

Understanding Organizational Knowledge Loss (OKL): A Bibliometric Analysis

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Abstract: *Purpose* – Organizational knowledge loss (OKL) is an urgent problem in the field of knowledge management because it can have a negative impact on intellectual capital and leads to significant competitive disadvantages for the companies concerned. In academic research, this phenomenon is considered a consequence of knowledge risks, especially when experts possess valuable knowledge and leave a knowledge-intensive organization. However, a basic understanding of the conceptual structure of OKL remains elusive. *Methodology* – To address the existing knowledge gap, we conducted a bibliometric analysis based on a network and factor-oriented approach to identify the key themes, contexts, and patterns of OKL. For this purpose, we obtained bibliometric data from the Web of Science and the Scopus databases. Using the advanced bibliometrics package Biblioshiny in R, we conducted performance analysis and science mapping. *Findings* – Based on our four research questions, we present the following key findings: First, we find that annual science production in the field of OKL research over the period 2004 to 2023 peaks in 2022. Second, we found that absorptive capacity (AC) is increasingly becoming a central theme in OKL research. Third, the average citation rate per year for OKL research has declined noticeably since 2020. Fourth, the most influential publications in OKL research deal with AC in the context of strategic alliances. *Research limitations* – This study focuses solely on researching the conceptual structure and thus does not consider the intellectual and social structure of OKL. *Practical implications* – In view of the results obtained, we recommend that future research work should further investigate the relationship between OKL as a focus of organizational forgetting and AC as a learning ability in an innovation environment. *Originality/value* – This paper is insightful, as it reveals the conceptual structure and thematic evolution of OKL and directs research interest to the field of learning organizations.

Keywords: Bibliometric analysis, Organizational knowledge loss, Knowledge management, Absorptive capacity, Intellectual capital, Strategic alliances

1. Introduction

Taxonomically, OKL can be seen as a focus of organizational forgetting caused accidentally by human-based risks (Mariano, Casey and Olivera, 2020, p. 197). For example, an age-related retirement of employees can lead to OKL (Levallet and Chan, 2019; Massingham, 2018). Otherwise, OKL can be caused by a technical fault, such as a computer breakdown (Durst and Zieba, 2019, p. 8). As an outcome of knowledge risks, OKL negatively impacts intellectual capital, causing competency gaps, lower productivity, poor decision-making, and difficulties addressing challenges or adapting to market changes (Massingham, 2018, p. 755). The majority of the studies focus on OKL's taxonomy and its impact on intellectual capital. In this investigation, we explore OKL's conceptual structure and thematic evolution, aiming to identify areas requiring more research attention. We seek to provide organizations and researchers insights into this relevant topic by examining four research questions:

RQ1. How has OKL research's annual scientific production evolved over time?

RQ2. How have the main themes and patterns in OKL research evolved over time?

RQ3. How has the average citation rate per year of OKL research evolved over time?

RQ4. What are the most influential publications in OKL research?

2. Methodology

Our research approach combines performance analysis and science mapping to identify and visualize the conceptual structure of OKL (Di Vaio et al., 2021; Donthu et al., 2021). In our approach, we conducted a descriptive and trend, a co-word, and a citation analysis (Di Vaio et al., 2021). By applying inclusion and exclusion criteria, we selected relevant publications from the Scopus and Web of Science databases, resulting in 594 publications. The data preparation process involved refining the dataset by removing publications not thematically connected to our research focus. This yielded 146 publications from the fields of management

and business available for analysis. In the final stage of our investigation, we utilized the Biblioshiny tool in R for visualization purposes. This tool is widely accepted within the research community and offers a specialized application area for conceptual analyses, proving useful for our research focus (Aria and Cuccurullo, 2017).

3. Findings

3.1 RQ1: Annual Scientific Production in OKL Research from 2004 to 2023

Figure 1 illustrates that our dataset contains publications spanning 19 years, specifically from 2004 to 2023. The lowest publication rate is observed from 2004 to 2014, with fewer than ten publications per year. However, there is only a minimal upward trend from 2015 to 2018. Interestingly, research on OKL studies has been rapidly increasing since 2022. Namely, 25 studies were published during this year. A sharp decline in 2023 can be attributed to the fact that the sample was collected in the first quarter of 2023, so there are fewer publications to analyse.

