

Assessing the Use of Online Platforms in Sharing Tacit Knowledge in Innovation Networks

Nathalya Guruge and Jyri Vilko

Department of Industrial Engineering and Management, LUT University, kauppalankatu 13, 45100 Kouvola, Finland

Keywords: Tacit Knowledge, Knowledge Sharing, Innovation Networks.

Abstract: In an increasingly digitalized society, sharing tacit knowledge has emerged as a critical activity for driving innovation, especially within innovation networks. This paper presents a systematic literature review to assess the role of online platforms in facilitating tacit knowledge sharing. It explores how digital tools impact the exchange of tacit knowledge, offering a conceptual framework to understand this process. The findings provide strategies for leveraging online platforms to foster innovation within diverse knowledge-driven ecosystems.

1 INTRODUCTION

Tacit knowledge, which is uncodified and personal, has become a crucial asset for innovation in the modern knowledge society (Polanyi, 1966; Nonaka, 1994). As organizations increasingly prioritize knowledge sharing to maintain competitive advantages, particularly within the digital space, understanding how tacit knowledge can be effectively shared online is critical (Ichijo & Nonaka, 2007). This paper examines the practices and tools used in tacit knowledge sharing, motivating and inhibiting factors that affect tacit knowledge sharing and the outcomes of this sharing particularly within innovation networks, through a systematic review of literature.

2 THEORETICAL BACKGROUND

This section explores the foundational theories of tacit knowledge and innovation networks, setting the stage for examining how digital platforms support this knowledge exchange.

2.1 Tacit Knowledge

Tacit knowledge, first explored by Michael Polanyi in 1958, refers to the inexpressible knowledge that resides in the human subconscious, which is difficult to articulate in written or spoken form (Polanyi,

1966). Nonaka (1994) later expanded on this concept, asserting that the knowledge expressible in words is only a small part of the broader body of knowledge. Tacit knowledge, as further developed by Nonaka and Takeuchi (1995), includes personal experiences, beliefs, and values, and is harder to express explicitly, but can be articulated in certain situations. In management studies, Nonaka's definition of tacit knowledge, emphasizing its implicit and experiential nature, is more widely accepted.

The initial view of tacit knowledge suggested by Polanyi sees a minor change during Nonaka's time in such a way that it becomes known as the part of knowledge that is possible to be articulated and expressed in certain situations. In management studies these philosophical definitions of tacit knowledge by Polanyi are not commonly used but Nonaka's definitions are accepted as more relevant. Hence, tacit knowledge is the implicit knowledge possessed by individuals including skills, insights, intuitions, and experiences, which are often difficult to express explicitly.

2.2 Tacit Knowledge Sharing Online

Tacit knowledge sharing is defined as the exchange of intuitive and unarticulated knowledge that takes the form of personal skills, know-how, experience, and expertise in knowledge management literature. This type of knowledge, which is intangible and personal, occurs primarily between peers or co-workers in a workplace and it involves direct

exchange of knowledge between employees (Majewska and Szulczynska, 2014). However, the importance of the need of support to foster trust and overcome resistance to knowledge transfer is highlighted by Majewska and Szulczynska (2014) signalling of an establishment of a new argument related to factors that can catalyse tacit knowledge transfer which is addressed in this present study.

Tacit knowledge sharing is viewed as tacit-to-tacit conversations (Socialization) and as tacit-to-explicit conversations (Internalization) according to the knowledge creation theory of Nonaka and Takeuchi (1995) (Marwick, 2001; Sarkiunaite and Kriksciuniene, 2005; Lopez-Nicolas and Soto-Acosta, 2005). This is because of the interactive and dynamic relationship between tacit and explicit knowledge (Panahi et al., 2015). The scholars explained this further using the spiral model of knowledge management and stated that Nonaka and Takeuchi's theory on knowledge creation which adopts a spiral movement indicates it is unavoidable to externalize and internalize tacit knowledge when communicating. With the introduction of web initiatives, arguments on new tools that can drive sharing tacit knowledge through interactive and collaborative technologies was discussed (Panahi et al., 2012). ICT has been one of the main enablers of knowledge sharing activities (Panahi et al., 2016). Building on this, online platforms, particularly those leveraging Web 2.0 technologies, have enabled more dynamic and interactive forms of knowledge sharing.

