.
- [98] S. Sinha, "Managing an ambidextrous organization: Balancing innovation and efficiency," *Strategic Direction*, vol. 32, no. 10, pp. 35–37, 2016.
- [99] S. Snehrat, A. Kumar, R. Kumar, and S. Dutta, "The state of ambidexterity research: A data mining approach," *Int. J. Org. Anal.*, vol. 26, no. 2, pp. 343–367, 2018.
- [100] J. L. Soares, D. R. dos Reis, J. C. da Cunha, and P. J. S. Neto, "Organizational ambidexterity: A study in Brazilian higher education institutions," *J. Technol. Manage. Innov.*, vol. 13, no. 3, pp. 36–46, 2018.
- [101] G. Santoro, A. Thrassou, S. Bresciani, and M. D. Giudice, "Do knowledge management and dynamic capabilities affect ambidextrous entrepreneurial intensity and firms' performance?," *IEEE Trans. Eng. Manage.*, vol. 68, no. 2, pp. 378–386, 2021.
- [102] P. Soto-Acosta, S. Popa, and I. Martinez-Conesa, "Information technology, knowledge management and environmental dynamism as drivers of innovation ambidexterity: A study in SMEs," *J. Knowl. Manage.*, vol. 22, no. 4, pp. 824–849, 2018.
- [103] C. P. S. Souza and A. R. W. Takahashi, "Dynamic capabilities, organizational learning and ambidexterity in a higher education institution," *Learn. Org.*, vol. 26, no. 4, pp. 397–411, 2019.
- [104] S. Srivastava, S. Singh, and S. Dhir, "Culture and international business research: A review and research agenda," *Int. Bus. Rev.*, vol. 29, no. 4, 2020, Art. no. 101709.
- [105] M. M. Sulphrey, "Could the adoption of organizational ambidexterity have changed the history of nokia?," *South Asian J. Bus. Manage. Cases*, vol. 8, no. 2, pp. 167–181, 2019.

- [106] O. Suzuki, "Unpacking performance benefits of innovation ambidexterity: Evidence from the pharmaceutical industry," *Manage. Rev.*, vol. 26, no. 4, pp. 328–348, 2015.
- [107] O. Suzuki, "Uncovering moderators of organisational ambidexterity: Evidence from the pharmaceutical industry," *Ind. Innov.*, vol. 26, no. 4, pp. 391–418, 2019.
- [108] D. J. Teece, G. Pisano, and A. Shuen, "Dynamic capabilities and strategic management," *Strategic Manage. J.*, vol. 18, no. 7, pp. 509–533, 1997.
- [109] A. S. Thelisson, A. Missonier, and G. Guieu, "Reaching organizational ambidexterity in the merger process: A temporal switching," *Manage. Decis.*, vol. 58, no. 5, pp. 879–896, 2019.
- [110] A. Thomas and J. Paul, "Knowledge transfer and innovation through university–industry partnership: An integrated theoretical view," *Knowl. Manage. Res. Pract.*, vol. 17, no. 4, pp. 436–448, 2019.
- [111] H. Tian, C. S. K. Dogbe, W. W. K. Pomegbe, S. A. Sarsah, and C. O. A. Otoo, "Organizational learning ambidexterity and openness, as determinants of SMEs' innovation performance," *Eur. J. Innov. Manage.*, vol. 24, pp. 414–438, 2020.
- [112] M. L. Tushman and C. A. O'Reilly, "Ambidextrous organizations: Managing evolutionary and revolutionary change," *California Manage. Rev.*, vol. 38, no. 4, pp. 1–24, 1996.
- [113] M. Úbeda-García, E. Claver-Cortés, B. Marco-Lajara, and P. Zaragoza-Sáez, "Human resource flexibility and performance in the hotel industry: The role of organizational ambidexterity," *Personnel Rev.*, vol. 46, no. 4, pp. 824–846, 2017.