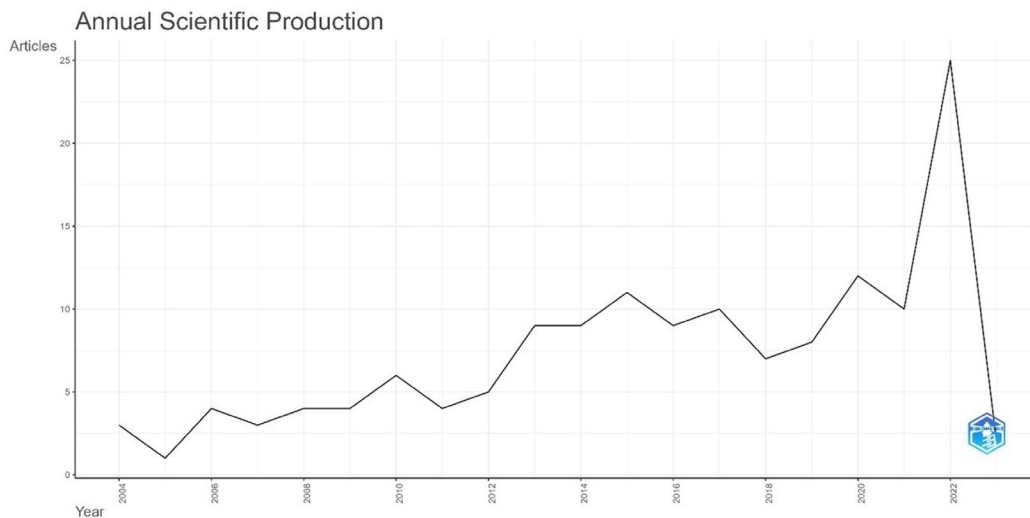


Figure 1: Annual Scientific Production in OKL Research from 2004 to 2023 (Generated by Biblioshiny)

3.2 RQ2: Thematic Evolution of OKL

3.2.1 Thematic Evolution Map of Author Keywords in OKL Research in Three Periods

The thematic evolution map of author keywords presented in Figure 2 indicates that during the first period (2004-2014), three thick edges from the keyword OKL are connected to the nodes "knowledge transfer", "knowledge sharing", and "tacit knowledge". Additionally, a thinner edge is connected to the node "knowledge management". Notably, in the second period (2015-2018), "absorptive capacity (AC)" emerged as a new keyword, and its thin edges extended to the nodes "AC" and "innovation" in the third period (2019-2023). While thick edges from the nodes "tacit knowledge", "knowledge sharing", and "knowledge management" are connected to the same nodes, a transition from the node "knowledge transfer" to "knowledge management" can be observed in the third period.

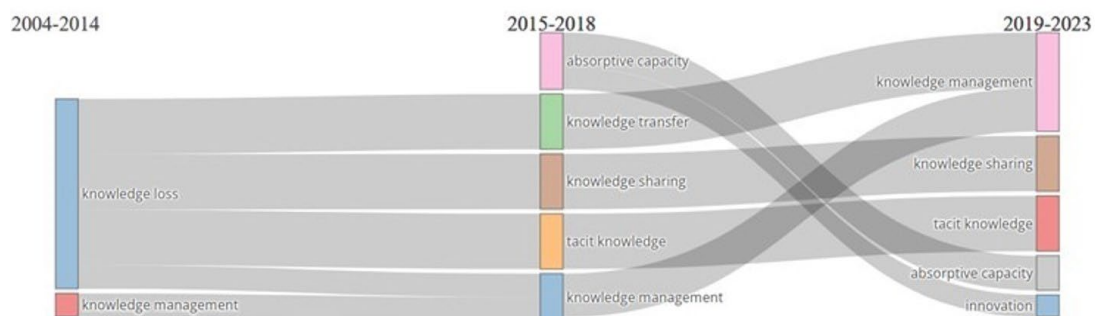


Figure 2: Thematic Evolution Map of Author Keywords in OKL Research in Three Periods (Generated by Biblioshiny)