2.3 Innovation Networks

Innovation builds upon previous discoveries and inventions, much like Newton's famous analogy of "standing on the shoulders of giants." (Acemoglu et al., 2016). A consistent and reliable network of innovators facilitates the ongoing accumulation of technological and scientific advancements leading to economic growth and transformation. This is well explained through Neo-Schumpeterian economics that places technological innovation at the core of economic advancement. According to the theory accumulation of knowledge and technological advancement is fueled by research and development funding, intellectual property protection (Law), Support for entrepreneurship and policymaking (Government intervention). Hence, this is an innovation system (Beije and Groenewegen, 1992) and in modern literature known as 'Innovation Networks'. The term refers to the actors in an innovation system and their relationships.

Difficulties in knowledge creation and learning significantly impact the overall results and achievements of a network of collaborating organizations (Lampela, 2009). One practical solution put forward by Lampela (2009) to overcome the challenges in innovation networks is implementing virtual innovation teams. Sharing knowledge within virtual teams can be complicated since it is unlike face-to-face communication. Knowledge, especially tacit knowledge, is sensitive information that is embedded in a person's sub conscious mind. The sharing of sensitive information in innovation networks necessitates a high degree of trust. Simultaneously, the operational processes demand speed and flexibility, despite facing uncertainty, complexity, and ambiguity in the available information and operating environment (Lampela, 2009). Hence, it is worth assessing the factors that enable and moderate virtual tacit knowledge sharing in innovation networks.

3 METHODOLOGY

This study utilizes a systematic literature review approach, analysing peer-reviewed journal articles and conference papers published between 2003 and 2023. The review spans various academic databases, including Scopus and Web of Science, and focuses on studies that explore the use of online platforms in tacit knowledge sharing.

Main research question:

What is the use of online platforms in sharing tacit knowledge in innovation networks?

This question is split into five questions to in a way that they cover the wide span of the above research question.

1. What are the practices used to share tacit knowledge online?
2. What are the tools used to share tacit knowledge online?
3. Which factors enhance tacit knowledge sharing online?
4. Which factors inhibit tacit knowledge sharing online?

5. What are the possible outcomes of tacit knowledge sharing online?

Once formulating the research questions, a comprehensive search strategy was developed to find articles and conference papers. The strategy includes which scientific databases are used, the search terms and inclusion exclusion criteria of data. This review spans academic databases such as Scopus, Web of Science and Ebsco. The descriptor contained synonyms and related terms from each category of key words to ensure the comprehensive coverage of the topic. These words were either present in the Title of the article which was optional and were present in both the abstract and the key words section. This bibliographic search was conducted from June 2023 to July 2024. The search was refined and repeated several times until the optimum results were yielded. The search for relevant literature was restricted to peer-reviewed journal articles and conference papers published in English between 2003 and 2023. Textbook chapters were not included, and while the search was limited to English language publications, there were no restrictions based on geographic location. The initial search yielded 80 articles, and after filtering, 24 journal articles were selected for review.

In search of conference papers, the same search strategy was applied which resulted in 18 papers from 16 conferences. They were subjected to researcher triangulation and 11 papers were considered suitable to study the research questions. To ensure the quality of studies conferences with a h-Index ranking were selected. H-index was introduced by Jorge E. Hirsch in 2005 to measure a researcher’s scientific productivity and impact based on the number of publications and citations (Hirsch, 2005; Meho and Yang, 2007). This metric, now widely adopted in academia, considers an H-Index of 30 or above as a benchmark for selecting conferences in this study.

Once applying the H-Index seven articles were initially chosen for full-text assessment. However, two additional conference papers were included due to their relevance to the research objectives and quality: the Wireless Telecommunications Symposium paper, a good H-Index of 20, and "Potentials of social media for tacit knowledge sharing amongst physicians: Preliminary findings" (Panahi et al., 2012), which was deemed exceptionally useful despite not meeting the strict criteria. This resulted in a total of eight conference papers being selected for review. Hence, a total of 30 journal articles and conference papers were analysed in this review.