- [114] M. Úbeda-García, E. Claver-Cortés, B. Marco-Lajara, and P. Zaragoza-Sáez, "Toward a dynamic construction of organizational ambidexterity: Exploring the synergies between structural differentiation, organizational context, and interorganizational relations," *J. Bus. Res.*, vol. 112, pp. 363–372, 2020.
- [115] J. E. Vahlne and A. Jonsson, "Ambidexterity as a dynamic capability in the globalization of the multinational business enterprise (MBE): Case studies of AB Volvo and IKEA," *Int. Bus. Rev.*, vol. 26, no. 1, pp. 57–70, 2017.
- [116] N. J. Van Eck and L. Waltman, "Software survey: VOSviewer, a computer program for bibliometric mapping," *Scientometrics*, vol. 84, no. 2, pp. 523–538, 2010.
- [117] A. Venugopal, T. N. Krishnan, and M. Kumar, "Identifying the focal role of top management paradoxical cognition in ambidextrous firms," *Manage. Decis.*, vol. 56, no. 1, pp. 47–63, 2018.
- [118] A. Venugopal, T. N. Krishnan, M. Kumar, and R. S. Upadhyayula, "Strengthening organizational ambidexterity with top management team mechanisms and processes," *Int. J. Human Resour. Manage.*, vol. 30, no. 4, pp. 586–617, 2019.
- [119] A. Venugopal, T. N. Krishnan, R. S. Upadhyayula, and M. Kumar, "Finding the microfoundations of organizational ambidexterity—Demystifying the role of top management behavioural integration," *J. Bus. Res.*, vol. 106, pp. 1–11, 2020.
- [120] Z. Wei, Y. Yi, and H. Guo, "Organizational learning ambidexterity, strategic flexibility, and new product development," *J. Prod. Innov. Manage.*, vol. 31, no. 4, pp. 832–847, 2014.
- [121] Z. Wei, J. Zhao, and C. Zhang, "Organizational ambidexterity, market orientation, and firm performance," *J. Eng. Technol. Manage.*, vol. 33, pp. 134–153, 2014.
- [122] H. Wu and J. Chen, "International ambidexterity in firms' innovation of multinational enterprises from emerging economies: An investigation of TMT attributes," *Baltic J. Manage.*, vol. 15, no. 3, pp. 431–451, 2020.
- [123] H. Zhang, F. Wu, and A. S. Cui, "Balancing market exploration and market exploitation in product innovation: A contingency perspective," *Int. J. Res. Marketing*, vol. 32, no. 3, pp. 297–308, 2015.
- [124] J. A. Zhang, G. Chen, C. O'Kane, S. Xiang, and J. Wang, "How employee exploration and exploitation affect task performance: The influence of organizational competitive orientation," *Int. J. Human Resour. Manage.*, Apr. 2020, doi: [10.1080/09585192.2020.1745866](https://doi.org/10.1080/09585192.2020.1745866).
- [125] H. E. Lin and E. F. McDonough, "Investigating the role of leadership and organizational culture in fostering innovation ambidexterity," *IEEE Trans. Eng. Manage.*, vol. 58, no. 3, pp. 497–509, 2011, doi: [10.1109/TEM.2010.2092781](https://doi.org/10.1109/TEM.2010.2092781).
- [126] A. Canabal and G. O. White, "Entry mode research: past and future," *Int. Bus. Rev.*, vol. 17, no. 3, pp. 267–284, 2008.
- [127] H. A. Heras, M. Estensoro, and M. Larrea, "Organizational ambidexterity in policy networks," *Compet. Rev.*, vol. 30, no. 2, pp. 219–242, 2020, doi: [10.1108/CR-02-2018-0013](https://doi.org/10.1108/CR-02-2018-0013).
- [128] C. Berard and M. Fréchet, "Organizational antecedents of exploration and exploitation in SMEs: The role of structural and resource attributes," *Eur. Bus. Rev.*, vol. 32, no. 2, pp. 211–226, 2020, doi: [10.1108/EBR-12-2018-0216](https://doi.org/10.1108/EBR-12-2018-0216).