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MANAGEMENT | REVIEW ARTICLE

Knowledge sharing in organization: A systematic review

Asiamah Yeboah^{1*}

Abstract: The main objective of this paper is to bring together scattered literature on knowledge sharing, and analyse them to provide a better understanding of the concept and to suggest emerging directions for future research. The review went through three stages: setting the review protocol, administering the review, and reporting the review. The paper systematically reviewed 110 articles under three research streams: (1) knowledge sharing enablers (2) knowledge sharing processes, and (3) knowledge sharing outcomes. The paper found that little is known about the kind of knowledge that better contributes to develop the competencies required for specific market, there is over-concentration on knowledge sharing enablers than barriers, knowledge sharing process is not linked to the overall firm objective and strategy, and financial outcomes of knowledge sharing has been studied more than nonfinancial outcomes. Based on these findings, organisations have been advised to design knowledge sharing processes in line with their overall business objective, strategy, and resources at their disposal to maximise the benefits of knowledge sharing.

Subjects: ICT; Mass Communication; Finance; Business, Management and Accounting

Keywords: Knowledge sharing; enablers; processes; outcomes; innovation capability; organizational performance

1. Introduction

Knowledge is the crux of, and a crucial element for organizational survival (Islam et al., 2021; Asrar-UL-Hag et al., 2016). In the recent past, knowledge in organizations has been considered as a critical organizational resource (Nickerson & Zenger, 2004; Nonaka & Takeuchi, 1995; R. M. Grant, 1996) and the basis for creating economic value and competitive advantage (Bock et al., 2005; Drucker, 1993; Eisenhardt & Santos, 2002). As a result, knowledge management has been with us since time immemorial (Wiig, 1997), and has become very important in the life of every organization (Asrar-UL-Hag et al., 2016). Organizations therefore concentrate on the value of their knowledge and make it unique to make their products significantly different from competitors (Rafique et al., 2018). Because, the effectiveness and success of any organization heavily depends on the quality and quantity of knowledge at its disposal.

Knowledge management activities include knowledge acquisition, encoding, storage, transfer, application and sharing (Deng & Lu, 2022), and one of the most important purposes of knowledge management is to systematically influence knowledge sharing and application to create value (Kozhakhmet & Nazri, 2017). Therefore, knowledge sharing is a key part of the knowledge

management process (Deng & Lu, 2022) and structures that ensure effective utilization of available knowledge resources to improve performance (Mehmood et al., 2022). It enables firms to improve their strategic, innovative, and marketing abilities (Chatterjee et al., 2022). As a result, developing a sustainable competitive advantage heavily depends on employees' knowledge sharing (Mehmood et al., 2022). Consequently, the competence to share knowledge is crucial for a host of organizational process and performance outcomes (Ahmad & Karim, 2019; Angels et al., 2017) and has attracted a lot of interest from the academic community (Deng & Lu, 2022).

Despite the value of knowledge sharing, critics are of the view that knowledge sharing research concentrates too much on knowledge sharing enablers, such as technology, organizational culture, rewards, and focus little on how to benefit from knowledge sharing (Henttonen & Lehtimäki, 2017). This has led to a surge of interest in knowledge sharing outcomes research (Ahmad & Karim, 2019). However, despite the surge in knowledge sharing research, much of this literature is scattered in numerous areas and directions (Bahoo et al., 2019). Therefore, there is an urgent need to conduct a systematic, in-depth review that summarizes our current knowledge on the subject to appreciate the current state of knowledge. This is imperative because it will allow us to map and assess the existing knowledge and gaps on specific issues, which will further develop the knowledge base. This review explores several research questions: (1) What working definitions of knowledge sharing and types of knowledge are in currency? (2) What are the prime research streams? (3) In what contextual positions (research methodology and underpinning theory) are the research reported? (4) How does the literature synthesize knowledge sharing? (5) What are the most influential views in the literature regarding key journals, articles, citations and years and their publications?

The aim of this paper is to bring together scattered literature on knowledge sharing and analyse them to provide a better understanding of the factors that impact on knowledge sharing and suggest emerging directions for future research. This review is very essential and different from many other reviews because it is the only review that looks at articles in the light of prime research streams, contextual positions, and influential journals at the same time. This review contributes to a coordinated framework for previous research on knowledge sharing and pinpoints emerging theoretical and methodological topics and arguments. Additionally, it will provide an evidence-based body of knowledge about knowledge sharing, which will inform the research community about the current state of knowledge sharing to provide comprehensive guidelines for practitioners and managers to formulate appropriate strategies for managing knowledge. Finally, the review will also propose an outline of the key areas where future research should be directed.

The rest of the paper is organized as follows. The second section deals with the taxonomy of knowledge sharing. Section 3 discusses the methodology adopted for the review. The fourth section covers the analysis of the research streams to provide the results. Section 5 outlines the future research agenda, and the last section (section 6) is the conclusion and implications.

2. Methodology

This paper employed systematic literature review approach, which has been widely utilized in qualitative research (Chauhan et al., 2022). This research approach was utilized because it minimises biases (Kravariti & Johnston, 2020) and ensures replicability (Kravariti et al., 2022). In terms of the actual methodology for the review, the paper followed the Protocol, Search, Appraisal, Synthesis, Analysis, and Reporting (PSALSAR) framework (Mengist et al., 2020). The authors developed this method by adding Protocol and Reporting to the Search, Appraisal, Synthesis, and Analysis (SALSA) framework. The PSALSAR framework was utilized because unlike the other frameworks and methods, it is an explicit, transferable, and reproducible procedure to conduct systematic review. It also enables researchers to appraise both quantitative and qualitative content analysis of the literature review (Mengist et al., 2020). Ideally, this method translates into six steps: Protocol (Setting the scope and determining the coverage and the area the review should cover. This helps to reduce the bias by conducting exhaustive literature searches); Search (Defining

the search. This phase comprises of searching strategy and delivery. The essence of this is to help define required search string and identify the necessary databases to collect the relevant information.; Appraisal (This deals with screening of the selected literature to identify relevant papers for the review. It has two basic steps: selecting articles using inclusion and exclusion criteria, as well as quality assessment (Mengist et al., 2020); Synthesis (This step comprised of both extraction and classification of relevant data from selected papers to derive knowledge and conclusions); Analysis (The analysis phase bordered on the assessment of synthesized data and the extraction of meaningful information and concluding the selected articles); and Reporting (The reporting phase of the review comprised of the narration as well as the presentation of the methods followed and results obtained from the selected literature).

However, the review covered all the elements of the PSALSAR though, it did not rigidly follow the six steps in the framework. Consequently, the review utilized the ground rules introduced by Kitchenham (2004) and Bahoo et al. (2019) which covers all the elements of the framework with reduced steps and different descriptions. Thus, defining the review protocol, conducting the review, and reporting the review; cumulating into the following elements: (a) inclusions and exclusion criteria, (b) search strategy, (c) data source, and (d) sample selection analysis and reporting (Ahmad & Karim, 2019; Bahoo et al., 2019; Johnston et al., 2016)

2.1. Inclusion and exclusion criteria

The selection criteria define what to be included and what to be excluded in this review. The inclusion and exclusion criteria aim at identifying research that are relevant to the research question (Kitchenham, 2004). Deciding the inclusion and exclusion criteria based on journals is critical, and all quality SLRs utilize these criteria (Khan et al., 2021). Thus, this review was confined to scholarly peer-reviewed journals (Chauhan et al., 2022) and characterized by a wide array of empirical context, theoretical perspective, and methods (Meier, 2011). Again, this review deals with knowledge sharing at the individual level therefore, the unit of analysis is the impact of individual-level knowledge sharing (Ahmad & Karim, 2019). As a result of the multidisciplinary nature of knowledge sharing, the review is not limited to any discipline but all disciplines that deal with the subject. Additionally, the review generally excludes books and book chapters (Kravariti & Johnston, 2020). This is because they do not include original research (Ahmad & Karim, 2019).

2.2. Search strategy

Fifteen key words and search terms were used to cover the complete literature on the subject including; knowledge sharing enablers, knowledge sharing processes, knowledge sharing outcomes, barriers to knowledge sharing, impact of knowledge sharing, benefits of knowledge sharing, role of knowledge sharing, effects of knowledge sharing, influence of knowledge sharing, knowledge sharing consequences, knowledge sharing and innovation, knowledge sharing and performance, knowledge sharing and intellectual capital, knowledge sharing and organizational learning, and knowledge sharing implications to search for published papers studying knowledge sharing.

