Information and Knowledge Management
ISSN 2224-5758 (Paper) ISSN 2224-896X (Online)
Vol.12, No.4, 2022

Research in Area of Tacit Knowledge: Literature Review on Tacit Knowledge

Daniel Mamo[1*] Murray E. Jennex (Professor)[2] Million Meshesha (PhD)[3]
1. Institute of Ethiopian Studies, Addis Ababa University, PO box 1176, Addis Ababa, Ethiopia
2. Information systems, Paul and Virginia Engler College of Business, West Texas A & M University
3. School of Information Science, Addis Ababa University, PO box 1176, Addis Ababa, Ethiopia
*E-mail the corresponding author: danmamo20@gmail.com

Abstract
Knowledge is one of the valuable resources for organizational success and competitive advantage. The characteristics, types, and usage of knowledge is determining the potential of an organization. The types of knowledge are tacit and explicit. Following deductive research approach this paper presents meta-analysis of the use of tacit knowledge in the transport sector. The paper investigated and identified the areas and amounts of studies on tacit knowledge integration to show the gap work and the way forward. Even if from 2000 up to 2019 E.C Knowledge Management (KM) researchers published on the average 10.65 publications yearly, however, this literature survey confirmed that there is no publication is found tacit knowledge integration in the transport sector.
Keywords: knowledge, knowledge management, tacit knowledge, practical intelligence
DOI: 10.7176/IKM/12-4-03
Publication date: June 30th 2022

1. Introduction

The meaning of knowledge is crucial for different disciplines. Specially, for philosophy, psychology, education and management, it is an arguable concept. Hjørland (2009) reveals that the view of epistemologies are pragmatism, rationalism, empiricism, and historicism. The part of philosophy that studied knowledge is epistemology. According to Bartlett (2017) epistemology is the study of the limits and conditions of knowledge. Epistemology is one of the main areas of philosophy (Barvarz, et al. 2014) which deals with the nature and justification of human knowledge.

On the other hand, knowledge management activities are supported by information communication technologies (ICTs). Data, Information, Knowledge, and Wisdom are the famous knowledge hierarchy in popular literatures. This knowledge pyramid originally proposed by Ackoff (1989). Jennex and Bartizan (2013) show the development of a collection of data from the surroundings. Also a revised knowledge pyramid embraced on DIKW levels of social networks. Their research showed that the dimension of wisdom became wider than the bottom size (sensors, data). These researchers are integrated the known knowledge pyramid with the current technology.

Mostly, knowledge behaves the property of the individual. Therefore, it's defined as beliefs that is true and are justified (Hunt, 2003). Davenport (1998), explains that the knowledge is information combined with experience, context, interpretation and reflection. They found that in organizations, knowledge often becomes embedded in documents or repositories and in organizational routines, processes, practices, and norms. They also say that for knowledge to have

value it must include the human additions of context, culture, experience, and interpretation. The knowledge management scholars (Ackoff, 1989; Jennex and Bartczak, 2013) investigate the knowledge related to data, information, and wisdom.

The main economic wealth, resources are land, capital, and labor. Currently, knowledge adds to the critical resources, which is an engine for innovation and advancement. Knowledge lies in human minds and exists only if there is a human mind to the knowing (Widen-Wulff and Suomi, 2007). There are three dimensions of knowledge: width, depth, and tacitness (Nooteboom, 1999). Knowledge breadth refers to the number of different knowledge domains with which the firm is familiar (Bierly and Chakrabarti, 1996). Prabku, Chandy, and Ellis (2005) have a similar view, referring to the knowledge, breadth as the range of fields over which the firm has the knowledge. Firms with a broad knowledge base have a greater potential to recombine different elements of the knowledge to improve opportunity recognition and creative potential (Kogut and Zander, 1992).

Knowledge depth is the level of sophistication and complexity of a firm's knowledge of its stakeholders. Knowledge of the interdependencies of elements such as participant's needs, behaviors, and preferences and opponents' products and strategies indicates that a firm has a deep understanding of its service. While breadth captures the horizontal dimension of knowledge, depth captures the vertical dimension. Breadth of knowledge is focused on teams composed of generalists. On the other hand, depth of knowledge is teams composed of specialists (Turner et al. 2000).