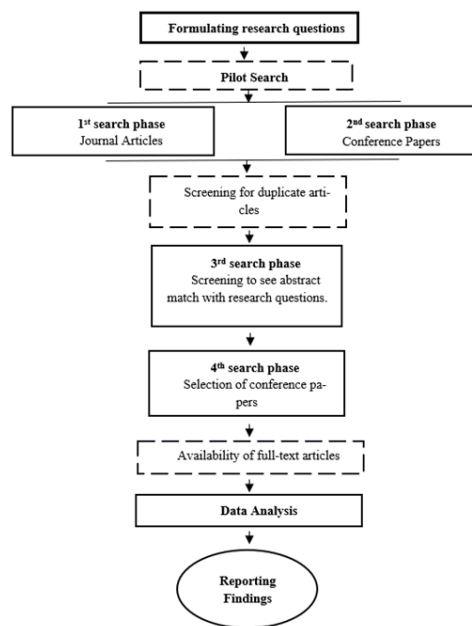


Figure 1: Research Design.

4 DATA ANALYSIS

This study employed both content and thematic analysis to analyse data from 30 articles, using NVivo and Microsoft Excel for qualitative data analysis. Content analysis, following Gaur and Kumar (2018), quantified specific elements within the data, while thematic analysis, adhering to Braun and Clarke's (2017,2022) guidelines, identified broader themes and patterns. Data from the articles were recorded in an Excel sheet with key columns such as author, DOI, and findings, which were analysed to identify descriptive and thematic results. A coding framework was developed based on Gaur and Kumar’s (2018) categories, focusing on practices, tools, factors enhancing or inhibiting tacit knowledge sharing, and outcomes. Iterative adjustments were made to account for emergent themes that did not fit the initial categories.

5 ANALYSIS

The line graph depicts the selected number of journal articles, conference papers published each year and the total number of data used in this review. The highest number of articles has been published in 2019, and there are no conference papers this year. This total drastically decreases in the following year,

the year when the covid-19 pandemic started spreading outside of China. The lowest number of journal articles and conference papers were seen in 2015 with zero data from the year. There are 8 years in which only one article or conference paper was found. The overall trend is an increase which indicated promising future for research interests in tacit knowledge sharing online.

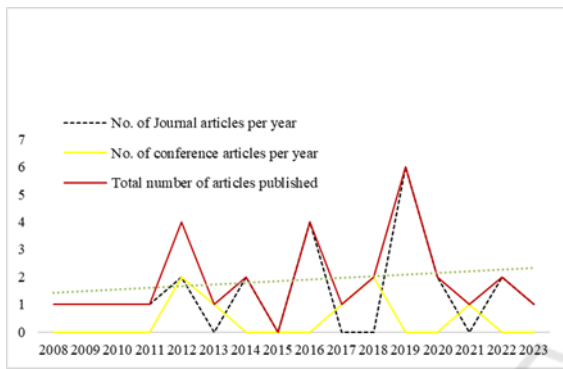


Figure 2: Number of journal articles and conference papers according to the year published.

Of the 30 articles analysed, 22 mentioned practices or/and tools used in TKSO. In the present context practices are the processes and interactions that facilitate TKSO. Hence, explaining how a tool, or an online platform enables individual to share expertise in online environments. The identified practices are; Structuring information (Kogl and Gilbert, 2019), Virtual communities (Chi-cheng et al., 2022), Virtual learning activities (Haag and Duan, 2012; Hildrum, 2009), case analyses and sharing of experiences (Deng et al., 2023) broadcasting information to wider audiences, faster dissemination, personalized feeds, staying up-to-date, documenting experiences, and improved retrievability (Panahi et al., 2016).

Tools in the present research context are specific technologies and platforms that assist the execution of the practices. Such tools identified in the reviewed studies are; Web 2.0 technologies (E-ling and Xiaoxia, 2019; Jarrahi et al., 2019; Fang and Gong, 2012; Panahi et al., 2012), Social media platforms (Panahi et al., 2016; Panahi et al., 2016 Mladenovic and Krajina, 2020; Liana et al., 2014; Amidi et al., 2018; Amidi et al.,2017; Mislán et al.,2016), Online community forums (Rachaneewan, 2011; Yuan et al., 2016; Ku, 2014), Social networking applications (SNAs) (Diptee and Diptee, 2013),Videos, Text, interactive elements (drag and drop exercises (Hon et al., 2008; Mislán et al.,2016), IoT, Digital twins, Siemens tecnomatrix (Guerra-Zubiage et al., 2021).