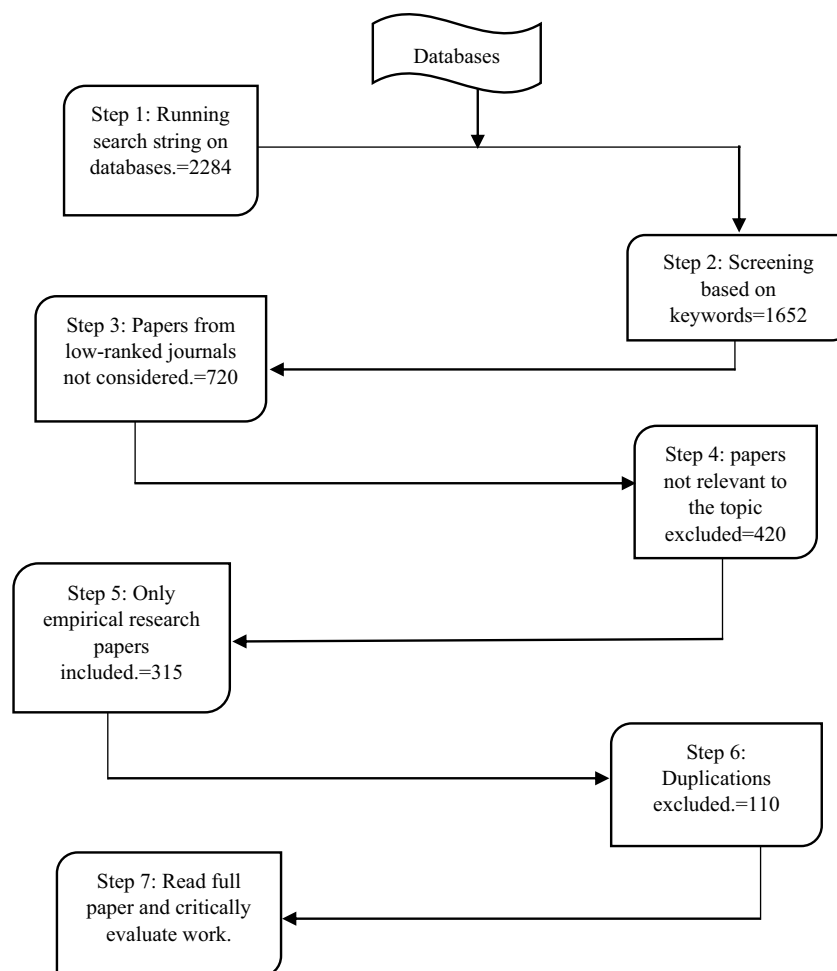
2.3. Data source

The key words were used to conduct a search of scholarly literature from the various electronic databases, such as Scopus, EBSCO and ABI/Inform in order not to miss out on articles (Kravariti et al., 2022; Rajwani & Liedong, 2015). However, this allows using complex search strings and filters, which makes it easy to apply complex selection criteria (Bahoo et al., 2019), regarded as appropriate for systematic literature review (S. N. Wang & Noe, 2010). To make our review more inclusive, other major digital libraries, such as ScienceDirect, Wiley, Springer, Sage, Google Scholar, SpringerLink, and Web of Science, were searched for publications on the subject (Chauhan et al., 2022)

2.4. Sample selection, analysis, and reporting

Having decided the search strategy and the data source, articles were now identified from all journals on the subject matter. This was done in such a way to avoid selection bias by not only considering top-ranked journals at the initial stage (Terjesen et al., 2016), The initial search yielded

Figure 1. Research methodology summary.

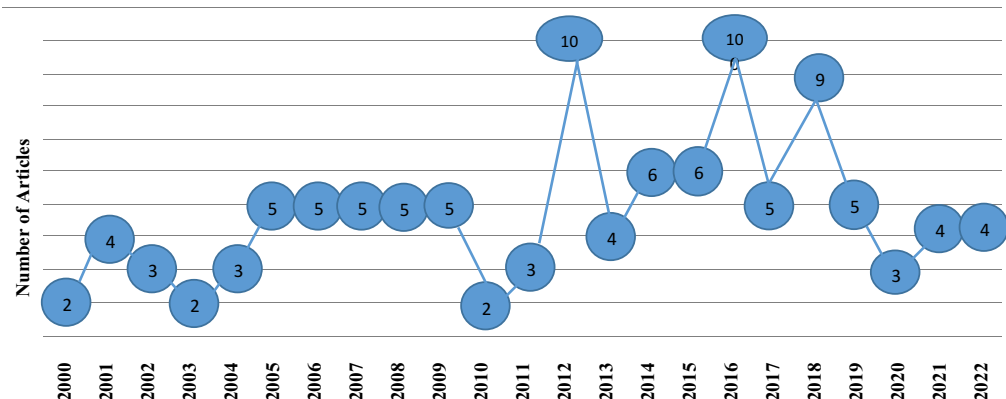


a result of 2284 articles on the topic. Now, the articles were screened based on the key words and this gave 1652 articles. To ensure quality, all articles from non-ranked journals were removed, leaving 720 articles. Further pruning was done by removing all articles that are not directly related or relevant to the topic and the objective and the scope (2000–2022), resulting into 425 articles. Per the inclusion exclusion criteria, further scrutiny was done to select only empirical articles. This gave 315 articles for consideration. The number was pruned substantially by removing repeated papers through reading the title and abstract of each article. I then read the full text and further reduced the articles. Finally, after thorough reading and scrutinizing of the articles, the final sample was composed of 110 for analysis. Again, the analysis and synthesis were done by categorizing the articles in respect of author(s) and year of publication, name of journal, research design and methods (Högberg et al., 2018) and the context, with special emphasis on themes. The figure summarises the methodology stylized in the review. Figure 1 below summarises the research methodology utilized in the paper.

3. Taxonomy of knowledge sharing in organization

Looking at the many definitions given to knowledge sharing, researchers and practitioners have not agreed on a common meaning of the concept thereby, leaving a gap not only in the meaning but also the kind of knowledge that must be shared.

Figure 2. Number of articles published yearly.



3.1. Definitions of knowledge sharing

Knowledge sharing is regarded as a social interaction in which employees exchange their experiences, skills, and knowledge across the firm (Y. Lee et al., 2021). Knowledge sharing is “a human behaviour, which apprehends activities such as exchanging explicit and/or implicit experiences, embedding ideas and skills that facilitate knowledge for innovation at the workplace” (Kumar & Che Rose, 2012). Knowledge sharing is employee-to-employee learning procedure to assist one another to enhance their potential, solve problems and boost work performance (Nguyen et al., 2021). Knowledge sharing deals with the process of readily making available the relevant knowledge to coworkers in the organisation (S. -W. Lin & Lo, 2015; S. B. Grant, 2016; Z. Wang et al., 2014; Zhang & Jiang, 2015). It is a crucial mechanism through which organisational members commit to knowledge acquisition, innovation, and eventually enhancing competitiveness (Marouf & Khalil, 2015). De Ridder and van den Hooff (2004) posit that knowledge sharing is a process where individuals commonly exchange their implicit and explicit knowledge to create new knowledge. Knowledge sharing is defined as the exchange of task-related information, advice, and expertise to help others and to collaborate with others to carry out daily tasks, solve problems and develop new ideas (Ahmad, 2017). Additionally, Ortiz et al. (2017) state that knowledge sharing occurs when individuals actively share their professional knowledge or experience with others to help them learn new ideas or thoughts. Knowledge sharing is a sustained process of transferring experiences and organisational knowledge to business processes through communication channels among individuals, groups, and organisations (McAdam et al., 2012; O. O. Oyemomi, 2017; Sedighi et al., 2016).