Tacitness of knowledge describes the extent of the existence of knowledge in the human mind, which is difficult to codify and communicate. Tacitness slows the internal transfer of knowledge because tacit knowledge cannot be fully codified and articulated even by an expert. It can be transferred from one person to another only through a long process of apprenticeship, which necessarily involves face-to-face interactions, review of successful and unsuccessful projects, and frequent advice from experts (Galunic and Rodan, 1998; Szulanski, 1996).

Knowledge specificity refers to the extent to which the firm's knowledge is tailored to the requirements of specific contexts in which it is maximally effective, but loses its value in other contexts (Galunic and Rodan, 1998). For instance, a firm's knowledge can be related to the attitudes of a specific customer segment toward a specific product or strategy.

Knowledge can be created by international and resource-consuming efforts (Du et al, 2007). The neglect of the tacit knowledge based on people and ideas has undoubtedly reduced the corporate market places capability for true innovation and sustainable competitiveness (Gamble and Blackwell, 2001). Mostly, it is also combined with Information Communication Technology (ICT). Related with knowledge management, nowadays created a new profession that is known as a knowledge worker (Gamble and Blackwell, 2001). The knowledge management researchers agree on the fact that knowledge workers represent important and growing group of employees. Knowledge workers are well educated or experienced, create their own work standards, and make decisions independently (Mladkova, 2012).

Knowledge workers are professionals whose major working resource and tool is knowledge. These professionals are using both tacit and explicit knowledge. Nowadays, organizations cannot depend on tangible assets like technology. But also their asset is tacit knowledge which is found in the head of employees. Most knowledge workers know their responsibility. They are willing to use and share their knowledge for the benefit of their organizations.

2. The research questions

Most researches which are investigated by this paper, researchers focused on the transfer of knowledge, acquisition of knowledge, and organizational performance in health, agriculture, ICT firms, construction firms, etc. The researchers didn't obtain related research works which are related to tacit knowledge integration for transport sector employees. Knowledge is the property of a human being. Therefore, this research identifies the gap of tacit knowledge integration in the transport sector. The investigated journals which are focused on tacit knowledge revealed the gap.

This research work has three main research questions: - The first is: - How does transport authority facilitate tacit knowledge integration in the organization?

The second is: - What suitable model needs to be designed to facilitate tacit knowledge integration in the transport sector?

The third is: - What determinant factors affect tacit knowledge integration

2.1 Focus of the paper

One of the main economic sectors of a country is transportation. The transportation sector should lead with knowledge to obtain an effective and efficient outcome. However, research works related to tacit knowledge integration are not available on the transportation sector. The extant literatures on tacit knowledge have revealed the reality. Also the transport sector knowledge management should be led by strategy. The adoption and implementation of KM strategy in practice are not so straight forward due to many different internal and external factors to the company. Therefore, selecting the appropriate KM strategy is significant to its implementation (Pham, and Hara, 2009). Seven selected strategy items are listed with Jennex research work (Jennex, 2012). The list also suggests the key performance indicators and awareness/ mapping of knowledge sources and users.

An organization needs a knowledge management strategy to use knowledge effectively. Pham and Hara (2009) the adoption and implementation of KM strategy in practice is not so straight forward due to many different internal and external factors for the company. Therefore, selecting the appropriate KM strategy is significant to its implementation.

3. Transport Sector

Transport is fundamental for the sustainable development of society and for regional, national, and transnational cooperation (European Commission, 2015). Effective transportation and mobility are one of the key drivers of progress in all sectors, including economy, education, provision of health services, agricultural production and distribution, energy and environment. From a social perspective (European Bank, 2013), transport supports individual mobility so all people can benefit from access to essential public services such as health and education, and access to labor markets, which can also have important implications for economic inclusion.

