Exploring Factors Influencing Knowledge Sharing Mechanisms and Technology to Support the Collaboration Ecosystem: A Review

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ABSTRACT

Knowledge sharing (KS) plays an essential role in enhancing performance and innovation within organisations, and many organisations implement various mechanisms and technology to support successful KS. It is therefore crucial for organisations to understand what factors might have an impact on the application of knowledge sharing for collaboration within their organisations. This study conducted a systematic literature review to investigate what mechanisms or technologies organisations use to share knowledge and what factors influence that usage. This systematic literature review used the Kitchenham method, selecting 19 articles as eligible for this study from a total of 853. The articles chosen were published between 2015 and 2020 and were retrieved from five popular databases: Science Direct, Scopus, IEEE, ACM Digital library, and Springer. The results of the conducted review found that trust, appreciation, management support, and organisational goals were factors that facilitated collaboration in KS. Among the mechanisms identified were the use of face-to-face meetings, employment of a chief knowledge officer, the implementation of technology to support KS, and collaboration on a webblog.

Keywords: Knowledge sharing; Knowledge sharing mechanisms; Technology; Collaboration; Knowledge management

1. INTRODUCTION

Knowledge sharing (KS) is useful for companies in all fields because it plays an essential role in improving innovation and organisational performance[1]. KS also plays a vital role in competitive advantage[2] and utilisation competencies. Although KS is considered necessary for all organisations, many agencies experience common problems (such as a lack of trust between stakeholders in the organisation) that can hinder KS[3].

In the age of information and communication technology introduced and used widely, people were accustomed to sharing knowledge through online media or other media provided by organisations, often turning to online discussions to gather knowledge and make critical decisions in various fields[4-5]. Increasingly sophisticated technology also makes it easier to share knowledge. However, in practice, KS remains a challenge for organisations. Several studies have investigated the factors that potentially contribute to successful KS.

In light of the benefits provided by KS, many companies hope to find the best way to encourage employees to share their knowledge. The KS process involves several kinds of technology and mechanisms that can be used to promote knowledge management (KM). KM mechanisms and technology depend on KM infrastructure within an organisation. In addition to generating new knowledge, KS is also carried out to promote collaboration between team members. Such collaboration is expected to increase the efficiency of the work process for employees. This research was conducted to examine which KM mechanisms within organisations can best support the collaborative process.

This study presents a systematic literature review (SLR) on the factors that support KS in a collaborative environment and what mechanisms are used to support collaboration. The purpose of conducting an SLR is to summarise the factors and mechanisms used in KS that can be most effectively used for further research. Several previous studies have also conducted SLRs; however, these were focused on different areas, as was done by Sensuse *et al.*[5] Their study summarised what approaches are most often used in a collaborative environment to build knowledge-sharing tools. Another study conducted by[6] did investigate KS mechanisms and techniques in the context of a project team; however, this research included only four databases in the search for relevant articles, and the SLR carried out remained within the scope of the teams project. This study therefore presents an SLR on what mechanisms and technologies are used when sharing knowledge in a collaborative environment.

This paper was devided into six section. The first section provides introduction of the research. The second section, provides the background of KS systems, KS mechanism, and collaboration in KS. The third section provides details of the methodology. Section fourth discusses KS mechanisms and technology as used within various organisations. And the fifth

section consist of discussion and implication from this study, the last section, presents the conclusion, study limitations, and possibilities for future research.

2. BACKGROUND

2.1 KS Systems

Knowledge is defined as information that has value; knowledge can take the form of a person's experience, value standards, or norms, which can include things like documents, technical reports, information, know-how, and standards of professionalism.[5] Knowledge is essential for the success of organisations, and has also been suggested as the primary mechanism of economic value creation[7-8]. Organisations use various methods to gain critical knowledge. Knowledge is dynamic and created through interactions between individuals and organisations[5]. Organisations take various steps to enrich employees' knowledge, one of which is KS.