Synthesizing the literature, this review, adopted the definition provided by Nguyen et al. (2021) which states that “knowledge sharing is employee-to-employee learning procedure to assist one another to enhance their potential, solve problems and boost work performance”. This review therefore posits that knowledge sharing has three main characteristics: First, knowledge sharing involves a process or procedure for sharing. Implying that knowledge sharing is not an event and relies on communication medium (Sedighi et al., 2016). Second, the individuals share their expertise/experiences with others. This means that knowledge sharing deals with the willingness to donate accumulated knowledge and experience with the willingness to receive (H. F. Lin, 2007). Third, knowledge sharing is geared towards finding solution to organizational problems or generating new ideas. Thus, knowledge sharing leads to innovation and sustained performance (Islam et al., 2021a; 2021c)

3.2. Types of knowledge

Different types of knowledge essential to value creation within organizations have been identified and documented in the literature. Spender and Grant (1996) identifies four types of knowledge: conscious knowledge, automatic knowledge, objectified knowledge, and collective knowledge. According to Spender, conscious knowledge is individual’s expertise that is codified and readily

made available to others; automatic knowledge is implicit and remains with the individual; objectified knowledge is knowledge that has been codified and captured at the social level; and collective knowledge is normally implicit and embedded in social norms.

Polanyi (1966) categorizes knowledge into tacit and explicit. Tacit knowledge is the kind of unwritten or unspoken knowledge held by individuals based on their experiences, insights, and intuition. This knowledge is difficult to transmit in formal language because it often resides with the individual, whereas explicit knowledge is codified and transferrable in formal language.

De Jong and Ferguson-Hessler (1996) identified four types of knowledge namely: situational knowledge (knowledge about situations as they appear in a particular domain); conceptual knowledge (static knowledge about facts, concepts, and principles applicable within a particular domain); procedural knowledge (has to do with actions and manipulations that are valid within a domain); and strategic knowledge (knowledge that enables problem-solvers to organise problem solving process and identify which process to go through to solve a particular problem).

Additionally, knowledge has been classified as information-based; experienced-based; and personal knowledge (Løwendahl et al., 2001). According to the authors, the information-based knowledge is unbiased, and linked to the diary undertakings or functions of the individual; experienced-based knowledge is implicit and biased. It is based on the individual's perspective and understanding; and personal knowledge relates to the individual's capability and genius, predilection, and imaginative capabilities.

Knowledge as a factor of production and knowledge used by intellectuals (Drucker, 2008). The author suggested that knowledge as a factor of production is action-based and used by knowledge workers in their practice whilst knowledge used by intellectuals is theoretical and used in books and scientific journals.

Christensen (2007) identified four types of knowledge including professional knowledge, coordinating knowledge, object-based knowledge, and know-who. Professional knowledge is the kind of knowledge that allows the operation support to perform their functions. Coordinating knowledge is explicit on rules, standards, and routines on how specific tasks are performed. In the author's view, certain objects such as a machine is used to perform a specific job in the production line of the organization, and the knowledge related to this is object-based knowledge. Know-who is the knowledge about the source of the relevant knowledge required for solving organizational problem at a particular time.

A critical analysis of the types of knowledge identified in literature are many yet, none of them is linked to a particular industry or context. Thus, little is known about which kinds of knowledge better contribute to develop the competencies required to enter specific market (Magni et al., 2022). Figure 2 below shows the number of articles published yearly included in the review period

4. Analysis of results

4.1. Influential aspects of the literature on knowledge sharing in organization

The analysis comprises of the journals, number of articles, citations, methods used in the studies, theoretical underpinnings, the study settings, and the prime streams (Alon et al., 2018; Paul & Benito, 2018). Table 1 talks about the research questions and their rationale.

4.2. Key journals

As indicated in section 3.4, the 110 articles in the sample were selected from 65 journals with 145, 437 total global citations. Table 2 lists all the 65 journals in this review. The spread of the number of journals is a manifestation of the multi-discipline nature of knowledge sharing.

Table 1. Research questions in this review and their rationale

RESEARCH QUESTION	RATIONALE
RQ1: What working definitions of knowledge sharing and types of knowledge are in currency?	To get a better understanding of knowledge sharing and different types of knowledge reported in literature and to determine the knowledge that ought to be shared
RQ2: What are the prime research streams?	To identify the major issues or areas and trends of knowledge sharing reported. So, as to get a better understanding of the current state of the topic and to identify gaps
RQ3: In what contextual positions (research methodology, underpinning theories, and settings) are the research reported?	To show the methodology and theories researchers used to study and report the findings of knowledge sharing. This will enable us to find out whether these settings are enough for studying the topic or not.
RQ4: How does the literature synthesize knowledge sharing?	To ascertain how the various studies on knowledge sharing have been integrated. This will enable us to get a coherent view and understanding of the topic
RQ5: What are the most influential views in the literature regarding key journals, articles, citations and years and their publication	To determine the leading and the most influential journal in the field, in terms of citations and number of articles published. This will also help in determining whether research on knowledge sharing is progressing or retrogressing and find out why? And what can be done.

Table 2. Number of articles published yearly

Year	Number of Articles
2000	2
2001	4
2002	3
2003	2
2004	3
2005	5
2006	5
2007	5
2008	5
2009	5
2010	2
2011	3
2012	10
2013	4
2014	6
2015	6
2016	10
2017	5
2018	9
2019	5
2020	3
2021	4
2022	4
Total	110

4.3. Global sources identified by the literature

Table 3 shows the number of the selected articles published per year within the review period from 2000 to 2022. It is worth noting that the breakdown of global sources indicates the sharp rise of activity in this topic since 2005. Table 3 reveals that the number of articles increased from 2005 to 2009 but there was a drop in 2010 and 2011. However, from 2012 the number of articles published per year has been fluctuating. One possible reason for this could be attributed to the gaining of prominence by the special journal dedicated to knowledge management, *Journal of Knowledge Management*. Again, Table 3 reveals that 55 articles representing 50% of the total publications were published during the last 7 years, which is an indication of a rising interest and attention on knowledge sharing from researchers and practitioners.

4.4. Key methods and theoretical underpinnings

Researchers mostly used quantitative, qualitative, and mixed methods to explore knowledge management or knowledge sharing in organization (see Table 4). Fifty-five key articles are presented in Table 4 because of space, the summary of the remaining 55 articles is available upon request (Bahoo et al., 2019). Out of 110 articles, 73 (66.36%) used quantitative method through different analysis (regression or multiple regression, principal component analysis, and structural equation modeling); 33 articles (30%) were either qualitative, conceptual or review and utilized content analysis, comparative analysis, systematic literature review, and narrative review; and mixed method approach was used in four articles (3.636%).

As illustrated by Table 4 again, several theoretical frameworks have been utilized in the literature. However, only 38 papers (34.54%) applied some form of management theory in their studies (e.g., theory of reasoned action-TRA, knowledge-based view, social cognitive theory, resource-based view theory, organizational theory, etc.). Among the theories mentioned, it is not surprising to see the theory of reasoned action (TRA) dominating because knowledge sharing is an action that requires critical reflection. TRA concerns the influence of personal beliefs and attitudes, as well as other factors specifically related to human and social exchange processes, which provide a better explanation to human behaviors (Bock et al., 2005; H. F. Lin, 2007).

4.5. Prime research streams

A careful examination and analysis of the 110 articles published in the review period reveals three distinctly but interrelated research streams in the literature: (1) knowledge sharing enablers, (2) knowledge sharing processes, and (3) knowledge sharing outcomes.

4.5.1. Enablers and barriers to knowledge sharing

Enablers are “the mechanisms for fostering individual and organisational learning and facilitate employee knowledge sharing (H. F. Lin, 2007) whilst barriers are the obstacles to knowledge sharing (Maitlo et al., 2019). Employees are motivated to share their expertise for different reasons: mutual benefit, trust, reward, and many others (Hau et al., 2013; Zhang & Jiang, 2015; Xue et al., 2011). There are different reasons why people are reluctant to share knowledge. For example, Szulanski (1996) pinpointed the absence of motivation on the part of the knowledge source as a major hindrance to knowledge sharing. Lack of awareness of knowledge sharing benefits, lack of social network, gender difference, status inequality, difference in educational level, have been identified as individual barriers to knowledge sharing by researchers (Khalil & Shea, 2012; Ling et al., 2009; Riege, 2005). Tamjidyamcholo et al. (2014) assert that KS barriers are more severe in larger online retail organisations than in small- and medium-sized enterprises. This review has observed that knowledge sharing enablers have been observed broadly under individual or personal factors, organizational factors, and information communication technology (ICT) factors (e.g., Bock et al., 2005; H. F. Lin, 2007; Podrug et al., 2017; Yesil, 2014)

4.5.1.1. Individual or personal factors. The review identified mutual trust and reciprocity as the most essential factors that have been mostly studied. Zhang and Jiang (2015) concluded that