Transport is difficult to plan and manage well. Therefore, the transport sector needs effective management. Management is about the control of the resources used to provide transportation to achieve goals and objectives.

3.1 Transport Management

Researchers in transport sector use, transportation management and management of transportation interchangeable. Bade et al. (2006) the management of transportation is concerned with overall purchase and control of this movement service [i.e., moving freight and passengers] used by a firm in achieving its logistics objectives. Transport management improves operations from procurements to fright settlement. It helps streamline transportation operations and reduce cost. It also provides greater visibility and control over the entire process.

Additionally, TRB (2014), deals with the planning, direction, and control of the entire activity of a transportation supplier, including the formulation of objectives, policies, programs, and strategy and product development; organizing and staffing to carry out plans; supervising operations; and controlling performance. The transport management also has a system. It is a tool to transport management.

The above mentioned definitions of transport management focused on the activities of transportation. How to develop the skill or knowledge of the employees? This question needs further research to give appropriate answers. Because this paper, research workers could not find research works focus on tacit knowledge integration.

3.2 Transport management system

A transportation management system (TMS) is specialized software for planning, executing and optimizing the shipment of goods (Essex and Kakade, 2021).

Transport demand in most developing countries has increased significantly due to increase in population as a result of both natural increase and migration from rural areas and smaller town's fast growth of Ethiopian population like other developing countries has triggered a greater need for used organized transport management system.

The TMS is a tool which transfer data and information. According to Jennex and Olfman (2005) research, knowledge management systems (KMSs) are systems designed to manage organizational knowledge. The knowledge management systems is that process of knowledge, creation, storage/ retrieval, transfer, and application. The combination of TMS with KMSs is plays very significant role on the transport sector for organizational memory and uses extant and add knowledge.

Stefansson and Sternberg (2007) designed Smart Logistics Setup (SLS) framework. The framework includes a high-end system solution that includes different state-of-art components such as an identification system based on radio frequency identification (RFID) technology, an on-board vehicle information system that enables data and information execution.

The framework does not indicate how to store the extant and new knowledge for the future use. Ashour, Zorkany, and Shiple (2015) deal with the transportation management system (TMS) that data transferred between the buses, the main servers, and the end users are managed via mobile networks and the internet.

The researchers described that the TMS is mostly depend on data and information. The knowledge is still in the transport expert's mind.

4. Tacit Knowledge Management

Tacit knowledge is seen most often as something hidden, abstract, and almost inaccessible. The word tacit comes from the Latin taciturn, meaning that which is secret, hidden or mysterious (Boiral, 2002).

Tacit knowledge is understanding, capabilities, skills, and the experiences of individuals; often expressed in human actions in the form of thoughts, point of view, evaluation and advice; generated and acquired through past experiences, individuals and repositories (Wajidi & Asim, 2009).

Various researchers gave different meanings for tacit knowledge. However, the main concepts are similar. Likewise, Sternberg, Wagner, Williams, and Horvath (1995) contend that tacit knowledge is "action-oriented knowledge, acquired without direct help from others, which allows individuals to achieve goals they personally value".

When we discuss about tacit knowledge, it is related to knowledge identification, acquisition, creation, organization, sharing, evaluation, preservation, retention, and updating. The Japanese concept of "BA" which roughly translates into the English word "place", is thought of as a shared space for emerging relationships (Nonaka & Konno, 1998). This space can be physical (e.g. office, dispersed business space), virtual (e.g. e-mail, teleconference), mental (e.g. shared experiences, ideas, ideals), or any combination of them. The main concept of "BA" is the creation of knowledge through human interaction. The human interaction is provided the sharing of tacit knowledge. If the space of knowledge, "BA" is detached from knowledge, it turns into information.

Information is available in the media and networks and hence it is tangible (explicit knowledge). In contrast, knowledge exists in "BA" since it is intangible that means it is tacit knowledge.

Experts can transfer their experiences for others through different medium. The richest medium is face-to-face interaction. Because it is significant for immediate feedback and the availability of multiple cues, it improves the use of tacit knowledge (Song, 2009).

