

# Cross-Functional Organization: A Bibliometric Analysis

Nathatenee Gebsoombut<sup>1</sup>, Thawatchai Worrakittimalee<sup>2</sup> and Tanaporn Phumvilairak<sup>3</sup>

International College, Khon Kaen University  
Khon Kaen, Thailand 40002  
E-mail: nathge@kku.ac.th  
E-mail: thawatc@kku.ac.th  
E-mail: tanapornphumvilairak@kkumail.com

## Abstract

Even though a cross-functional organization team partially mediates the relationship between the structural organization and the team's effectiveness in developing new products, no previous review has presented a comprehensive assessment of current developments. In contrast, previous research on cross-functional organization teams is typically restricted to conceptual studies that do not explicitly strive to discover characteristics that might implement cross-functional teams to improve and enhance both small and large business sizes. In addition, a small review sample and traditional review methods, such as descriptive methodology, resulted in a restricted understanding of the subject matter across the board. To address this shortcoming, a combination of bibliometric and thematic analysis was performed on 870 cross-functional organization team papers published between 1979 and 2022 in 160 Scopus-indexed publications. This analysis demonstrates how the performance of articles, authors, countries, and journals has varied over time, as well as how the themes of cross-functional organization teams have shifted.

**KEYWORDS:** Cross-functional communication, large-small business scale, cross-functional organisation, improving business with a cross-functional team, enhancing business factors.

## 1 INTRODUCTION

The organizational structure defines how activities, systems, procedures, individuals, and teams collaborate to achieve common goals. A structure of procedures for delegating and coordinating work constitutes an organizational structure (Monavarian et al., 2007). A well-considered organizational structure can be used to categorize and coordinate the activities of a firm or other entity. An organization's organizational structure is responsible for establishing and maintaining communication channels, coordinating the group's actions, and monitoring internal reporting (Daft, 1998). According to Lopes Pimenta et al. (2014), the fundamental objective of a cross-functional team (CFT) is to develop new opportunities that require multi-disciplinary expertise and skill sets. Therefore, when organizations seek to adapt to market requirements. As matrix and cross-functional teams become more prominent, traditional team structures may no longer be the standard in enterprises. It is difficult for employees to define priorities and accomplish deadlines when they are asked to deal with a large network and

offer information to several leaders. Consequently, the construction sector notably benefits from the employment of cross-functional, geographically dispersed teams, as they are better equipped to apply a wide range of abilities to issues and projects that transcend traditional organizational boundaries (Zolin et al., 2004). The enhanced comprehension, problem-solving abilities, coordination, and communication that arise from a cross-functional approach can lead to increased quality and productivity (Patrashkova-Volzdoska et al., 2003). Members of a cross-functional team may come from all corners of the organization or even other countries. They must discover ways to communicate often to integrate the diverse perspectives required for top performance (Darawong, 2020). Consequently, when cross-functional teams collaborate, members of the team feel more linked, especially across departments. When team members feel linked, they establish shared objectives and generate mutual trust.

In light of the research gaps noted in earlier reviews of cross-functional teams, the current review aims to conduct a state-of-the-art review of cross-function teams in companies by reviewing all articles published in high-quality journals on cross-functional teams. This research employs a mixed-methods review strategy in accordance with the SPAR-SLR (Scientific Procedures and Rationales for Systematic Literature Review) protocol, upon which the applications of SLR are founded. The review articles under consideration were published between 1979 and 2022. This systematic evaluation seeks to determine how the development of a cross-functional team can have a good impact on employees, ultimately resulting in increased sales and enhanced business potential.

In order to formulate two broad research questions (RQs), this study combines bibliometric and thematic analysis to present an overview of how cross-functional teams might assist enterprises.

RQ1. What are the bibliometric trends of research conducted by cross-functional teams?

RQ2. What are the prevalent themes in cross-functional teams?