KS system is designed to help users share knowledge in both tacit and explicit forms[9]. KS is essential for companies because it allows to increase work efficiency, increase company innovation, and provide convenience in the learning process[10]. The application of KS in software development, for example, can help avoid repeated mistakes, reduce dependence on individual employees who have sole possession of critical knowledge, increase the integration of employee competencies, and improve the use of knowledge when making critical decisions[11]. KS can be conducted in both offline and online environments— the difference can be seen in how communication is mediated (by computers, or through face-to-face communication)[12]. The application of offline KS is often chosen in places such as co-working spaces. Certain types of employees are more interested in discussing and interacting with people in co-working spaces[13].

Even though co-working spaces have long been attractive places to share knowledge offline, online KS activities are increasing in popularity in concert with the rise of social media and online social networking. Social networking involves web-based software that enables people to interact and collaborate virtually[14]. Many online communities use tools such as blogs, wikis, forums, and e-mail to share or increase their knowledge by posting questions, discussion some issues based on the same interests, and collaboratively providing answers[15-17]. Not only do communities use online tools to share knowledge, but organisations also try to increase the knowledge of their employees by using mechanisms or technology that can support the KS process. Modern technology plays an important role in transforming the corporate culture around the implementation and performance of KS[18].

2.2 KS Mechanisms

A KM mechanism is a structural or organisational tool that is used to promote knowledge management and may or may not utilise technology[9]. Mechanisms of KM can provide various conveniences by, for example, allowing employees to attend training without having to gather at the same place and time[12]. Study[19] defines knowledge management mechanisms according to several categories: Cultural, structural, and managerial.

Organisational culture is categorised as a cultural mechanism, one through which corporate culture plays a role in creating, sharing, and using knowledge. Prior research has examined how organisational culture influences KS[20]. A structural KS mechanism can be defined as the responsibility of an existing unit within the organisation. The final KS mechanism, the managerial mechanism, has so far been studied the most. This mechanism involves an initiative from management for the success of KS[11,21].

2.3 Collaboration

An effective approach that can facilitate the sharing of knowledge and ideas among members of a team is collaboration[22]. In a team, effective collaboration will result in a synergy between groups that will contribute to generating novel knowledge[22]. Collaboration is closely related to KS. Effective KS can encourage the collaborative process and produce new useful knowledge. Collaboration occurs when all team members produce new knowledge from the existing media KS[22]. Effective collaboration also becomes evident through the perceived add value of, for example, the improvement of organisational learning or an increase of individual experience.

3. METHODOLOGY

3.1 Systematic Literature Review

An SLR is a secondary study that can be used to identify and map prior studies by classifying primary analyses based on specific criteria. In other words, an SLR is carried out by conducting a literature review of previous related studies. SLR aims to summarise the studies that have already been carried out and then identify gaps between previous studies and current studies. This study uses Kitchenham[23] as a guideline for the reporting mechanism and creation of a research framework.

This SLR further aims to understand what mechanisms or technology are used in KS, and to investigate what factors affect collaboration in the process of KS. This study uses articles published through several popular databases, including IEEE Explore, Scopus, ScienceDirect, ACM Digital Library, and SpringerLink, to ensure comprehensive results.

3.2 Research Question

A study's proposed research question aims to maintain focus when conducting a literature review. Unclear research questions can lead to an uncontrollable SLR process and data that is irrelevant to the problem at hand. The research questions of this study are listed in Table 1.

Table 1. Research questions

ID	Research question	Objective
RQ1	What factors support the collaboration process in KS?	To identify factors that support the collaboration process in KS.
RQ2	What KS mechanisms or technologies are applied in organizations to support collaboration?	To identify KS mechanisms or technologies that are applied in organizations to support collaboration.