16 studies presented factors affecting tacit knowledge sharing online. These factors either belonged to motivating factors or hindering factors. The following tables (table 1 and 2) depict each factor identified along with the relevant references.

Table 1: Factors motivating tacit knowledge sharing online.

Motivating factors	References
Closeness of the network	(Chi-Cheng et al.,2022; Cao et al.,2012; Mislán et al., 2016)
Frequency of interaction	(Cao et al.,2012; Chi-Cheng et al.,2022; Tee and Karney,2010; Diptee and Diptee,2013)
Stability of member interaction	(Cao et al.,2012; Chi-Cheng et al.,2022; Ku, 2014; Großer et al.,2018; Panahi et al., 2016)
Intrinsic motivations (enjoyment & self-efficacy)	(Wang et al.,2022; Mislán et al., 2016; Hildrum, 2009; Amidi et al.,2017)
Personal traits	(Yuan et al., 2016; Diptee and Diptee,2013)
Trust in the informant	(Diptee and Diptee,2013; Großer et al.,2018; Panahi et al., 2016)
Communication style	(Diptee and Diptee,2013; Großer et al.,2018)
Appropriate technology use	(Großer et al.,2018; Amidi et al.,2017; E.-Ling and Xiaoxia, 2019)

Factors that act as barriers to online tacit knowledge sharing have not been studied by many researchers hence the few references.

Table 2: Factors hindering tacit knowledge sharing online.

Hindering factors	References
Lack of communication	(Metin, 2019)
Conflicting perspectives	(Metin, 2019; Jarrahi et al., 2019)
Misaligned priorities	(Metin, 2019)
Lack of trust	(Cao et al.,2012; Mislán et al., 2016)
Virtual rewards	(Wang et al.,2022)
Value dissimilarity	(Jarrahi et al., 2019)
Economic factors	(Deng et al.,2023)
Network reciprocity	(Deng et al.,2023)

Regarding the outcomes of Tacit knowledge sharing online (TKSO), nine studies directly or indirectly discussed the impact of TKSO. These outcomes were concentrating on Organizational (2 Studies), Interpersonal (2 Studies), Both individual and Organizational (1 study), and Individual (3 studies). The sector with the most outcomes is the healthcare sector.

6 FINDINGS

The systematic review of 30 articles reveals a diverse landscape of tools and practices employed for TKSO. 22 of such articles addressed tools or practices used in different contexts. Hence, this paper identifies practices used for TKSO as; information structuring, memberships in virtual communities, virtual learning activities, virtual case discussions, and the use of social media features such as broadcasting and personalized feeds. These practices collectively enhance the accessibility and co-creation of tacit knowledge among innovation networks.

The tools identified in this study largely falls into two categories; 1. communicating and collaborating tools, 2. Social media platforms. Skype, slack, e-learning platforms, blogs, and wikis fall under communicating and collaborating tools while Twitter, Facebook and LinkedIn can be categorized under social media platforms. However, both these categories of tools enable real-time interaction, collaborative content creation and knowledge disseminations among innovation networks.

Real-time communication, collaborative features, and personalization/ filtering capabilities within these tools are essential for effective TKSO in innovation networks. They promote engagement, facilitate interaction, and help individuals find relevant up to date information. In addition to the established tools that are discussed above, this review identified emerging technologies such as digital twins and IoT being explored to capture tacit knowledge transfer between humans and collaborative robots (Guerra-Zubiage et al.,2021) highlighting the evolving landscape of TKSO.

Out of 30 reviewed studies, 16 identified factors influencing tacit knowledge sharing (TKSO), categorized as moderating or inhibiting. The four key moderating factors are network characteristics, intrinsic motivation, trust, and communication technology. Strong relationships and frequent interactions within a network promote effective TKSO, with trust in the knowledge provider—based on benevolence, competence, and integrity—being crucial. Organizations should encourage trust through transparent communication and recognition of expertise. Additionally, clear communication and appropriate technology, such as real-time communication tools, are vital for successful knowledge exchange, with the choice of technology and communication style being tailored to specific contexts for optimal results.