Table 3. Journals, number of articles, global citations and the authors

No.	Journals	Number of articles	Global citation	References
1	Human Relations	1	424	Løwendahl et al. (2001)
2	Information Development	1	23	Boateng and Agyemang (2016)
3	Management Decision	4	782	Truan (2019), H. F. Lin and Lee (2006), Z. Wang et al. (2014); Islam et al. (2020)
4	Journal of Knowledge Management	19	7094	De Ridder and van den Hooff (2004), Cavaliere and Lombardi (2015), Paroutis and Al Saleh (2009), Titi Amayah (2013), J. Yang (2007), Riege (2005), Fullwood and Rowley (2017), Sveiby and Simons (2002), Zhang and Jiang (2015), Anand et al. (2019), McAdam et al. (2012), Sedighi et al. (2016), Christensen (2007), Rafique et al. (2018), Lilleore and Holme Hansen (2011), Miao et al. (2011), Alvesson and Karreman (2001); Nguyen et al. (2021); Y. Lee et al. (2021)
5	The International Journal of Human Resource Management	1	1335	Á. Cabrera et al. (2006)
6	Computers in Human Behaviour	3	712	M. -J. -J. Lin et al. (2009), Ortiz et al. (2017), Navimipour and Charband (2016)
7	International Marketing Review	1	29	Chatterjee et al. (2022)
8	Advances in Developing Human Resources	1	571	Ardichvili (2008)
9	Information and Management	2	1559	C. Lin et al. (2012), J. -N. Lee (2001)
10	Journal of Business Research	4	635	Santos et al. (2014), O. Oyemomi et al. (2019), O. O. Oyemomi (2017); Singh et al. (2021)

(Continued)

Table 3. (Continued)

No.	Journals	Number of articles	Global citation	References
11	Asia Pacific Journal of Management	1	332	Q. Huang et al. (2008), Alon et al. (2018)
12	Procedia Economics and Finance	2	112	Qammach (2016), Trivellas et al. (2015)
13	Information Technology and People	1	3	Maitlo et al. (2019),
14	Strategic Management Journal	4	35471	Szulanski (1996), R. M. Grant (1996), Zhou and Li (2012), Tsoukas (1996)
15	International Journal of Knowledge Management	4	124	Khalil and Shea (2012), Yeşil and Hırlak (2013), Shanshan (2014), Marouf and Khalil (2015)
16	Journal of Workplace Learning	3	280	Ling et al. (2009), Ahmad and Karim (2019), Hussein et al. (2016)
17	Computers and Security	1	102	Tamjidyamcholo et al. (2014)
18	Journal of Information Science	2	1533	H. Lin and Svetlik (2007), Z. Wang and Wang (2012)
19	Industrial Management and Data Systems	1	444	Yeh et al. (2006)
20	MIS Quarterly	2	10, 511	Bock et al. (2005), Wasko and Faraj (2005),
21	Information Resources Management Journal	1	344	Taylor and Wright (2004)
22	International Journal of Innovation Management	2	46	Yeşil and Hırlak (2013), Thomas and Obal (2018)
23	Technology Analysis and Strategic Management	2	1629	Roberts (2000), Deng and Lu (2022)
24	Human Resource Management	1	675	Gagné (2009)
25	Human Resource Management Review	1	2663	S. N. Wang and Noe (2010)
26	International Journal of Manpower	2	1723	H. Lin and Svetlik (2007), Podrug et al. (2017)
27	International Journal of Business and Social Science	1	25	Vajjhala and Vucetic (2013)

(Continued)

No.	Journals	Number of articles	Global citation	References
28	Technological Forecasting and Social Change	1	108	H. L. Yang and Wu (2008)
29	European Journal of Innovation Management	1	6	Deng and Lu (2022), Kmiecik, (2021)
30	Organization Studies	1	1772	A. Cabrera and Cabrera (2002)
31	Public Administration Review	1	770	Kim and Lee (2006)
32	Journal of Leadership and Organizational Studies	1	2071	Bartol and Srivastava (2002)
33	Organization Science	2	26059	Nonaka (1994), Tsoukas (2009)
34	Industrial and Corporate Change	1	681	Nonaka and Toyama (2005)
35	Communication Research	1	642	De Vries et al. (2006)
36	Expert Systems with Application	3	2459	Hsu (2008), Z. Wang and Wang (2012), Wiig (1997)
37	Decision Sciences	1	228	Hsu and Sabherwal (2012)
37	Information Processing and Management	1	71	Foley and Smeaton (2010)
39	Computers, Environment and Urban Systems	1	18	Jelokhani-Niaraki, 2018;
40	Service Business	1	18	Manca et al., 2018,
41	Academy of Management Journal	1	352	Gardner et al. (2012)
42	Journal of Business and Industrial Marketing	1	32	Z. Yang et al. (2018)
43	Higher Education Academy	1	147	Caruana and Spurling (2007)
44	International Journal of Management Reviews	4	1739	Thorpe et al. (2005), Røvik (2016), Sousa et al. (2008), Nielsen and Marrone (2018)
45	Journal of World Business	3	256	Rajwani and Liedong (2015), Kostova et al. (2016) Angels et al. (2017)
46	Journal of Management	1	335	Terjesen et al. (2016)

(Continued)

Table 3. (Continued)

No.	Journals	Number of articles	Global citation	References
47	VINE Journal of Information and Knowledge Management Systems	2	54	Goswami and Agrawal (2018), Muqadas et al. (2017)
48	California Management Review	1	7547	Nonaka and Konno (1998)
49	The Leadership Quarterly	1	65	Y. L. Bavik et al. (2018)
50	Journal of Applied Psychology	1	108	X. Huang et al. (2014)
51	Technovation	1	310	Ritala et al. (2015)
52	Human Resource Development Review	1	1860	Ipe (2003)
53	Cogent Business and Management	1	145	Asrar-Ul-Hag et al. (2016)
54	International Journal of Information Management	1	197	Liu and Philips (2011)
55	Sage Open	1	74	Son et al. (2020)
56	International Business Review	1	7	Bahoo et al. (2019)
57	Academy of Management Review	1	21093	Nahapiet and Ghoshal (1998)
58	Academy of Management Perspective	1	2900	De Long and Fahey, (2000)
59	Journal of Hospitality and Tourism Management	1	166	Swanson et al. (2020)
60	International Marketing Review	1	62	Magni et al. (2022)
61	Journal of Intellectual Capital	1	1478	Sveiby (2001)
62	Electronic Journal of Knowledge Management	1	565	(2003)
63	Cross Cultural Management: An International Journal	1	119	Kumar and Che Rose (2012)
64	Journal of Chinese Economic and Foreign Trade Studies.	1	23	Han and Chen (2018)
65	Personnel Review	1	357	Mehmood et al. (2022)

Table 4. Contextual environment of articles						
Number	Article/Purpose	Method	Theory	Setting	Findings	References
1	To present comprehensive framework for the analysis of value creation and knowledge development	Interviews and content analysis	Social cognitive theory and pedagogy	Professional service firms	Proposed VCPs of PSFs Framework	Løwendahl et al. (2001)
2	To examine factors influencing knowledge sharing in public sector institutions	Qualitative	-	Public sector institutions/District Assemblies	Mutual trust, respect and care, organizational success, experience and educational level influence knowledge sharing	Boateng and Agyemang (2016)
3	To examine the relationship among knowledge sharing antecedents and human resources localization	Quantitative/SEM	-	Manufacturing/joint venture companies	Flexibility culture nurture ethics of care and positively impact on localization of intellectual capital	Trong Tuan (2012)
4	To examine how socio-technical factors affect intention to encourage knowledge sharing	Quantitative/CFA		Large firms	IT support did not significantly affect innovation characteristics of knowledge sharing	H. F. Lin and Lee (2006)
5	To investigate the impact of knowledge sharing on firm performance and mediating role of intellectual capital	Quantitative/SEM	Knowledge-Based View (KBV)	Technology firms	Tacit knowledge sharing significantly contribute to human, structural and relational capital while explicit knowledge sharing only has a significant influence on human and structural capital	Z. Wang et al. (2014)

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Table 4. (Continued)