3.3 Research Process

In order to find eligible articles for review, this study used popular databases and predetermined Boolean searches. The Boolean search used for the Scopus database was "TITLE-ABS-KEY (("Knowledge sharing") AND ("collaboration") AND ("Tools" OR "System")) AND (LIMIT TO (PUBYEAR, 2015) OR LIMIT-TO(PUBYEAR , 2016) OR LIMIT TO (PUBYEAR, 2017) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR, 2020))." For the Science Direct database, the Boolean search used was "Title, abstract or author-specified keywords(("Knowledge sharing") AND ("mechanism" OR "Technology") AND "collaboration")." The search string used for the IEEE, ACM Digital Library, and Springer databases were same: "(("Knowledge sharing") AND ("mechanism" OR "Technology") AND "collaboration")." Table 2 shows the search results on a predetermined database.
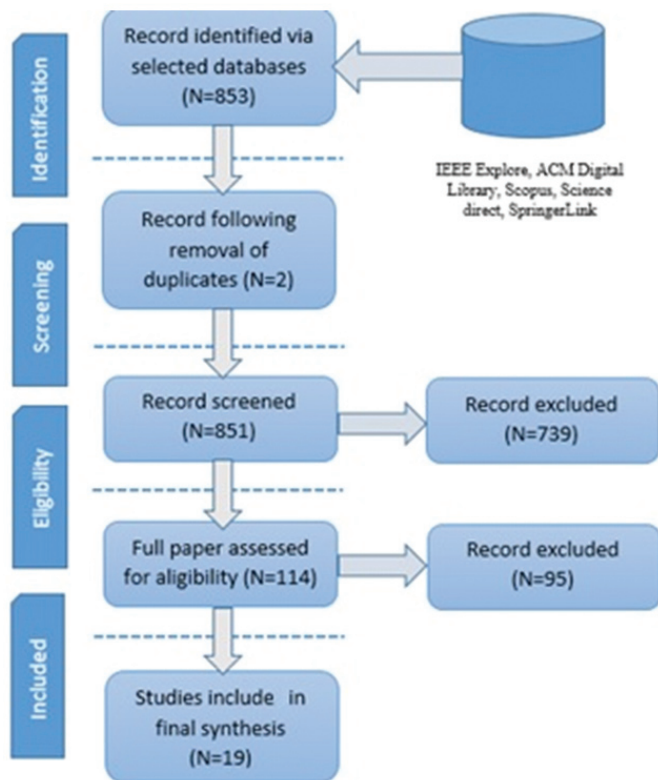

Figure 1. Selection scheme.

Table 2. Search results by database

Database journal	Initial	Abstract and title selection	Final
IEEE Explore	279	33	2
Scopus	318	36	5
ScienceDirect	142	19	6
ACM Digital Library	71	17	4
SpringerLink	43	9	2
Total	853	114	19

This study also used several inclusion and exclusion criteria to select articles that matched the research objectives. Table 3 outlines these criteria.

Table 3 describes the inclusion and exclusion criteria used when selecting articles for study. The publishing year range for published articles, 2015–2020, was chosen in order to discover novelty in the research area.

Table 3. Inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
Publishing period	The article should be published between 2015 and 2020	The article was published before 2015 or after 2021
Language	The articles are written in English	The articles are written in languages other than English
Document type	The article should be a conference paper proceeding or journal article	The article is a review article, book review, data article, editorial, errata, short communication, conference foreword, or keynote speaker address
Keyword	The article should contain "knowledge sharing" and "collaboration"	The article does not contain "knowledge sharing" or "collaboration"
Availability	Document full text	Document not as full text

3.4 Quality Assessment

In the initial search for articles, 853 articles were found. Using those 853 articles, the initial stages involved screening and evaluating content. The screening was done by reading the title, abstract, introduction, and conclusion of each article. Articles that conformed to the inclusion criteria entered the next selection stage. One hundred and fourteen articles remained for content evaluation.

The content evaluation was carried out using the following questions:

- Is the article clearly provides the research objectives?
- Is the article clearly describes the literature review, research background and context?
- Is the article mention the main contribution by present related work from previous research?
- Is the article clearly provides the proposed architecture or methodology used?
- Is the article mentioned clearly the research results?
- Are the article's conclusions relevant to the research objectives?
- Is the article propose recommendation improvements for future work?
- Scopus indexed (Q1 / Q2 / Q3 / Q4 / unindexed).