Several factors inhibiting tacit knowledge sharing (TKSO) were identified, including lack of trust and

poor communication, which are interconnected barriers in virtual platforms. Building trust through open communication and clear expectations is crucial. Differences in values or negative attitudes within innovation networks also hinder knowledge sharing. Additionally, virtual rewards, if poorly designed, can demotivate TKSO. Economic disparities between regions influence knowledge flow, with wealthier regions typically sharing more knowledge with less successful ones. Lastly, network reciprocity where knowledge is shared only when something valuable is received can limit the willingness to share tacit knowledge.

The findings highlight the complexity of tacit knowledge sharing (TKSO), influenced by both individual and contextual factors. Positive influences include network characteristics and intrinsic motivation, while the effects of external rewards and social dynamics are more nuanced. TKSO is crucial for innovation networks, promoting trust, collaboration, and the sharing of expertise to drive growth. The outcomes of TKSO extend beyond the act of sharing, producing tangible benefits such as increased knowledge and skills, and intangible ones such as enhanced collaboration and innovation.

Nine studies, primarily focused on healthcare, examined TKSO outcomes at individual and organizational levels. Panahi et al. (2016) and Muhammed Kashif et al. (2019) found that sharing medical knowledge through social media enhances both professional and personal development. At the individual level, TKSO improves skills, motivation, and innovation capabilities. Hildrum (2009) and Tee and Karney (2010) emphasized that TKSO fosters learning and problem-solving skills. Organizational-level outcomes, as noted by Buunk et al. (2018) and Panahi et al. (2016), include improved problem-solving and innovation, showing TKSO as a catalyst for individual and organizational growth and innovation.

7 CONCLUSION

This systematic review highlights the crucial role of online platforms in facilitating tacit knowledge sharing (TKSO) within innovation networks. It identifies a range of tools, from social media to emerging technologies like digital twins, which promote TKSO. Both individual-level and organizational-level benefits, such as professional development, innovation, and problem-solving, are noted. However, TKSO's effectiveness is influenced

by factors like network characteristics, motivation, trust, and appropriate technology use.

The review offers insights for fostering a knowledge-sharing culture by emphasizing trust, collaboration, and the selection of suitable tools. A conceptual framework is developed to illustrate the interplay between individual characteristics (moderating factors) and contextual factors (enabling factors) in the TKSO process. The framework underscores the recurring nature of knowledge sharing and provides a foundation for future research and practice.

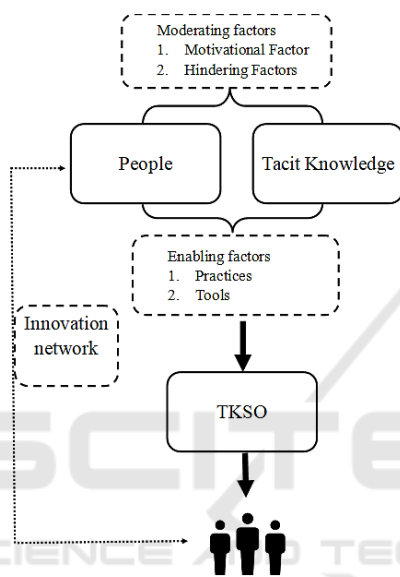


Figure 3: Conceptual framework for TKSO in innovation networks.

Overall, this review highlights the multifaceted impact of TKSO, extending beyond the mere exchange of information. By understanding these outcomes, organizations can develop strategies to leverage online platforms and create environments that encourage and reward the sharing of tacit knowledge, ultimately driving individual growth and organizational success.