## 2 THEORETICAL BACKGROUND

Despite the fact that countless publications mention cross-functional teams, relatively few actually define the concept. This must begin by clarifying precisely what is meant by the term "team" (Holland et al., 2000). Cross-functional teams can help departments work more effectively together and share information (Mohamed et al., 2004). A cross-functional team is comprised of individuals with diverse backgrounds and areas of expertise who collaborate to achieve a shared objective (Ghobadi & D'Ambra, 2013). Utilizing technological breakthroughs such as business information systems can improve the operational performance of a company. This is done in an effort to enhance the quality of a company's procedures or services. The need for cross-functional teams is increasing. Modern businesses and organizations operate in a new era of business characterized by rapidly expanding technologies and consumer demands. Therefore, companies must adhere to ever-tightening schedules while maintaining a high-quality level (Dinca & Voinescu, 2012). Therefore, when it comes to working together, everyone is on board with the team's decisions, mission, objectives, and potential problems. Given that a team's members represent a variety of functional units and may offer conflicting interpretations or solutions for the implementation of a unified work method, disputes are to be expected (Dinca & Voinescu, 2012). Managers' efforts to construct intricate networks to link

their employees and partners globally and to train people for cross-functional organizations to function effectively may be perceived as challenging if crucial variables are not properly addressed. Consequently, the CFT relies on components and strategic alignment, including team accountability, the concept of team effectiveness, and the input-process-outcome paradigm (Holland et al., 2000). Additionally, maintaining team efficiency is crucial for minimizing interference and achieving high group performance. Towards this end, the cross-functional organization team is new yet robust; hence, new research must be cognizant of previous work on the topic. To provide a consolidated cross-functional organization literature that future research can use to obtain a one-stop overview of the field and situate new contributions, this article reviews cross-functional organization publications published in high-quality journals using a method that will be detailed in the following section.

### 3 METHODOLOGY

#### 3.1 Adopting SPAR-4-SLR protocol

In the domains of management, systematic literature reviews are becoming an increasingly common approach to secondary research (Floren et al., 2019). This review meets the requirements for a domain-based systematic literature review because it focuses on cross-functional organization, a specific issue. This is a mixed methods review since it combines both quantitative (bibliometric) and qualitative (thematic) approaches to address its research questions. The "systematic" section of the study is guided and informed by the SPAR-4-SLR approach, a rigorous review methodology for systematic literature reviews (Paul et al., 2021). Following the Scientific Procedures and Rationales for Systematic Literature Reviews, we conducted a systematic literature review that met all of these criteria for clarity, rigour, and depth (SPAR-4-SLR). SPAR-4-SLR employs a compensation mechanism comprised of three primary steps (Paul et al., 2021). This review is intended to be exhaustive and methodical. This study intends to review comprehensively all known research on the topic of conversational commerce. Since this type of evaluation is the most thorough, demanding, and reliable choice, it has become the industry standard.

#### 3.2 Assembling

There are two sub-stages for the assembling phase: identification and acquisition. The SPAR-4-SLR assembling step covers the selection of papers or publications for evaluation and procurement. Cross-Functional Organization is the primary focus of this review, and the study's "research questions" are focused on determining "what" comprises the bibliometric performance and intellectual structure of Cross-Functional Organization research. The source type only applies to conceptual and empirical "pieces" published in "journals." Scopus was used to examine the quality of the sources because its indexed journals are more extensive than those of competitor databases (such as Web of Science). Since the purpose of the study was to provide a thorough account of the present state of research on Cross Functional Organizations, no arbitrary cut-offs were put on the review corpus to obtain more exact metrics comparable to quartiles. This was made possible by the review strategy (a hybrid of bibliometric and thematic methodologies) and the databases and programs (Scopus

and Excel/VOSviewer) used to conduct the review. The Scopus database was utilized for both the search mechanism and the procurement of resources due to its bibliometric data. Since most Cross-Functional-Organization-related journal articles did not appear until after 1979, researchers searched for a wide range of years, from 1979 to the present day (as indicated by Scopus). "Cross-functional communication AND Business, Cross-functional team AND Improve, Cross-functional team AND Effective AND Factor," were used to search Scopus for the "article title, abstract, or keywords" criterion. This evaluation of cross-functional organizations is predicated on the idea that different combinations of search phrases, such as "cross-functional team" and "Effectiveness," may create new information about the possible commercial benefits of establishing cross-functional teams. There are 870 CFO-related articles in English. Most of the bibliometric data analysis and visualization applications, including VOSviewer, support the September 2022 bibliometric data download.

### **3.3 Arranging**

There are two sub-stages for the arranging phase: organization and purification. The second stage of the SPAR-4-SLR procedure is "Organizing," which filters and organizes the search results. The "arranging" phase of SPAR-4-SLR cleanses and organizes search results using exclusion and inclusion criteria and organizing codes. The bibliometric data of the publication was coded by article title, journal title, author name, affiliation nation, author keyword, and citations. This arranged the information. Due to the absence of duplicate or irrelevant content throughout the screening procedure, all 870 articles were examined.