For each question, articles were given a score of 0–1 point based on the article's conformity to the requirements. Articles with scores below six were considered unsuitable and were

Table 4. Eligible articles

Title	First author
A Representation Model of Collaboration in the Design Process	Suto[22]
Acceptance of Corporate Blogs for Collaboration and Knowledge Sharing	Pradas[10]
CampusWatch—Exploring Community Sourced Patrolling with Pervasive Mobile Technology	Park[24]
Cross-Functional Knowledge Sharing, Coordination and Firm Performance—The Role of Cross-Functional Competition	Nguyen[25]
Examining the Impacts of Organizational Culture and Top Management Support of Knowledge Sharing on the Success of Software Process Improvement	Lee[11]
Exploring the Motivational and Behavioral Foundations of External Technology Experts' Knowledge Sharing in Collaborative R&D Projects The Contingency Role of Project Formalization	Schepers[26]
Factors Affecting the Performance of Knowledge Collaboration in a Virtual Team Based on Capital Appreciation	Gou[17]
Governance and Resource-Sharing Ambidexterity for Generating Relationship Benefits in Supply Chain Collaborations	Im[27]
LEAP-Scaffolding Collaborative Learning of Community Health Workers in India	Yadav[20]
Leveraging Social Networks in the Adoption of Mobile Technologies for Collaboration	Reychav[28]
Motivational Factors for Knowledge Sharing in Co-Working Spaces	Lapsomboonkamol[13]
PMO Managers' Self-Determined Participation in a Purposeful Virtual Community-of-Practice	Lee-Kelley[21]
Preliminary Study—Knowledge Sharing in Collaborative E-Commerce	Bahiyah[8]
Enhancing Knowledge Sharing and Research Collaboration Among Academics The Role of Knowledge Management	Tan[29]
Team Communication Platforms and Emergent Social Collaboration Practices	Anders[15]
The Dynamics of Intellectual Property Rights for Trust, Knowledge Sharing and Innovation in Project Teams	Olaisen[30]
The Mechanism of Trust Affecting Collaboration in Virtual Teams and the Moderating Roles of the Culture of Autonomy and Task Complexity	Choi[3]
The Role of Microblogging Capacities in Knowledge Sharing and Collaboration in Virtual Teams	Cleveland[16]
Exploring the Individual, Social and Organizational Predictors of Knowledge-Sharing Behaviors Among Communities of Practice of SMEs in Malaysia	Tan[31]

excluded from the eligibility pool. At this point, 19 articles fit the scoring requirements, as shown in Table 4.

3.5 Coding and Analysis

This step consisted of two classification frames. The first broke down the qualifying articles into categories based on their informative attributes, reflected how many factors supporting the use of KS were involved. This frame was designed to answer RQ1 through several attributes: article type, name of journal/conference, published year, and factors that support KS and KC. In line with answering RQ1, RQ2 is also related to the attributes used; however, at this step, classification was done by evaluating the content of each article to produce a map that could answer the second research question.

A nineteen articles reviewed were obtained from various sources in the form of paper conferences and journals. Table 5. shows the distribution list of article sources, of which there are 6 conference articles and 13 journals, and the publishers are ACM, IEEE, Science Direct, Scopus, and Springer.