REFERENCES

- Acemoglu, D., Akcigit, U., Kerr, W. R. (2016). Networks and the Macroeconomy: An Empirical Exploration. *NBER Macroeconomics Annual*, 30, 273-335. DOI: 10.1086/685961.
- Amidi, A., Jabar, M., Jusoh, Y.Y. and Abdullah, R. (2017). Appropriation of social media for fostering effective tacit knowledge sharing: developing conceptual model. *Journal of Physics: Conference Series*, [online] 892, p.012012. doi: <https://doi.org/10.1088/1742-6596/892/1/012012>.
- Amidi, S., Yusmadi Yah Jusoh, Mar Yah Said, Jabar, M.A. and Abdullah, R. (2018). Application of Social Media Among Medical Practitioner for Sharing Tacit Knowledge: A Pilot Study. [online] doi: https://doi.org/10.1007/978-981-10-8276-4_32.
- Beije, P. R. & Groenewegen, J. (1992). A Network Analysis of Markets. *Journal of economic issues*. [Online] 26 (1), 87–114. DOI: 10.1080/00213624.1992.11505263.
- Braun, V. & Clarke, V. (2022). *Thematic analysis: a practical guide*. SAGE Publications, London.
- Buunk, I., Smith, C.F. and Hall, H. (2018). Tacit knowledge sharing in online environments: Locating ‘Ba’ within a platform for public sector professionals. *Journal of Librarianship and Information Science*, [online] 51(4), pp.1134–1145. doi: <https://doi.org/10.1177/0961000618769982>.
- Cao, W., Xu, L., Liang, L. and Chaudhry, S.S. (2012). The impact of team task and job engagement on the transfer of tacit knowledge in e-business virtual teams. *Information Technology and Management*, [online] 13(4), pp.333–340. doi: <https://doi.org/10.1007/s10799-012-0129-6>
- Clarke, V. & Braun, V. (2017). *Thematic analysis. The journal of positive psychology*. [Online] 12 (3), 297–298.
- Deng, Z., Deng, Z., Liu, S. and Evans, R. (2023). Knowledge transfer between physicians from different geographical regions in China’s online health communities. *Information Technology & Management*. [online] doi: <https://doi.org/10.1007/s10799-023-00400-3>.
- Diptee, D. and Diptee, J. (2013). Tacit knowledge acquisition in virtual teams. 2013 *Wireless Telecommunications Symposium (WTS)*. [online] doi: <https://doi.org/10.1109/wts.2013.6566228>
- Duan, Y. and Haag, M. (2011). Understanding personal knowledge development in online learning environments: an instrument for measuring externalization, combination, and internalization. *Electronic Journal of Knowledge Management*. [online] Available at: <https://search.ebscohost.com/login.aspx?direct=true&db=afh&AN=78296196&site=ehost-live>
- Fang, J. and Gong, L. (2011). Web2.0 Environment of Personal Knowledge Management Applications. *Lecture notes in electrical engineering*, [online] pp.1639–1646. doi: https://doi.org/10.1007/978-94-007-1839-5_177
- Gaur, A. and Kumar, M. (2018). A systematic approach to conducting review studies: An assessment of content analysis in 25 years of IB research. *Journal of World Business*, 53(2), pp.280-289.
- Großer, B., Kepplinger, S., Vogel, C. and Baumöl, U. (2018). Knowledge Processes in Virtual Teams - Tacit Knowledge. [online] 20th International Conference on Enterprise Information Systems. doi: <https://doi.org/10.5220/0006674602470254>
- Guerra-Zubiaga, D.A., Navid Nasajpour-Esfahani, Phan, N.Q., Gupta, S. and Block, L. (2021). Tacit Knowledge