### **3.4 Assessing**

There are two sub-stages for the assessing phase: evaluation and reporting. The third and final step of the SPAR-4-SLR protocol involves evaluating and reporting reviewed publications. Utilizing bibliometric analysis and tools, cross-functional organization research trends were examined. Excel was used to determine article publishing patterns and article, author, nation, and journal performance. In contrast, VOSviewer, which is utilized by researchers for numerous mapping projects, and keyword co-occurrences were used to depict the bibliometric. As part of the agenda proposal process, the future study directions of cross-functional organizations were mapped using theme analysis and software. The limitations and sources of support are discussed in the conclusion of this article, although the reporting conventions for the review's conclusions in the subsequent sections include figures, tables, and text. Since the evaluation is based on secondary data) that is accessible to anybody with a Scopus subscription, no written permission was required or requested.

## **4 RESULT**

### **4.1 Bibliometric Performance**

#### **4.1.1 Corpus performance**

In total, 870 articles on cross-functional organizations were reviewed for this study, which spanned 43 years, from 1979 to 2022. Figure 1 depicts the expanding trend of publications on

cross-functional organizations, which indicates the research interest in the topic. According to the trend depicted in Figure 1, few articles were produced between 1979 and 1994. The number of publications climbed to 20 in 1995, more than double the previous year. Between 1997 and 2010, the number of publications fluctuated but remained stable. After 2010, the average number of articles published per year increased. 2011 and 2012 were peak years, with 84 articles published in total.

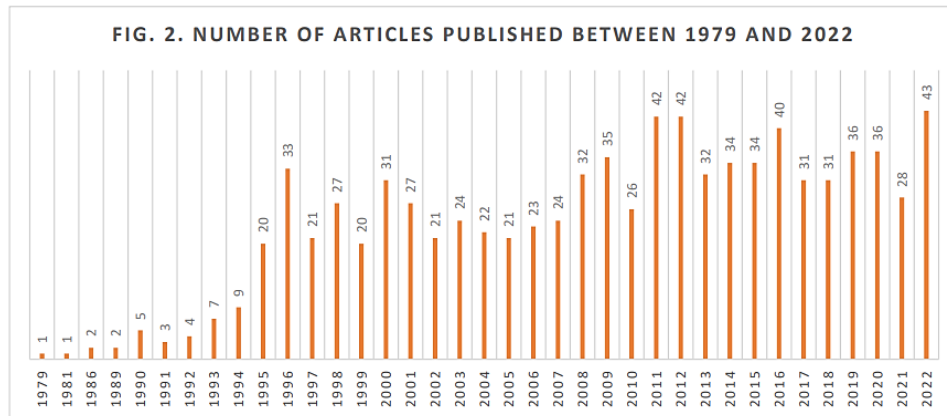


Figure 1: Number of Cross Functional team/organization articles published between 1979 and 2022

#### 4.1.2 Article performance

Rank	Article	Cites	Title
1	Stalk g. (1992)	1133	Competing on capabilities: the new rules of corporate strategy.
2	Cooper r.g. (1995)	809	Benchmarking the firm's critical success factors in new product development
3	Townsend a.m. (1998)	680	Virtual teams: Technology and the workplace of the future
4	Jansen j.j.p. (2009)	630	Structural differentiation and ambidexterity: The mediating role of integration mechanisms
5	sethi r. (2001b)	561	New product quality and product development teams
6	barczak g. (2009)	476	Perspective: Trends and drivers of success in NPD practices: Results of the 2003 PDMA best practices study
7	griffin a. (1997c)	443	The effect of project and process characteristics on product development cycle time
8	mom t.j.m. (2009)	420	Understanding variation in managers' ambidexterity: Investigating direct and interaction effects of formal structural and personal coordination mechanisms
9	lee g. (2010)	355	Toward agile: An integrated analysis of quantitative and qualitative field data on software development agility
10	pinto m.b. (1990)	355	Project team communication and cross-functional cooperation in new program development

Figure 2: The Cross-Functional Organization articles most frequently cited by other publications.