4. RESULTS
4.1 Factors Supporting Collaboration and Sharing

Many organisations remain unaware of or insensitive to the role of altruism in successful KS. Organisations can increase collaboration among employees by increasing their empathy, care, and concern for the welfare of others[16]. These behaviors will also have an impact on good relationships in

Table 5. Recapitulation of journal/conference name

Conference	Journal	Publisher	Count
Conference	Proceedings: Human-Computer Interaction	ACM	2
Journal	Journal of Product Innovation Management	ACM	1
Conference	Proceedings: Computers in Management and Business	ACM	1
Conference	Asian Control Conference (ASCC)	IEEE	1
Conference	Proceedings: Information Technology and Multimedia	IEEE	1
Journal	Industrial Marketing Management	Science Direct	1
Journal	International Journal of Project Management	Science Direct	1
Journal	International Journal of Information Management	Science Direct	1
Journal	Computers in Human Behavior	Science Direct	3
Journal	Information Systems Management	Scopus	1
Journal	Journal of Systems and Information Technology	Scopus	1
Journal	Decision Sciences Institute	Scopus	1
Journal	International Journal of Business Communication	Scopus	1
Conference	Conference on Information System	Scopus	1
Journal	Higher Education	Springer	1
Journal	Information Technology Management	Springer	1

the workspace, and good relationships are also a factor in facilitating collaboration. As with their research[29], academics want to share their knowledge because they want to improve relationships with other scholars. In the context of collaborative R&D between external technology experts and suppliers, customer stewardship becomes an external behavior factor for KS[26]. This factor will influence the sense of responsibility of shareholders to share information that can improve services.

In the context of KS within an academic environment, the reciprocal benefit is one of the factors that has been widely studied for its effect on KS and collaboration among academics. Trust and reciprocal benefits are individual factors that can influence KS[29]. The factors identified from the articles used are summarised in Table 6.

Organisational factors include incentives and goals, rewards, organisational culture, top management support,

clan-type corporate culture, policies, procedures, and standards[3,10,20-21,27,]. Policies, procedures, and standards have a relationship with trust, and they can build inter-organisational trust when effectively implemented. Top management support is defined as the degree of support provided from employers and supervisors to encourage employees to share their knowledge[11]. Clan-type corporate culture is part of organisational culture, and both are equally influential on KS in an organisation. However, clan culture emphasises flexibility and is internally oriented. The major characteristics of an organisation with a clan culture are teamwork, high commitment, trust, employee involvement, and participants. Incentives can influence behavior to share knowledge when properly designed, and can be used in both the short and long terms[27]. When the incentives and goals of an organisation are balanced, KS will increase. Apart from incentives and goals, reward is also a significant factor in KS. In offline KS, reward is one of the extrinsic motivations to share knowledge and collaborate with new people[13].

One prior study[24] investigated collaborative activities in the patrolling community and explored contextual factors that influence user motivation and engagement in collaborating and sharing patrolling information. These contextual factors include task scheduling, event-taking, and reporting behaviors. Task scheduling is essential when deciding the best time to contribute to sharing and collaboration activities, so that employees can adjust to their daily time.

In virtual teams or online communities, content and discussion can also increase knowledge gain[20]. People will be interested in sharing knowledge if the content shared is interesting for them. Also, when content is highlighted, they will be more interested in sharing knowledge because highlighting makes it easier for them to quickly understand the presented content.

4.2 KS Mechanisms and Technology

Research[10] shows in Table 8 that type of company does not give influence to the adoption web 2.0 as technology for KS and collaboration, but instead should meet the needs of employees. Organisations must make deeper identifications to provide a web for collaboration; additionally, organisations should also implement mechanisms in the form of an obligation to use the web and ensure ease of use. In the online community, the role of its users was essential. The users will participate by providing support and ease of sharing knowledge and collaborate. This action indirectly stimulates other users to be involved in various activities for sharing relevant content such as debating issues, webinars and events, and public announcements.

Mechanisms for using legal documents such as Intellectual Property Rights (IPRs) have proven to be the appropriate mechanisms for maintaining long-term collaboration[30]. IPRs are also related to the trust factor that affects collaboration and KS[3]. Trust has a vital part in the social interactions successful for disseminating and sharing content in the sharing community.