3.2.2 Thematic map from 2015 to 2023

As seen in Figure 3, the second period, "AC" emerges as a niche theme related to "innovation", "unlearning", and "organizational forgetting". In the third period, "AC" is portrayed as a core theme in connection with "organizational forgetting" and "turnover" (Figure 4). In addition, "innovation", as an emerging keyword of AC, is depicted in the third period as a niche theme in relation to organizational unlearning.

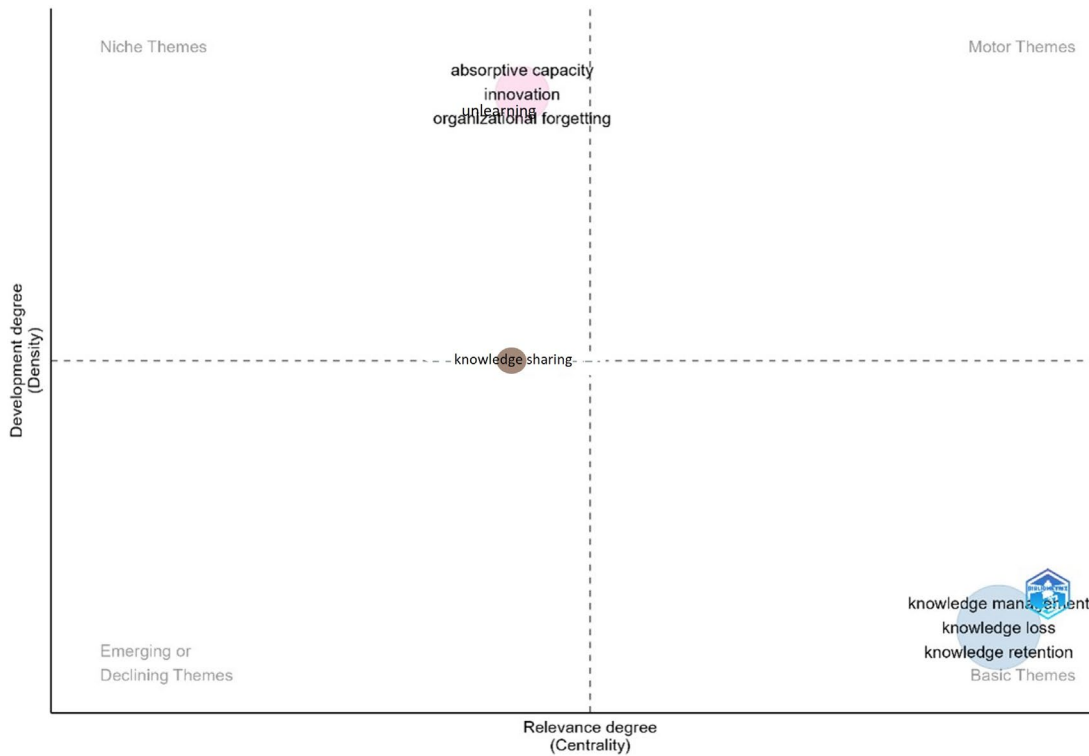


Figure 3: Thematic Map from 2015 to 2018 (Generated by Biblioshiny)