Number	Article/Purpose	Method	Theory	Setting	Findings	References
6	Determining factors that promote or impede knowledge sharing	Quantitative/cases		Large firms	Commitment the organization positively influences knowledge donating, and in turn positively computer mediated communication	De Ridder and van den Hooff (2004)
7	To investigate the relationship between knowledge sharing processes and enablers to understand the effect of organizational, individual and technological factors	Quantitative/ Multivariate Regression	Theory of Reasoned Action (TRA)	Manufacturing companies	Individual, organizational and technological factors matter to knowledge sharing	(Cavaliere and Lombardi (2015)
8	To investigate the key determinants of knowledge sharing and collaboration using Web 2.0 technologies	Qualitative/grounded approach		Large multinational firm	Four key determinants of knowledge sharing using Web 2.0: history, outcome, management support and trust	Paroutis and Al Saleh (2009)
9	To investigate the factors that affect knowledge sharing in public sector organization	Quantitative/multiple regression		Public sector organization	Community-related consideration, normative considerations and personal benefits found to motivators to the variance in knowledge sharing	Titi Amayah (2013)
10	Investigate the extent to which knowledge sharing and organizational learning affect organizational effectiveness	Quantitative		International hostels	Knowledge sharing facilitate transformation of collective knowledge and advancement of organizational learning	J. Yang (2007)

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Table 4. (Continued)

Number	Article/Purpose	Method	Theory	Setting	Findings	References
11	To provide a detailed review of current KM and related literature to offer a structured starting point for managers	Literature review/ content analysis		General	Provided a list of knowledge sharing barriers	Riege (2005)
12	To construct and investigate the relationship between knowledge sharing factors, attitude and the intention to share of UK academics	Quantitative		Higher education environment	Individual beliefs among academics were more influential on their knowledge sharing, and leadership was the most influential factor within the overall organizational culture	Fullwood and Rowley (2017)
13	To investigate the major factors influencing effectiveness of knowledge sharing	Quantitative	Professional Plateau	Public and private sector organizations	Collaborative climate tends to improve with age, educational level and managerial role and is better in private than public sector	Sveiby and Simons (2002)
14	To examine knowledge sharing phenomena from the perspective of recipient characteristics	Quantitative/ experimental study		Large firms	Recipient characteristics play different roles in different situations in triggering knowledge sharers' motivation to share	Zhang and Jiang (2015)
15	To investigate the role of humility in the KS process in dyadic activity	Conceptual/exploratory/ systematic literature review		General	Several individual propensities that help predict humility towards sharing knowledge from seeker and provider perspectives were identified.	Anand et al. (2019)

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Number	Article/Purpose	Method	Theory	Setting	Findings	References
16	To explore the role of knowledge sharing at multiple organizational levels in Chinese service-based organizations	Qualitative/interviews		Service-based organizations	Cultural interpretations of knowledge sharing practices can help in explaining Chinese conceptions and applications of KS at multiple organizational levels	2012
17	To explore participants' perceived benefits and costs that influence the quantity and quality voluntary participation in knowledge networks in resources-constrained economy	Survey/conceptual model	Social cognitive theory (SCT)/Self-determine theory (SDT)	Business context	Reputation, reciprocity, and altruism are perceived to benefit quantity of participation while reciprocity, altruism and knowledge self-efficacy are perceived benefit to quality of participation	Sedighi et al. (2016)
18	To explore how companies can become better at knowing what they know, and share what they know	Theoretical/empirical	Organization theory	Production facility	The paper identifies four types of knowledge that are pivotal to share	Christensen (2007)
19	Investigates some of the psychological, organizational and system-related variables that may determine individual engagement in intra-organization knowledge sharing	Quantitative/survey		Large multinational companies	Self-efficacy, openness to experience, perceived support from colleagues and supervisors are major motivation in knowledge sharing	A. Cabrera et al. (2006)
20	Investigate and explain the relationship between contextual factors, personal perceptions, knowledge sharing behaviour and community loyalty	Quantitative/SEM		Professional virtual communities (PVCs)	Trust significantly influences KS. Self-efficacy, perceived relative advantage and compatibility positively affect KS behaviour	M. -J. -J. Lin et al. (2009)

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Table 4. (Continued)

Number	Article/Purpose	Method	Theory	Setting	Findings	References
21	Explore how information security awareness (ISA), general information security awareness (GISA) and information security policy awareness (ISAPA) affect KS behaviour	Quantitative/survey/SEM		Large firms	GISA and ISPA have significant positive effect on threat appraisal. Whereas ISPA have significant positive effect on GISA does not.	Ortiz et al. (2017)
22	To provide the comprehensive and detailed review of KS mechanism in project teams and to provide direction for future research	Systematic literature review (SLR)		Academics/research/Practising professionals		Navimipour and Charband (2016)
23	To enhance our collective understanding of the factors affecting KS behaviours of knowledge workers in organizational context	Quantitative	Theory of planned behaviour, motivation theory, social exchange theory, economic exchange theory and self-determination theory	Large companies	Theoretical model validated in a single empirical study. 60% of the variance in the behavioural intention to share knowledge and 41% variance in actual KS behaviour	Y. Wu et al. (2012)
24	Review to propose a framework for understanding motivators, barriers and enablers for successful online KS and learning	Literature review		General	Framework for motivational factors, enablers and barriers proposed	Ardichvili (2008)
25	To explore the evolution of barriers to knowledge flow when the level of KM maturity is changing	Mixed method	Cultural historical activity theory (CHAT)/knowledge navigator model (KNM)	Large firms	Barriers to knowledge flow were inherently different at different KM maturity levels	C. Lin et al. (2012),

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Number	Article/Purpose	Method	Theory	Setting	Findings	References
26	Examines the relationship between knowledge sharing and outsourcing success	Quantitative		Public sector organizations	All hypothesized paths in the model are significant	J. -N. Lee (2001)
27	Provides insights into how learning and knowledge are exchanged multinationally between customer firms and their outsourced suppliers	Quantitative		pharmaceutical industry	Multinational firms operate more effectively and interact by sharing knowledge with outsourced firms which reflect the customers' structure and fit;	Gupta and Polonsky (2014),
28	To analyze the organizational culture that supports knowledge sharing activities for organizational performance, innovation and strategy.	Quantitative	SECI model	Business firms	The role of organizational culture with an innovative strategy in knowledge sharing, which directly contributes to the improvement of organizational performance.	O. Oyemomi et al. (2019),
29	Investigate the relationships between knowledge sharing, business process, and organizational performance through the identification of key organizational operation factors.	Qualitative comparative analysis	Set-theoretic comparative analysis approach	Large firms	Organizational operation factors in knowledge sharing and business-knowledge process, directly contribute organizational performance.	O. O. Oyemomi (2017)
30	Develop a theoretical model to explain how personal factors would affect people's intention to share their knowledge.	Quantitative	Theory of Reasoned Action and Social Exchange Theory	Variety of different organizations.	Face and guanxi orientation both exert a significant effect on the intention to share knowledge	Q. Huang et al. (2008),

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Number	Article/Purpose	Method	Theory	Setting	Findings	References
31	Reviews the scholarly research on the internationalization of Chinese enterprises (ICE) through bibliometric citation analysis	Data visualization technique and analysis	-	General review	The results reveal four research streams in the context of ICE	Alon et al. (2018)
32	Examine the relationship between the IT capability and IT Support to predict Innovation. performance via the mediating role of knowledge sharing	Quantitative/SEM and factor analysis		Mobile communication companies	Positive and statistically significant association between IT capability and IT Support on Innovation performance.	Qammach (2016),
33	Outlines the critical role of employees' general competencies in the link between knowledge sharing culture and job outcomes	Quantitative/Principal Component Analysis (PCA)		Accounting services/firms	General competencies exert a mediating effect on the relationship between knowledge sharing culture and job satisfaction.	Trivellas et al. (2015)
34	Investigating barriers to effective KS in preventing identity theft in online retail organisations.	Qualitative case study		Online retail organisations	The major barriers to effective KS for preventing identity theft in online retail organisations are: lack of leadership support; lack of employee willingness to share knowledge; lack of employee awareness of KS	Maitlo et al. (2019)

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Table 4. (Continued)