Another KS mechanism that is widely used to capture tacit knowledge is the Community of Practice (CoP)[12-13,21,29]. Self-efficacy and performance expectation belief play an essential role in the KS participation of online CoPs[17,21]. In the

Table 6. Identified factors

Factors	Definition	Source
Ability	Refers to evaluate the capabilities to carry out a task using competency-based skill, expertise, knowledge, etc.	3
Benevolence	Refers to a willingness to act in the best interest to provide mutually beneficial know-ledge between himself and the recipient	3
Integrity	Refers to the act to adhere to principles that are considered righteous or moral.	3
Goal congruence	A team that shares the same goals for the project.	3 27 10 13
System performance	A system that is presented in terms of its usefulness, effectiveness, responsive-ness, and information quality.	3 16
System design	Refers to the extent to which a user feels that a system is designed to be easy to use and to please the eye.	3 16
System assurance	Related to perceived security and no presentation of error.	3
Trust	Trust is the belief that someone will engage in beneficial actions even when a person is given a chance to act opportunistically.	3 10 16 8 29 30 13
Cooperation	Refers to the actions and processes taken to work together to achieve a common goal.	3
Coordination	The integration among members to ensure task accomplishment.	3
Social capital	Refers to a way to create a social relationship network by using the capability of an individual to obtain external resources.	17 15
Intellectual capital	Refers to environmental control of knowledge or capability capital assets	17
Accuracy	Richness, accessibility, and correlation of knowledge resources.	17
Timeliness	Cooperation time spent to resolve a problem of knowledge searching or transferring; also refers to technology reliability.	17
Altruism	Refers to an individual's motivation to voluntary share knowledge without expecting a return of personal benefit.	13 10
Incentive	Refers to extrinsic motivation to share knowledge.	13 27
Reward	Refers to extrinsic motivational factors influencing users to share knowledge.	13 31 29

Factors	Definition	Source
Reputation	Refers to perceptions among others following the sharing of knowledge.	13 31
Networking	Refers to an extrinsic motivational factor for KS.	13 28
Sense of belonging and relatedness	Willingness to invest in prosocial activities related to knowledge.	21
Culture	Refers to the influence of environment on willingness and behavior in terms of KS.	11 29 31
Management support	Refers to a support provided by management to enhance the level and quality of KS and exchange.	11 29 16
Customer stewardship fairness	Refers as moral responsibility and ownership towards the overall collabo-ration success.	26
Distributive fairness	A subjective evaluation in the collaborative R&D project of the collaboration.	26
Experience	Refers to local knowledge held by one person used to categorize knowledge.	24
Willingness	Refers to the extent to which a person is willing to provide access to the knowledge they have.	24
Perceived ease of use	Refers to person belief that using a particular technology will be free of efforts and brings the efficiency while collaborate or sharing knowledge.	28 10
Perceived usefulness	Refers to the degree to which belief that using tools provide by corporate for collaboration and knowledge sharing improved job performance.	10
Reciprocal benefit	Refers to the ability of KS to improve relationships and the expectation of future help.	31 29
Perceived enjoyment	Refers to intrinsic motivation which drives collaborative performance.	16
Commitment	Critical components for promoting the creation of new knowledge.	30
Leadership awareness	Awareness for leadership and management functions of knowledge.	15
Attitude	Refers to individual's motivations to share knowledge and belief in the outcomes of an action.	30

Table 7. Technology to support KS and collaboration

Technology	Definition	Source
Web-blog	A web-based application where people can publish certain content. Blogs are interactive, and other people can provide comments related to the uploaded content.	16 10 20 22
Mobile technology	In some cases, mobile technology is defined as the use of mobile applications for sharing knowledge and collaboration.	28 20 24
Project management tools (e.g., Java. inc and GitHub).	Tools to encourage developers to share or trade notes and codes.	21