- Capture Using Digital Tools in a Human-Robot Interaction: A Case Study. Volume 2B: Advanced Manufacturing. [online] doi: <https://doi.org/10.1115/imece2021-66084>.
- Haag, M. & Duan, Y. (2012). Understanding Personal Knowledge Development in Online Learning Environments: An Instrument for Measuring Externalization, Combination, and Internalization. *The Electronic Journal of Knowledge Management*, 10(1), pp. 39-47.
- Hildrum, J. M. (2009). Sharing Tacit Knowledge Online: A Case Study of e-Learning in Cisco's Network of System Integrator Partner Firms. *Industry & Innovation*, [online] 16(2), pp.197-218. doi: <https://doi.org/10.1080/13662710902764360>.
- Hirsch, J. E., 2005. An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences*, 102(46), pp.16569-16572.
- Huang, C.-Y., Gamage, B., Bryce, E.A., LoChang, J., Yassi, A., Maultsaid, D. and Yu, S. (2008). Personal protective equipment in health care: Can online infection control courses transfer knowledge and improve proper selection and use? *American Journal of Infection Control*, [online] 36(10), pp. e33-e37. doi: <https://doi.org/10.1016/j.ajic.2008.07.007>
- Hsiao, E-Ling. and Huang, X. (2019). Strategies to Support Personal Knowledge Management Using a Wiki Site in Online Courses. *The Journal of Educators Online*, [online] 86 16(1). doi: <https://doi.org/10.9743/jeo.2019.16.1.5>
- Jarrahi, M. H., Philips, G., Sutherland, W., Sawyer, S. and Erickson, I. (2019). Personalization of knowledge, personal knowledge ecology, and digital nomadism. *Journal of the Association for Information Science and Technology*, [online] 70(4), pp.313-324. doi: <https://doi.org/10.1002/asi.24134>
- Kashif Imran, M., Fatima, T., Aslam, U. and Muhammad Javed Iqbal, S. (2019). Exploring the Benefits of Social Media Towards Knowledge Sharing Among Doctors. *Pakistan Journal of Psychological Research*, [online] 34(2), pp.331-352. doi: <https://doi.org/10.33824/pjpr.2019.34.2.18>.
- Ku, E. C. S. (2012). Distributed Fascinating Knowledge Over an Online Travel Community. *International Journal of Tourism Research*, [online] 16(1), pp.33-43. doi: <https://doi.org/10.1002/jtr.1895>
- Kögl, S. and Silvius, G. (2019). Using Patterns to Capture and Transfer Tacit Knowledge in Virtual Project Teams. *Semantic Scholar*, [online] 7(20). doi: <https://doi.org/10.19255/JMPM02002>
- Lampela, H.: Inter organizational learning within and by innovation networks. Lappeenranta University of Technology. <http://lutpub.lut.fi/handle/10024/45412> (2009)
- Lee, C.-C., Lee, L.-C. and Kao, R.-H. (2022). How do Enterprises promote innovation performance? A study on the relationship between online communities and innovation 87 performance-exploring the mediating effect of tacit knowledge. *Current Psychology*. [online] doi: <https://doi.org/10.1007/s12144-022-02890->
- Liu, E. and Song, M.: Innovation Networks and R&D Allocation *. [online] Available at: <https://ernestliu.scholar.princeton.edu/sites/g/files/toruqf4426/files/documents/paper.pdf> (2024)
- López-Nicolás, C. and Soto-Acosta, P., 2010. Analyzing ICT adoption and use effects on knowledge creation: An empirical investigation in SMEs. *International Journal of Information Management*, 30(6), pp.521-528.
- Marwick, A., 2001. *The New Nature of History: Knowledge, Evidence, Language*. Oxford: Oxford University Press.
- Majewska, M. & Szulczyńska, U. (2014). Methods and Practices of Tacit Knowledge Sharing Within an Enterprise: An Empirical Investigation. *Oeconomia Copernicana*. [Online] 5 (2), 35-48.
- Meho, L.I. and Yang, K., 2007. Impact of data sources on citation counts and rankings of LIS faculty: Web of Science vs. Scopus and Google Scholar. *Journal of the American Society for Information Science and Technology*, 58(13), pp.2105-2125.
- Metin, F. (2019). 'The factors influence online tacit knowledge sharing in public organisations: A qualitative case study from Turkey', **Gaziantep University Journal of Social Sciences**, 18(3), pp. 1121-1142. doi: 10.21547/jss.442144.
- Mislan, A., Sahibi, M.S., Jamaluddin, A., Sufi Alawi Idris, A. and Hartina Ahmad, N. (n.d.). The arts of Knowledge Transfer in Virtual Organization: Tacit Knowledge. *International Journal of Computer Science and Network Security*, [online] 16(4). Available at: http://paper.ijcsns.org/07_book/201604/20160408.pdf
- Mladenović, D. and Krajina, A. (2019). KNOWLEDGE SHARING ON SOCIAL MEDIA: STATE OF THE ART IN 2018. *Journal of Business Economics and Management*, [online] 21(1), pp.44-63. doi: <https://doi.org/10.3846/jbem.2019.11407>
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press.
- Nonaka, I. (1994). A Dynamic Theory of Organizational Knowledge Creation. *Organization science* (Providence, R.I.). [Online] 5 (1), 14-37. DOI: 10.1287/orsc.5.1.14.
- Nilmanat, R. (2011). Investigating image usage and tacit knowledge sharing in online communities.
- Nonaka, I. & Teece, D. J.: *Managing industrial knowledge: creation, transfer, and utilization*. London: Sage.ISBN: 0-7619-5498-8 (2001)
- International Journal of Innovation and Learning*, [online] 10(4), p.350. doi: <https://doi.org/10.1504/ijil.2011.043095>
- Panahi, S., Watson, J. and Partridge, H. (2012). Potentials of social media for tacit knowledge sharing amongst physicians: preliminary findings. *Science & Engineering Faculty*. [online] Available at: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84878301263&partnerID=40&md5=c5aabe4d94691a551f8ab7d717846694>.