Number	Article/Purpose	Method	Theory	Setting	Findings	References
35	Investigate how best practices internally is critical to a firm's ability to build competitive advantage through the appropriation of rents from scarce internal knowledge	Quantitative/Canonical correlation analysis		Variety of companies (8)	Barriers to internal knowledge transfer to be knowledge-related factors such as the recipient's lack of absorptive capacity, etc.	Szulanski (1996)
36	Exploring the coordination mechanisms through which firms integrate the specialist knowledge of their members.	Conceptual	KBV Theory	General	Comprehensive knowledge-based theory of the firm will embrace knowledge creation and application	R. M. Grant (1996)
37	Examines how existing knowledge base interacts with knowledge integration mechanisms to affect radical innovation	Quantitative	KBV Theory	High technologies companies	A firm with a broad knowledge base is more likely to achieve radical innovation in the presence of internal knowledge sharing rather than market knowledge acquisition.	Zhou and Li (2012)
38	Examine the views of executives working in an American based multinational company (MNC) about knowledge sharing, barriers to knowledge sharing, and strategies to promote knowledge sharing	Case study	-	Large MNC	The most effective method to promote knowledge sharing was to link it with rewards and performance appraisal.	Ling et al. (2009)

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Number	Article/Purpose	Method	Theory	Setting	Findings	References
39	Summarize the findings from past research on knowledge sharing outcomes in organizations and to suggest promising directions for future research	Systematic literature review	-	General	Most commonly studied factors affected by knowledge sharing are creativity, learning, and performance.	Ahmad and Karim (2019)
40	Investigate the effects of knowledge sharing and its capability to reduce risk in information security communities.	Mixed method	Triandis theory,	Online community (LinkedIn)	There is a positive and strong relationship between knowledge sharing behavior and information security risk reduction expectation.	Tamjidyamcholo et al. (2014)
41	Examine the influence of individual factors, organizational factors, and technology factors in knowledge sharing processes and their effect on firm innovation capability.	Quantitative/SEM		Large organizations	Two individual factors (enjoyment in helping others and knowledge self-efficacy) and one of the organizational factors (top management support) significantly influence knowledge-sharing processes	H. F. Lin (2007)
42	Analyze the crucial role that enablers play in carrying out knowledge management within the enterprise.	Qualitative/case study		Advance semiconductor Engineering firm/ Technology firm	On the part of strategy and leadership; obtaining top managements' support is most important;	Yeh et al. (2006)
43	To develop an integrative understanding of the factors supporting or inhibiting individuals' knowledge-sharing intentions.	Quantitative	Theory of reasoned action (TRA)	Not specific	Anticipated extrinsic rewards exert a negative effect on individuals' knowledge-sharing attitudes.	Bock et al. (2005),

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Number	Article/Purpose	Method	Theory	Setting	Findings	References
44	Examine how individual motivations and social capital influence knowledge contribution in electronic networks	Quantitative	Theories of collective action	Electronic network supporting professional legal association.	People contribute their knowledge when they perceive that it enhances their professional reputations	Wasko and Faraj (2005),
45	Investigates knowledge sharing to identify factors that influence the readiness of an organization to share knowledge effectively.	Quantitative/factor analysis/regression modeling		Public sector organization	Innovative culture, a capacity to learn from failure and good information quality are strong predictors of successful knowledge sharing.	Taylor and Wright (2004)
46	Investigate the effect of knowledge sharing enablers on innovation capability along with the relationship between innovation capability and innovation performance.	Quantitative/SEM/PLS	-	Textile sector	Some of the components of knowledge sharing enablers have positive effect on the innovation capability, while others have not.	Yeşil and Hırlak, (2013)
47	Examines how in-depth and complex the knowledge sharing should be between producers and suppliers, given varying environmental conditions.	Quantitative		Project managers	Market turbulence and technology turbulence influence technical exchanges, but in different manners.	Thomas and Obal (2018)
48	Explores and critically reviews the ability of Information and Communication Technologies (ICTs) to improve the transferability of knowledge.	Conceptual/Review		General	Technologies on the production process are unevenly distributed due to their inability to replace or significantly enhance certain forms of human interaction.	Roberts (2000)

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Number	Article/Purpose	Method	Theory	Setting	Findings	References
49	Proposes a process model of knowledge-sharing motivation based on the combination of two prominent theories of motivation	Conceptual	Theory of planned behavior (TPB) and self-determination theory (SDT),	General	Proposing that satisfying three psychological needs is the key to promoting autonomous motivation,	Gagné (2009)
50	Reviews qualitative and quantitative studies of individual-level knowledge sharing	Narrative reviews	–	Qualitative and Quantitative studies	Identifies five areas of emphasis of knowledge sharing research	Wang & Noe, (2010)
51	Examines the role of both extrinsic and intrinsic motivators in explaining employee knowledge sharing intentions.	Quantitative/SEM	Theory of reasoned action (TRA)	Large firms	Motivational factors such as reciprocal benefits, knowledge self-efficacy, and enjoyment in helping others were significantly associated with employee knowledge sharing attitudes and intentions.	H. F. Lin (2007)
52	Empirically distinguish the influence of the individual factors, organizational and technology factors on knowledge-sharing processes.	Quantitative/SEM		Large ICT firms	enjoyment in helping others, top management, and ICT significantly influence knowledge-sharing processes	Podrug et al., (Podrug et al., 2017)
53	Explore the barrier factors inhibiting knowledge sharing in small- and medium-sized enterprises (SMEs) in transition economies	Qualitative	–	SMEs	Barriers faced by small- and medium-sized firms in transition economies are different from the barriers identified in other developing and developed countries.	Vajihala and Vucetic (2013)

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Number	Article/Purpose	Method	Theory	Setting	Findings	References
54	Proposes a novel agent-based modeling approach to simulate the actions of knowledge sharing between actors in an organization	Quantitative	Agent-based modeling approach ABM)	General/not specified	Rewarding each knowledge-sharing action is more effective than the periodic organizational incentives to encourage actors' knowledge sharing behaviors.	H. L. Yang and Wu (2008)
55	Examines the relationships among three important human resource management-related topics: organisational commitment, knowledge sharing and innovation capability.	Quantitative	-	Public organization	Only affective commitment had a positive effect on knowledge sharing and innovation capability.	Yesil (2014)
56	The purpose of this paper is to extend the scant literature on the effect of abusive supervision on knowledge sharing by examining the roles of Islamic work ethic and learning goal orientation in moderating the effect	Quantitative		Service and manufacturing sector	Abusive supervision has a damaging effect on knowledge sharing in the workplace.	Islam et al. (2020)
57	explore the effects of transformational leadership and knowledge-sharing processes on operational and financial performance in Chinese firms.	Quantitative		Manufacturing and service firms	Knowledge collecting and knowledge donating mediate the correlation between transformational leadership and two specific aspects of organizational performance.	Son et al. (2020)

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Number	Article/Purpose	Method	Theory	Setting	Findings	References
58	Examining leadership from a competency perspective allows scholars to understand different dimensions of leader qualities and capacities	Quantitative	Social capital theory		Both knowledge sharing and employee job performance are found to have a direct effect on employee loyalty.	Swanson et al. (2020)
59	Top Management Knowledge Value, Knowledge Sharing Practices, Open Innovation and Organizational Performance	Quantitative	KBV and RBV		Top management knowledge value and knowledge creating practices influence open innovation, which, in turn, influences organizational performance.	Singh et al. (2021)
60	This study aims to examine the effects of diversity-oriented leadership and strategic internal communication on employees' knowledge-sharing behavior during a crisis, coronavirus (COVID-19) outbreak in particular	Quantitative	Self-determination theory		Transparent internal communication also increases employees' intrinsic needs satisfaction, which in turn fosters their job engagement and knowledge-sharing behavior during the crisis	Y. Lee et al. (2021)
61	Multilevel influences on individual knowledge sharing behaviours.	Quantitative	Social cognitive theory		The results reveal that an individual's absorptive capacity, trust and social interaction significantly impact knowledge-sharing behaviour	Nguyen et al. (2021)

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Number	Article/Purpose	Method	Theory	Setting	Findings	References
62	This study examines the relationship between knowledge-sharing activities of the firm and its innovation capability.	Quantitative	Absorptive capacity theory and dynamic capability view (DCV) theory,		Knowledge-sharing activities across subsidiaries of multinational firms are important for product and process innovation.	Chatterjee et al. (2022)
63	Examine the role networks play in SMEs' readiness for internationalization.	Quantitative	Resource-based view and internationalization theories,	SMEs	Suggests the importance of knowledge sharing in reducing the criticality issues of being a newcomer entering international markets.	Magni et al. (2022)
64	Digital technology driven knowledge sharing for job performance	Quantitative	Social Capital Theory		This study shows that digital technology enhanced coordination and communication have significant impact on knowledge sharing. Furthermore, this study reveals that enhanced decision-making and knowledge sharing can lead to better job performance in organizations.	Deng and Lu (2022)
65	Explore the impact of entrepreneurial leadership on team creativity through team psychological safety and knowledge sharing.	Quantitative	Social learning theory		The results showed the positive influence of entrepreneurial leadership on team creativity.	Mehmood et al. (2022)

knowledge sharing depends on the quality of the relationship between the knowledge seeker and knowledge provider. However, Brcic and Mihelic (2015) argue that organizations can benefit from knowledge sharing only when workers establish a deep connection to better understand the knowledge provider's thoughts. Moreover, there is a social bond between the knowledge seeker and the provider (Anand et al., 2019). Xue et al. (2015) established that trust in the team environment influence knowledge-sharing behavior of individuals, both externally and internally. Even in the multinational corporations where distance and different cultures prevail, mutual trust and reciprocity make knowledge sharing possible (Fong & Mar, 2015). Several studies have confirmed that reciprocal knowledge exchange relationship is beneficial to knowledge contributors and promote knowledge sharing (Bock et al., 2005; Chang & Chuang, 2011; Chiu et al., 2006; Hau et al., 2013; Schultz, 2001).