The top cross-functional organization articles are most frequently cited by other cross-functional organization articles, enabling a more precise evaluation of citation performance (as shown in Figure 2). The top ten most-cited publications are indicated by the 870 cross-functional organization/cross-functional team corpus papers collected by Scopus between 1979 and 2022. As Stalk (1992) was the most-cited organization/cross-functional team article by other cross-functional organization/cross-functional team articles in the organization/cross-functional team corpus (1,133 citations). This article also introduced the cross-functional team variation referred to as effective management of processes (Maull & Childe, 1994) and organizational capabilities to process a firm's competitive advantage (Collis, 1994). The top 10 seminal cross-functional organization and CFT papers in its corpus have cited a total of 5,862 times, showing that on average, each item discusses 6.7 publications in the top 10. (5,862 citations 870 articles). When arguing for theoretical extension and uniqueness, future cross-functional organization research should use this article's seminal articles to demonstrate a more realistic depiction of seminal research.

#### 4.1.3 Journal performance

Rank	Journal	h-index	Citation(s)	Article(S)
1	Organization Science	252	1829	8
2	Journal Of Business Research	217	513	14
3	International Journal Of Production Economics	197	877	15
4	Journal Of Product Innovation Management	154	3711	46
5	Industrial Marketing Management	147	1316	18
6	International Journal Of Operations And Production Management	146	619	13
7	Tech innovation	140	288	9
8	Decision Sciences	113	882	7
9	Long Range Planning	109	526	9
10	Journal Of Supply Chain Management	98	339	8
11	IEEE Transactions On Engineering Management	97	1127	24
12	Business Process Management Journal	87	472	16
13	Research Technology Management	73	334	17
14	Journal Of Business And Industrial Marketing	73	161	10
15	Journal Of Engineering And Technology Management Jet M	68	578	12
16	European Journal Of Innovation Management	67	319	10
17	Creativity And Innovation Management	65	173	7
18	IEEE Transactions On Professional Communication	48	182	8
19	Team Performance Management	37	140	10
20	Quality Progress	34	21	8

**Figure 3:** Twenty most prolific journals based on the h-index (productivity and influence) of Cross Functional Organization articles

Figure 3 depicts the twenty most-read publications. Seventy-five per cent of the twenty

journals that published at least seven papers on cross-functional organizations and/or teams had an h-index of at least 65. Journal of Product Innovation Management holds the most published articles under the term of cross-functional organizations/team with 46 articles, followed by IEEE Transactions on Engineering Management with 24 articles, and Industrial Marketing Management with 18 articles. The top three journals in terms of productivity and influential articles as measured by h-index are Organization Science (h: 252), Journal of Business Research (h: 217), and International Journal of Production Economics (h: 197), whereas the top three most impactful journals as indicated by the number of citations are Journal Of Product Innovation Management (3,711 citations), Organization Science (1,829 citations), and Industrial Marketing Management (1,316 citations).

#### 4.1.4 Co-authorship Analysis

The measure of scientific collaboration is co-authorship. Co-authorship can quantify and display contributor links (Ullah et al., 2022). Analysis of bibliometric co-authorship networks can track virtually every aspect of scientific cooperation networks and is one of the most effective methods of scientific cooperation (Ullah et al., 2022). The co-authorship illustrates the scientific contact and relationships between networks, teams, organizations, and countries. To create a scientific publication, this investigation establishes linkages across teams.

There was a total of 1,784 authors from 1,551 institutions in 84 countries and territories that contributed to the original works on cross-functional teams. To identify the global pattern of research collaboration among these entities, the network visualization of co-authorship included all entities that met the threshold, regardless of interconnection.