Tacit knowledge is deeply rooted in action, commitment, and involvement in a specific context. Tacit knowledge involves both cognitive and technical elements. Technical tacit knowledge generally refers to personal skills or concrete know-how, whereas cognitive tacit knowledge refers to ingrained schema, beliefs, and mental models that are taken for granted (Nonaka et al., 2000; Nonaka et al., 1994). In addition to, cognitive and technical dimensions, there is also social dimension. This dimension is related to skills and ability in managing both an individual's own and other's behaviors as well as focusing on local and global issues (Insch et al., 2008).

Some researchers have attempted to measure the tacit knowledge. One of the major problems is to measure or quantify the tacit knowledge. Somech and Bogler (1999) details how tacit knowledge is quantified in college freshman and can be measured as the students gain more tacit knowledge as they progress to seniors. The term practical intelligence has been used as a proxy for tacit knowledge (Stemberg, 1997). Tacit knowledge is remarkable component of job success and performance in management (Sternberg et al., 1995). Wagner & Sternberg (1985, 1986) presented one aspect of the concept of practical intelligence. Practical intelligence is "a person's ability to apply the components of intelligence to everyday life" (Sternberg, 1993, p.518). It is based on procedural information relevant to one's daily life (Sternberg & Wagner, 1989).

A few researchers use practical intelligence with tacit knowledge interchangeably. The key to practical intelligence is what Michael Polanyi (1966) has called tacit knowledge, the practical know-how one needs for success on the job. Often it is not openly expressed or stated, and it usually is not taught directly. There is no distinction between practical intelligence and tacit knowledge. Practical intelligence is a general concept that embodies tacit knowledge (Schmidt and Hunter, 1993).

The nature of the relationship between tacit knowledge and experience has not been fully established (Armstrong and Mahmud, 2008), but it is possible that a range of individual differences such as intelligence, personality, prior knowledge, and psychological constructs such as cognitive style may have some impact on the tacit knowledge process. Through the process of tacit knowledge, understanding, insights, and discoveries are made to add value to the particular experience as well as other prior experiences. This is then integrated the previous experience with the new one which is very significant.

In a 2000 survey, Bonner (2000) has realized that more than 90 percent of the knowledge in organizations is embedded in their employee's head. This is the tacit knowledge, the invisible line item in corporate budgets (Smith, 2001). Generally, effective transfer of tacit knowledge requires extensive personal contact trust.

Retirements, deaths, staff promotions, alterations, and dispersion of team work are serious dysfunctions that can effect on the entire organization. In order to achieve superior organizational performance, organizations need to focus on employee knowledge management. Specifically, tacit knowledge management is crucial in executing day-to-day job functions effectively and efficiently. This, in turn, enhance the performance or not is still vague with limited correlational relationship studies previously (Hsueh, et al, 2016).

5. Tacit knowledge in organizations

According to Polanyi (1966), and Nonaka and Takuchi (1995) two types of knowledge are dominant. Tacit and explicit knowledge is the main body of knowledge. Explicit knowledge can be expressed in words and numbers and shared in the form of data, scientific formula and universal principles. Such kind of knowledge can be communicated among the individuals systematically and formally. If knowledge is tacit, then it cannot be shared with others simply. Because, there is knowledge that cannot simply codified. For instance riding a bicycle.

One of the main concerns in organizations is to manage knowledge in a systematic manner. Specially, organizations in developing countries don't give adequate emphasis to manage knowledge which is found with their staffs. The reason is explained by Peng, Li- Hua, and Moffett (2007) in such a way that knowledge management implementations within developing countries are still at an early stage.

Currently, the power of knowledge measured by its application. When an organization applies new knowledge in its products and services it can secure its existence and competence. Alageeli and Aalyateem (2015) assert that knowledge is no longer a power in the era of speed, computer and internet unless it is applied. So the knowledge management focuses firstly on the humans, procedures (operations) and modern techniques, and develop what the others did, and that the knowledge builds and not creates.