Another individual factor that has been studied extensively is reward and motivation. Davenport and Prusak (1998) highlighted the importance of reward mechanism to knowledge contributions given that people's time, energy, and knowledge are short in supply. Reputation is one reason that motivate employees to participate in knowledge sharing (Hung et al., 2011) because it helps the individual to obtain and maintain his or her status in the society (Marett & Joshi, 2009) and exposes dysfunctional members in a team (Hung et al., 2011). People participate in knowledge sharing because they believe that sharing knowledge can help them to establish and elevate their reputation (Wasko & Faraj, 2005). Several studies have confirmed a positive relationship between reward and motivation and knowledge sharing (e.g., Hung et al., 2011; Kankanhalli et al., 2005; Wasko & Faraj, 2005).

In addition to mutual trust, mutual reciprocity, reward, and motivation, other individual factors that have been studied and found to have positive effect on knowledge sharing include social ties, self-efficacy, enjoyment in helping others, altruism, courage, active empathy (e.g., H. F. Lin, 2007; H. -L. Yang & Lai, 2010; Podrug et al., 2017; Shanshan, 2014; Vajjhala & Vucetic, 2013; Yesil, 2014; Yeşil & Hırlak, 2013; Chaudhary et al., 2022).

4.5.1.2. Organizational factors. At the organisational level, factors that have been found to have influence on knowledge sharing include leadership, organisational culture, organisational reward systems, and organisational structure (H. F. Lin, 2007; Kim & Lee, 2006; Podrug et al., 2017; Shanshan, 2014). Top management and leadership support are essential for knowledge sharing (H. F. Lin & Lee, 2006;) and have been found to be a motivator to knowledge sharing (Cavaliere & Lombardi, 2015). This is true because empowering leadership significantly affects knowledge behaviours (Xue et al., 2011).

Contemporary research on knowledge sharing has emphasized organizational structure as an important factor that facilitates or impedes the transfer of knowledge in the organization (Asrar-Ul-Hag et al., 2016). O'dell and Grayson (1998) suggest that organizational structure should be designed to promote flexibility as a means of encouraging collaboration and sharing within and across organizational boundaries and stakeholders. Organizational structure that emphasizes centralization, rules and regulations, and control systems may serve as a barrier to the creation and sharing of knowledge (Kim & Lee, 2006). But participatory management practices balance the involvement of managers and subordinates in information-processing, decision-making, or problem-solving (Wagner, 1994).

Real and perceived rewards and penalties for individuals who share or hide knowledge influence the knowledge sharing process (Ipe, 2003). Organizational reward system shapes employee behaviour and ranges from monetary and non-monetary incentives like salaries and bonuses, promotions, and job security (Bartol & Srivastava, 2002; Davenport & Prusak, 1998). Davenport and Prusak (2000) remarked that, knowledge market has buyers and sellers who negotiate to arrive at mutually acceptable price for the goods exchanged whilst R. M. Grant (1996) also posits that knowledge sharing must be adequately compensated for. Therefore, employees are willing to share knowledge when there is adequate compensation.

Saunila (2014) posits that organizational culture that provides encouragement, respect employees' ideas, gives positive feedback is helpful and facilitates creative skills and risk-taking. A strong positive organisational culture is critical to promoting learning, development and the sharing of skills, resources, and knowledge (Bollinger & Smith, 2001). Von Krogh (1998) argues that trust and openness in organizational culture promote active knowledge sharing among employees. Kim and Lee (2006) postulated that there are three components of organisational culture that are related to effective knowledge sharing: clear organisational vision and goals, (Gold et al., 2001; Kanter, 2003), trust (Cohen & Prusak, 2001; O'dell & Grayson, 1998; Von Krogh, 1998), and social networks (Leonard & Sensiper, 1998; Tsai, 2002).

4.5.1.3. Information Communication and Technology (ICT). Although, it is individuals rather than organizations who share knowledge, the use of data at the organizational level has been a common feature of most studies on knowledge sharing (Andersson et al., 2016). Okhuysen and Eisenhardt (2002) posit that knowledge is generally examined on an individual basis, however, it can be acquired, stored, and used at the organisational level through ICT (Davenport & Prusak, 1998). ICT increases knowledge transfer by extending an individual's reach beyond formal lines of communication (Alavi & Leidner, 2001). The use of ICT facilitates collaborative work and enables knowledge sharing (Yeşil & Hırlak, 2013). Hendriks (1999) identified four roles of ICT in relation to knowledge sharing: Overcoming constraints; increasing range and speed of information access; improving task performance; and using technology to identify the elements. More recently, with the advancement in ICT, more sophisticated IT tools like social media (WhatsApp, Twitter, LinkedIn), web 2.0 technologies like blogs and wikis have been highlighted in knowledge sharing (e.g., Hag and Anwar, 2019; Rathi et al., 2014).

Whilst the review identified knowledge sharing enablers and barriers, extant literature has overconcentrated on individual and organisational factors that promote knowledge sharing (Jiang et al., 2016) and neglects knowledge sharing barriers (Wu and Lee, 2016; Javed et al., 2019). The above gap ought to be filled because progress in knowledge sharing theory requires an in-depth understanding not only of knowledge sharing enablers, but also barriers, so that efforts can be made to offset them (Islam et al., 2020).

4.5.2. Knowledge sharing processes

Knowledge sharing process refers to how employees share their work-related experience, expertise, know-how, and contextual information with their colleagues. Knowledge sharing process consist of both employee willingness to actively communicate with colleagues (i.e., knowledge donating) and actively consult with colleagues to learn from them (i.e., knowledge collecting) (H. F. Lin, 2007). Tsoukas (2009) highlighted the essence of both social practices within which knowledge is created and social interaction through which knowledge emerges. In this regard, Nonaka & Toyama (2005) proposed the socialization and externalization combination internalization (SECI) model of knowledge creation.

Trong Tuan (2012) identified face-to-face, conferences, knowledge network, and organisational learning as a way of sharing knowledge. De Ridder and van den Hooff (2004) viewed knowledge donating, knowledge collecting, and personal networking and membership as critical to knowledge sharing. On the other hand, Hau et al. (2013) argued that tacit knowledge sharing requires more effort than explicit knowledge and identified teaching or interactive learning as a way of sharing knowledge. Bartol and Srivastava (2002) identified four mechanisms for sharing knowledge, namely: contribution of knowledge to organisational databases; formal interactions within or across teams or work units; sharing knowledge in informal interactions among individuals; and sharing knowledge within communities of practice, which are voluntary forums of employees around a topic of interest.

Ipe (2003) postulated that sharing knowledge in organisations could be formal or informal in nature and further explained that formal opportunities include training programmes, structured

work teams, and technology-based systems that ensure knowledge sharing. Different authors refer to the formal approach to knowledge sharing differently, for example, Bartol and Srivastava (2002) regarded this as “formal interactions” whilst (Lant & Shapira, 2000; Rulke et al., 2000) referred to them as “purposive learning channels”. Again, Ipe and other researchers (e.g., Brown & Duguid, 1991; Nahapiet & Ghoshal, 1998) see the informal approach as personal relationships and social networks that ensures learning and knowledge sharing. Whilst both the formal and informal approaches facilitate knowledge sharing, evidence available indicates that knowledge sharing takes place commonly in informal environment using relational learning channels (Archer et al., 1998; Pan & Scarbrough, 1999). The reason is that relational channels promote and simplify face-to-face communication, which tend to build trust (Ipe, 2003), and helps individuals to develop respectable behaviours and friendship (Nahapiet & Ghoshal, 1998).