Table 8. Mechanisms to support KS mechanisms

Mechanism	Source
Openness in communication, face-to-face interactive communication.	29
Project formalization; includes procedures, rules, and even detailed work plans that focus on known courses of action.	26
KS policies and promotions; KS drove to action by managers.	10
Legality.	30
Hiring CKO.	21
Formalization, Lateral Relation, Informal Networking, Shared Vision.	25
Face-to-face Meeting or Discussion.	13
A community with members who have interests in the same field. This community allows members to add and share their knowledge.	21 31
A virtual team is a group of people who are spread across various geographic areas as well as people who are spread out within an organization. Virtual teams are built to work with one another.	3 17

early stages of CoP, performance expectation was considered the motive for engagement. CoPs are effective mechanisms for sharing tacit knowledge that can provide significant value to organisations. Study[21] suggested factors to support this mechanism's success by ensuring that team members in a CoP maintain personal freedom to decide their socialisation strategy, rather than management mandating that people join the community.

In the healthcare community in particular, the industry often faces challenges due to a shortage of instructors. In response to this, one study[20] investigated a mechanism for collaborative learning in which parallel training is used as a mechanism that supports collaborative learning.

5. DISCUSSION

As stated in the previous section, this study focused on 19 papers published between 2015 and 2020. This study found not only that online KS is influential, but that offline KS also affects the success of KS and the collaboration process. The primary offline KS mechanism takes the form of face-to-face communication or direct discussion. Face-to-face and direct discussions can indirectly reduce differences in status between them; this can encourage interaction between members, which in turn can increase trust and the possibility of collaboration.

To answers RQ1, this study found many factors that influence KS in a collaborative environment. The most influential factor is trust. As mentioned earlier, positive interaction between KS members can increase trust. This belief is the factor that has the most influence on KS. Trust is believed to be able to improve KS performance. Furthermore, trust can increase the closeness of relationships, a factor that is closely related to collaboration (as mentioned study[31]). Apart from trust, organisational goals and rewards are also factors that are widely researched and have an effect on KS. These two factors are individual factors that allow and encourage a person to share and collaborate[31]. Trust can encourage individuals to work together with a team, reducing potential conflicts that can hinder the achievement of organisational goals. Therefore, the first implication that this study identifies is that the trust factor is crucial in a collaborative environment. Further studies can show what hinders or supports this trust factor when sharing knowledge in a collaborative environment.

In supporting online KS, organisations usually provide technology such as web-blogs. In a further implication, this study found that the technology most used by organisations to support KS is the web. The web allows its members to post information or knowledge, which then attracts others to comment. Ideally, this communication then continues to more serious relationships, such as cooperation or collaboration. Therefore, although web-blogs are not necessarily new internet technology, they are still in use today, and are frequently updated. An interesting follow-up study might be one which investigates what differences and updates have influenced web-blog technology over the course of its corporate lifespan. This could reveal any existing gaps and improve the quality of web-blogs for KS in a collaborative environment.

Research conducted by Hernaus[32] stated that reward is one of the factors that influence KS and collaboration. Therefore, this study offers rewards, trust, and goal organisation as factors that can support KS and collaboration using mechanisms such as discussions or CoPs. The final implication of this study involves how top management can provide their support in encouraging employees to build a collaborative environment that is suitable for their organisational climate. This study also found that the mechanism used in KS in each environment tends to be different; it would therefore be interesting for a follow-up study to examine the types of and what distinguishes these mechanisms so that they are suitable for use in a particular environment or organisation.

6. CONCLUSIONS

This systematic literature review has identified the factors that influence KS and collaboration from various aspects of the organisation. The factors that are most closely identified and have the greatest influence are trust, reward, and organisational goals.

Moreover, this paper also identified the mechanisms and technologies used for KS and collaboration in organisations. Each organisation uses a different mechanism; for example, in the case of academics, face-to-face meetings are considered a mechanism that can encourage KS and collaboration. Meanwhile, in terms of technology, the web is a technology that is widely used to support KS and collaboration.

This paper still has limitations in looking at the factors, mechanisms, and technologies used in KS and collaboration in general. Future work can identify knowledge-sharing factors that are used in more specific contexts, such as healthcare or other industry contexts. Further research could also rank the factors that influence KS and collaboration.

7. ACKNOWLEDGEMENTS

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