- Panahi, S., Watson, J. and Partridge, H. (2015). Information encountering on social media and tacit knowledge sharing. *Journal of Information Science*, [online] 42(4), pp.539–550. doi: <https://doi.org/10.1177/0165551515598883>
- Panahi, S., Watson, J. and Partridge, H. (2016). Conceptualizing social media support for tacit knowledge sharing: physicians' perspectives and experiences. *Journal of Knowledge Management*, [online] 20(2), pp.344–363. doi: <https://doi.org/10.1108/jkm-06-2015-0229>.
- Polanyi, M. (1958). *Personal knowledge; towards a post-critical philosophy*. University of Chicago Press, Chicago.
- Polanyi, M. (1966). *The Tacit Dimension*, University of Chicago Press, London (1966).
- Rachaneewan, M. (2011). Investigating image usage and tacit knowledge sharing in online communities," *International Journal of Innovation and Learning*, Inderscience Enterprises Ltd, vol. 10(4), pages 350-364.
- Razmerita, L., Kirchner, K. and Nabeth, T. (2014). Social Media in Organizations: Leveraging Personal and Collective Knowledge Processes. *Journal of Organizational Computing and Electronic Commerce*, [online] 24(1), pp.74–93. doi: <https://doi.org/10.1080/10919392.2014.866504>.
- Sarkiunaite, I. and Kriksciuniene, D., 2005. Impacts of Information Technologies on Tacit Knowledge Sharing: Empirical Approach. *Informacijos Mokslai*, 35, pp.69-79.
- Ichijō, K. & Nonaka, I. (2007). *Knowledge creation and management: new challenges for managers*. Oxford: Oxford University Press. ISBN: 9780195159622.
- Tee, M. Y. and Karney, D. (2010). Sharing and cultivating tacit knowledge in an online learning environment. *International Journal of Computer-Supported Collaborative Learning*, [online] 5(4), pp.385–413. doi: <https://doi.org/10.1007/s11412-010-9095-3>.
- Tidd, J., Bessant, J., & Pavitt, K.: "Managing innovation; integrating technological, market and organizational change, 2d ed", 2001/11//, Reference and Research Book News, vol. 16, no. 4 (2001).
- Wang, N., Yin, J., Ma, Z. and Liao, M. (2021). The influence Practice of rewards on knowledge sharing behaviors in virtual communities. *Journal of Knowledge Management*, [online] 26(3), pp.485–505. doi: <https://doi.org/10.1108/jkm-07-2020-0530>
- Yuan, D., Lin, Z. and Zhuo, R. (2016). What drives consumer knowledge sharing in online travel communities? Personal attributes or e-service factors? *Computers in Human Behavior*, [online] 63, pp.68–74. doi: <https://doi.org/10.1016/j.chb.2016.05.019>
- Yudhistira, D.S. and Sushandoyo, D. (2020). Does political self-disclosure in social media hamper tacit knowledge sharing in the workplace? *VINE Journal of Information and Knowledge Management Systems*, [online] 50(3), pp.513–530. doi: <https://doi.org/10.1108/vjikms-08-2019-0128>