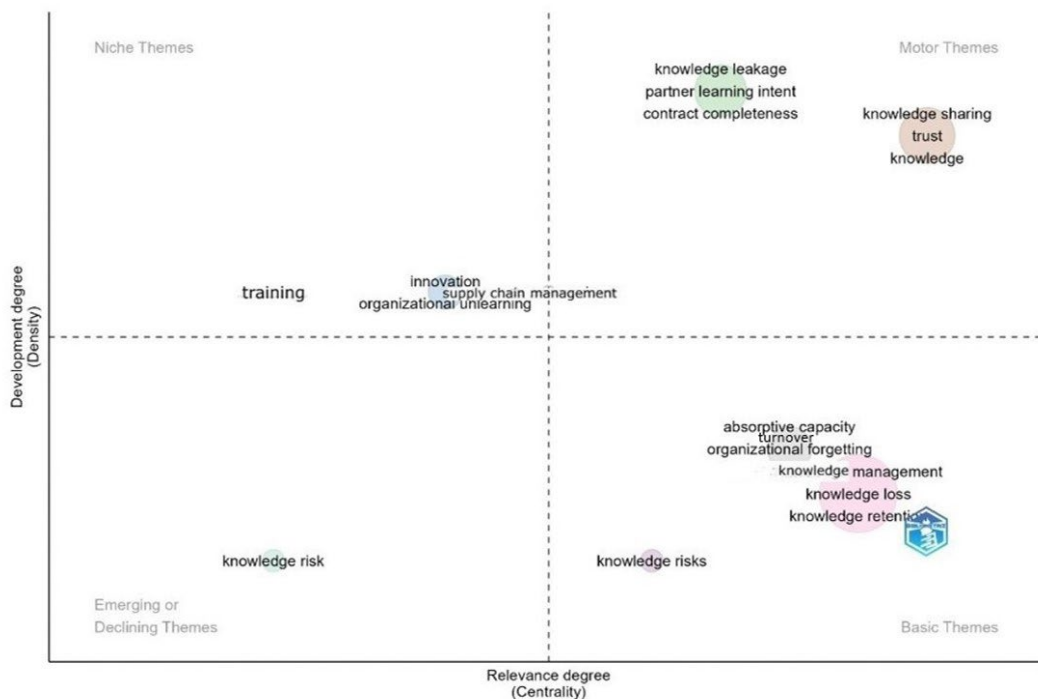


Figure 4: Thematic Map from 2019 to 2023 (generated by Biblioshiny)

3.2.3 Thematic evolution of Author Keywords on AC in OKL Research

As illustrated in Table 1, both components of the topic "AC" (absorptive capacity) have a low stability index (< 0.50), which may be due to the division into "AC" and "innovation" in the third period (2019-2023). The weighted inclusion index of 0.63 relating to "AC" highlights its thematic focus on AC. However, the inclusion index is 0.50, indicating a more robust connection of AC to the innovative environment.

Table 1: Thematic Evolution of Author Keywords on AC in OKL Research

From	To	Words	WII	II	O	SI
AC --2015-2018	innovation --2019-2023	innovation	0.40	0.50	2	0.20
AC --2015-2018	AC --2019-2023	AC; organizational forgetting	0.63	0.33	3	0.17

Note: WII= Weighted Inclusion Index, II=Inclusion Index, O=Occurrences, SI=Stability Index

3.3 RQ3: Average Citations per Year in OKL Research from 2004 to 2023

Figure 5 shows that the average citation frequency of publications fluctuates significantly over time. In 2004, the average citation frequency was above four and substantially decreased. The lowest citation rate was reached in 2007. In contrast, the citation rate increased sharply in 2010 and reached its peak in 2019, with an average of over seven citations. Contrary to our expectations, this trend has been declining since 2020. The low citation rate in 2023 corresponds to the citation rate for the first quarter and can only be assessed for this period.