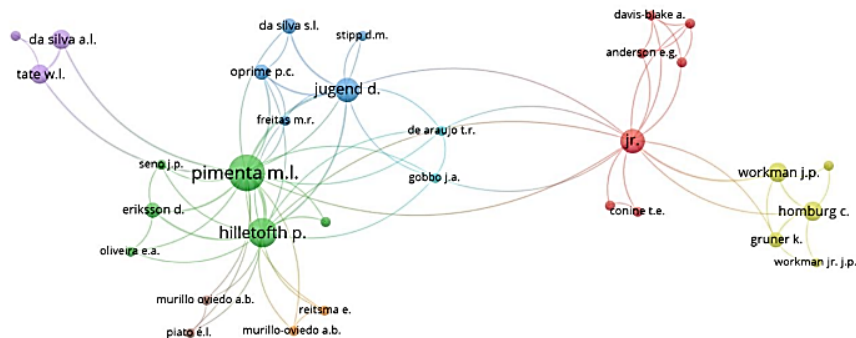
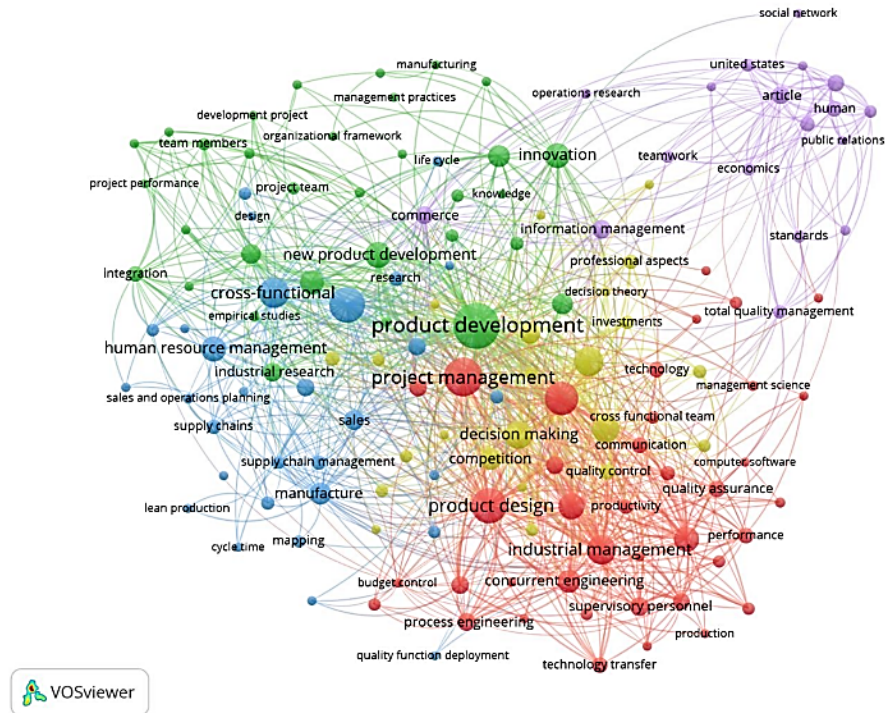


Figure 4: Co-authorship author: Network visualization of co-authorship among authors

#### 4.1.5 Co-word Occurrence Analysis (Co-occurrence)

Co-occurrence was investigated by a keyword analysis of the authors' work. Figure 5 shows keywords used by authors at least twice in the original research articles on cross-

functional teams that were included.



**Figure 5:** Network visualization of co-occurrence of author keywords

Each of the 142 keywords selected by the authors appeared in at least four distinct papers. The four most prevalent phrases were total link strength (TLS) = 457; occurrence rate = 81 articles; TLS = 338; occurrence rate = 58 articles; TLS = 280; occurrence rate = 48 articles; TLS = 213; occurrence rate = 48 articles; and cross-functional team (TLS = 0; occurrence rate = 0). In addition, it is important to note that no terms in the network were ever viewed as outliers, but rather as interconnected nodes.

As shown in red, the first cluster consists primarily of terms related to the administration of various industries, including project management, industrial management, process control, manufacturing, and R&D management. With a threshold of 58 occurrences, project management was the keyword that appeared most frequently in this cluster. Therefore, it is advised that authors of management publications utilize these keywords most often.

In the second cluster, the terms shown in green pertain primarily to the development of various majors, including product development, cross-functional integration, development project, and financing. This cluster's most frequently occurring term was product development, with 81 occurrences, the highest co-occurrence rate of any item. Therefore, it is advised that authors about development utilize these terms most frequently.

As shown in blue, the third cluster consists primarily of industry-related terms that indicate working as part of a team in an industry-related field, such as cross-functional teams, supply chain management, construction industry, automotive industry, and industry 4.0. In addition, the most often occurring keyword in this cluster was the cross-functional team with



a threshold of 48 occurrences, the highest co-occurrence rate of any item in this cluster. Therefore, it is advised that these phrases are utilized most frequently by authors in the field of enhancing the operation flow in various sectors.

For the fourth cluster, the keywords that appear in yellow are primarily associated with the decision and planning for the upcoming huge impact decision in business scale for product development. These keywords include strategic planning, decision-making, investment, cost-effectiveness, and decision theory. The keyword with the most occurrences in this cluster was "strategic planning" with 34 occurrences. Therefore, it is advised that authors of project planning papers utilize these terms most frequently.