Additionally, Ravik et al. (2016) asserts that in transferring knowledge, the instrumental translation theory is not only useful for analyzing knowledge transfer processes, but also has the potential to guide deliberate interventions in such processes. The author further stress that the instrumental translation theory is founded on two main arguments: The outcomes of knowledge transfer processes depend on “translation performance” that is, how actors apply various translation rules when de-contextualizing practices in source units and contextualizing representations of practices in recipient units; it is then possible to theorize and empirically identify appropriate and less appropriate skilled and less skilled translators in knowledge transfer.

However, whether formal or informal way of sharing knowledge, knowledge is shared through a process. The knowledge-sharing process is conceptualized as a structured process (Chatterjee et al., 2022), and is aligned with the firm’s strategy, available skills and competence, and guidelines to facilitate the process. Some of these strategies, processes, skills, and guidelines are industry, market, and firm specific. That notwithstanding, researchers have not investigated how any of these elements should be aligned in a particular industry or firm to ensure successful knowledge sharing.

4.5.3. Knowledge sharing outcome

Knowledge sharing outcome has to do with the results of knowledge sharing. Thus, how the organisation performs because of knowledge sharing. Organizational performance indicators are typically either financial/tangible outcomes or nonfinancial/intangible outcomes (Ali et al., 2019). Meanwhile, one thing that is clear about organisational performance is that it is the ability of the organisation to achieve set objectives of retaining profit, having a competitive edge, increasing market share, and maintaining long-term survival utilizing appropriate strategies (O. Oyemomi et al., 2019).

H. F. Lin (2007) viewed innovation capability as the outcome of knowledge sharing because he investigated the relationship between knowledge and innovation capability. This means that the outcome dimension can be proxied what the researcher is investigating. For instance, Podrug et al. (2017) examined how knowledge sharing affect firm innovation capability. Similarly, Yeşil and Hırlak (2013) explored the relationship between knowledge sharing enablers, innovation capability and innovation performance, and found a positive association between knowledge sharing enablers, innovation capability and innovation performance. Han and Chen (2017) also established a significant relationship between knowledge sharing and innovation performance. Additionally, Z. Wang et al. (2014) examined and confirmed a positive relationship between knowledge sharing, intellectual capital, and firm performance.

Meanwhile, there are a host of other researchers who have examined knowledge sharing and financial performance and confirmed a positive relationship between the two. For example, Yeboah (2022) investigated the relationship between knowledge sharing and financial and market performance and established a positive relationship between knowledge sharing and financial and market performance. Z. Wang and Wang (2012) studied and confirmed a positive relationship

between knowledge sharing and financial and operational performance. Other researchers who have studied and confirmed a positive relationship between knowledge sharing and financial performance include but not limited to Imamoglu et al. (2007), Singh et al. (2019), and Son et al. (2020).

Even though, knowledge sharing outcome or organisational performance index are mostly either financial outcomes or nonfinancial outcomes, extant literature generally concentrates on financial outcomes. The only nonfinancial outcome that has featured in the literature is innovation or innovation capability even though the speed and quality of innovation (Wang et al., 2016a), reduction of time spent on manufacturing, designing, and delivering a product to market are also important nontangible benefits (Ali et al., 2019).

5. Future research directions

Literature on knowledge sharing is well established in the context of developed economies. However, it is relatively unexplored in the emerging and developing world, especially, in the sub-Saharan Africa. Irrespective of the work done on knowledge sharing, there is still much to be explored to move knowledge sharing to the next level.

Generally, the review identified different definitions and types of knowledge. That notwithstanding, the definitions exhibited three main characteristics: knowledge sharing is a process and not an event; it involves willingness to donate and receive an accumulated expertise; and is geared towards finding solution to organizational problems or generating new ideas. In going forward, different definitions are expected to emerge, but expected to conform to the characteristics identified. Regarding the types of knowledge, extant literature is silence on the kinds of knowledge that better contribute to develop the competencies required to enter specific market (Magni et al., 2022). Therefore, further research is required to identify the kinds of knowledge relevant for the development of competencies and skills for specific customers/clients, industry/market, and economies. This is very essential because of the differences in environmental and cultural factors. For example, the type of knowledge required to develop the competencies in dealing with customers from the service industry in the developed or developing countries.

With respect to knowledge sharing enablers and barriers, available evidence indicates abundance of studies on knowledge sharing enablers at the expense of knowledge-sharing barriers. Consequently, future studies must focus more on the barriers that hinder knowledge sharing instead of knowledge sharing enablers. This must be looked at in relation to the individual, organisational and ICT factors. For example, on the individual factors, how strained ties among employees or how individuals position in the organisation impede knowledge sharing could be investigated. How managers experience or abusive leadership hinders knowledge sharing could be examined at the organisation level. Additionally, how lack of investment in technology hinders knowledge sharing in the emerging markets is another avenue for research.

Although knowledge sharing is successful when the process is aligned with the firm's objective, strategy, available skills and competence, no study has examined the challenges firms encounter when knowledge sharing process is not aligned with any of the elements identified. Even though, K. A. Bavik (2016) argues that knowledge sharing is rule-based translation process. Some of these strategies, processes, skills, and guidelines are industry, market, and firm specific therefore, studies could be conducted to find out the kind of processes or guidelines relevant to a particular industry or market to facilitate knowledge sharing.

Moreover, even though knowledge sharing outcomes are mostly either financial or nonfinancial, extant literature generally concentrates on financial outcomes. Innovation or innovation capability is the only nonfinancial outcome examined regularly in the literature. Therefore, further research should be conducted to find out how knowledge sharing influences other nonfinancial outcomes.

For instance, how knowledge sharing affects ethical behaviour and sustainability in emerging market oil and gas industry.

Generally, the review indicates that most of the research were conducted in commercial entities with few in the public sector. One setting that will be interesting to explore how knowledge is shared will be the various bodies of government especially, the legislative arm. Knowledge sharing is very essential in the legislative arm because it will give members the opportunity to know and understand parliamentary proceedings and rules, language, the committee system, and the standing orders. However, with the whip system in place to defend and promote political party interest, how members across the various political parties share knowledge to promote effective parliamentary proceedings will be an interesting topic to investigate, especially, in Africa and other emerging countries.

6. Conclusion and implications

Although several reviews on knowledge sharing have been conducted to get a better understanding of the concept, because of the essential role it plays, till date, no review has looked at articles in the light of prime research streams, contextual positions, and influential journals at the same time. This review was conducted to bring together scattered literature on knowledge sharing and scrutinize them to provide a better understanding of knowledge sharing and suggest emerging directions for future research. The paper has not only confirmed the importance of knowledge sharing in the competitive environment, but it has also identified gaps in knowledge and offered suggestions to close these gaps and move the concept forward. The findings (gaps) identified thus, provide a platform for further research into not only how to share knowledge but how to overcome the barriers to knowledge sharing to enjoy the benefit thereof.

The findings and suggestions made provide policymakers with an opportunity to identify the type of knowledge that is essential to develop staff competence in the various industries and markets. With this information, policymakers will be able to formulate appropriate policies and legislation to support both private and public companies to develop the needed skills to compete in the global market. For example, being aware of the kind of knowledge needed will enable the government (policymakers) to determine the kind of resources: equipment/tools, incentives and consultancy service offered to innovative firms.

Additionally, the findings and recommendations of this paper also offer managers and practitioners the chance to find out the type of knowledge required to develop their employees' competence for their industry and market needs. This paper findings will equip managers with the intelligence to design their knowledge sharing processes in line with their overall business objective and strategy to facilitate smooth sharing of knowledge. Knowing the knowledge requirement, not only will managers be able to determine whether knowledge sharing should be internal or external, it will also afford them the opportunity to identify the kind of training needed to build employee competence, as well as the investment need to update knowledge sharing infrastructure.

Meanwhile, knowledge sharing enablers, processes and outcomes are interlinked, with each other affecting the other in a linear fashion. Therefore, for knowledge sharing to be successful, the right knowledge must be identified and shared by people willingly. It must also be shared in a manner, which is consistent with the business objective and strategy, guided by appropriate guidelines. Before the full or expected outcomes will be enjoyed.

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