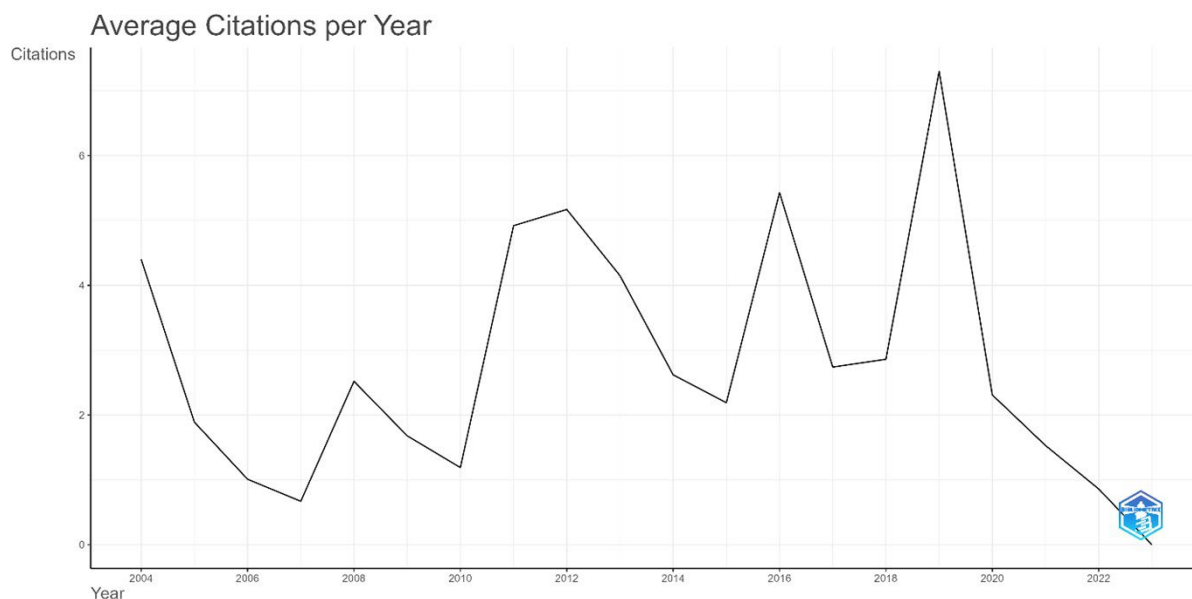


Figure 5: Average Citations per Year in OKL Research from 2004 to 2023 (Generated by Biblioshiny)

3.4 RQ4: Most Influential Publications in OKL Research from 2004 to 2023

Table 2 presents the results of the factorial analysis. Our factorial analysis reveals that Buckley (2004), Norman (2004), and Jiang et al. (2013) are the three most frequently cited publications on OKL. The studies listed in Table 2 all address various aspects of knowledge management and knowledge transfer in organizations. A core theme emerges from OKL in connection with strategic alliances and AC. The studies by Buckley (2004), Norman (2004), and Jiang et al. (2013) investigate OKL and strategic alliances. In Norman's (2004) study, an organization's AC is captured under the term of learning ability. Norman examined the relationship between a partner's learning ability and knowledge protection by the focal firm in high-technology product development alliances. Norman (2014) posited that a higher learning ability of the partner leads to higher knowledge protection of the focal firm. However, this relationship could not be verified. Jiang et al. (2013) found a positive relationship between the focal firm's competence trust and the partner firm's AC in alliance firms.

Buckley (2004) emphasized the importance of a "community of practice" to enhance AC at the group level in multinational enterprises.

Table 2: Most Influential Publications in OKL Research from 2004 to 2023

Paper	Total Citation	Findings
Norman (2004)	152	negative relationship between the learning capability of the partner firm and the knowledge protection in strategic alliances
Jiang et al. (2013)	140	positive relationship between competency trust and AC in strategic alliances
Buckley (2004)	108	positive relationship between the community of practice and AC in multinational enterprises

4. Conclusion

In examining the thematic evolution in the field of OKL research, three periods were identified (2004-2014, 2015-2018, and 2019-2023) based on the annual scientific production of OKL research. In the second period, the development of an organization's AC emerged as a niche topic and evolved into a foundational theme in the third period. The most influential publications in the first period on this topic demonstrate its relevance in minimizing OKL. In Norman's (2004) study, the concept is subsumed under an organization's learning ability, and there is a link to OKL through the topic of organizational forgetting. The context can be seen in an innovative environment within the framework of strategic alliances. The decline in the average citations per year in OKL research suggests that the focus in the field of innovation should concentrate on the relationship between OKL as a focus of organizational forgetting and AC as a learning ability. We predict that this topic will become a motor theme in the coming years, and research should focus on this area.

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