As indicated by the colour purple, the fifth and final cluster consists primarily of keywords pertaining to business information. These keywords are primarily associated with economics, people, teamwork, and public relations. With a 14-occurrence minimum, information management was the keyword that appeared most frequently in this cluster. Therefore, it is claimed that these keywords are the most frequently employed by authors in publications about Human Resources in an organization or business sector.

## 5 CONCLUSION

This literature study provides an overview of the idea of organization structure and how cross-functional integration partially mediates the relationship between organization structure and team performance. The analysis revealed that a significant proportion of works on the cross-functional organization are non-theoretical, with qualitative approaches being the preferred methodological approach. In this research, bibliometric performance and intellectual performance have been identified. In addition, the study is the initial step in unifying the research trends on cross-functional organization, and it lays the way for understanding the conceptual, theoretical, and contextual factors that contribute to the success of cross-functional companies. In addition, it encourages more analyses to be undertaken so that previously obtained qualitative results can be improved. This article provides a thorough study of 870 publications on cross-functional organization/team research published between 1979 and 2022 in 160 Scopus-indexed journals. This essay addressed two research topics to make conclusions on the bibliometric effectiveness and intellectual framework of research conducted by cross-functional organizations/teams. These results should be useful for future writers who intend to perform a quality-assured retrospective evaluation of the cross-functional organization literature.

As was previously stated, the article's examination of past research on cross-functional organizations yields seven key discoveries with substantial implications for future research in this field. Since the notion of cross-functional organizations was first introduced to the existing literature in 1994, the number of publications on the subject has increased steadily. The rising trend in the data supports the fundamental conclusion that research and interest in cross-functional organizations will increase. In addition, it will become an essential, if not critical, business practice for firms of all sizes in the near future.

Second, each item in its corpus references, on average, 6.7 other cross-functional-organization and CFT publications, and the ten most-cited items in its corpus have been cited 5,862 times. Future cross-functional organization studies are encouraged to use the papers referenced in

this article to characterize foundational cross-functional organization studies when arguing more correctly for the significance and uniqueness of their own work. Thirdly, the analysis of journal performance revealed that research on Cross Functional Organisation is dispersed among 160 distinct academic publications. A deeper investigation reveals, however, that there is a far smaller collection of scholarly journals that can be regarded as the research field's core. These six journals have a high academic standing and have published at least ten relevant articles on the given research topic. Prospective authors should target these publications if they wish to reach the appropriate academic audience and have a significant impact on the field of research. Fourth, there were eight clusters among the 32 writers, with Pimenta M.L. having the highest link and belonging to a cluster with six other authors. If prospective authors are interested in learning more about cross-functional organization terms, Pimenta's works are one of the core themes under the cross-functional organization term, which is where the concept originated and has been cited by a large number of other authors. Lastly, it is explored whether academics will discover more material on cross-functional organization teams in the field and literature of product development, which are the terms most frequently used in papers on cross-functional organization teams.

Several limitations exist with this research. First, this research uses the Scopus database as a source, there are vase more journal articles on cross-functional organizations and teams that are not presented in Scopus. In this study, only original research publications indexed in the Scopus database were considered; articles solely indexed elsewhere were omitted. Consequently, it is possible that this study's collection of original research publications on cross-functional organization teams is not complete. Second, the area of the search is based on a set of setting criteria that had been created beforehand. This suggests that non-English publications were not included in this ultimate body of knowledge. However, the robustness of the technique and the use of alternative keywords with searches in the article title, journal title, author name, and country of affiliation could reduce the risk of missing a publication with significant consequences for the analysis and interpretation of the data. The amount of information obtained by focusing on the bibliometric success and philosophical framework of cross-functional organization research on a worldwide scale suggests that a more in-depth examination of each of these topics would have necessitated a separate study. Therefore, it is strongly suggested that future evaluations build on the detailed analysis of cross-functional organization research offered in this article by deconstructing the ideas, contexts, structures, and procedures that compose its intellectual framework. Despite this constraint, it is believed that this is the first study in the bibliometric analysis of the original research on cross-functional organization teams. In addition, this study has yielded important insights into the picture of research conducted by cross-functional organization teams.

## 6 ACKNOWLEDGEMENTS

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