The tacit knowledge, research on environmental management identified three interdependent reasons that explain the usefulness of tacit knowledge in environmental management (Boiral, 2002), namely: - the physical proximity of the workers to the industrial processes and operations that are the source of contaminants in the discharges;

- The relevance of employee participation in the development of preventive solutions.

- The need to react quickly in cases where norms are exceeded or accidental spills occur.

These reasons are not the only ones that can justify the consideration of this tacit knowledge. Nonetheless, the vast majority of the data on tacit knowledge collected during the interviews and observations are linked to them. The above mentioned reasons are fundamentally important.

The two types of knowledge (tacit and explicit) can be described as an iceberg. The structured, explicit knowledge is the visible top of the iceberg, which is easy to find and recognize and therefore also easier to share. Beneath the surface, invisible and hard to express is a momentous part of the iceberg (Herrgard, 2000; and Empson, 1999, 2001). The hidden part applies to tacit knowledge resources in organizations. Tacit and explicit knowledge is the main tool for organizations. Gaghman (2019) deals with oil and gas companies as intensive-knowledge, high- technology organizations that depend highly on employee's accumulated knowledge. At the same time, it is a more turbulent industry, which has a higher link in the term of organizational learning and knowledge retention (Fisher and White, 2000).

Another sector of the tacit knowledge area is the tourism. Buckley (2010) amplifies the adventure tourism leads to tacit knowledge between international visitors and local residents in developing destinations; and that motivation for the locals include money and employment, social capital, and individual enjoyment. Over the past half century, adventure tourism has grown from decentralized domestic outdoor recreation, to a large international commercial industry. Many tours bring urban clients from developed nations to rural areas in developing nations, where there are icon sites for specific adventure activities.

The construction industry is labor intensive. It embraces engineers, architects, and other professionals. Different professionals within the construction industry are not in a position to "cut and paste" best practice from the past due to the unique and the complex nature of the construction projects (Kamara et al, 2003). Tacit knowledge evolves shared practices and experience which need to be managed in the project and the organizational success. According to Wetherill et al. (2002), knowledge in the construction domain can be classified into three categories; domain knowledge, organizational knowledge, and project knowledge.

The knowledge management (KM) plays an increasing number of roles in construction organizations. There are major difficulties associated with its application, such as establishing a strategy that balances the resources in managing both tacit and explicit knowledge and evaluating its benefits (Robinson et al. 2005).

Wetherill et al. (2002) classification reflects the organizational hierarchy and when one moves from domain knowledge to project knowledge the construction of knowledge too moves from explicit to tacit nature. Stahle (1999) categorizes the organizations into the three-dimensional system, i.e. mechanistic, organic, and dynamic nature, depending on the different challenges presented for management of knowledge.

Inkepen and Dinur (1998) describe that tacit knowledge is highly context specific and has a personal quality, which makes it difficult to formalize and communicate. Boiral (2002) elaborates the above mentioned statement reflects the four main characteristics highlighted in most of the literature on the subject of tacit knowledge, namely its personal nature, its implicit quality, the fact that it is difficult to codify and its operational relevance.

The influence of tacit knowledge shows on all social, economic and political sectors. One of the sectors is culture. Tacit knowledge is obviously contextual, yet at the same time is culturally influenced. Culture in this instance need not necessarily refer to the macro/ country level, rather the role of culture is important even down at the ethnic level. For instance, in Finland much tacit knowledge is transferred in the Sauna (Koskinen, 2000).

Cultural tacit knowledge differences are given by way of Japanese work practices. The Japanese approach is to conduct a morning discussion session where staff are able to 'air' their viewpoints and transfer their tacit knowledge. Such an approach has often appeared to have visited the U.S. staff as a waste of time (Nonaka and Takeuchi, 1998).

The Japanese approach is often to involve many people. The western approach tends to reflect a 'need-to-know' basis, meaning that knowledge (both codified and more particularly tacit) is not so readily transmitted (Hamel, 1991).

Tacit knowledge is "action-oriented knowledge, acquired without direct help from others that allows individuals to achieve goals they personally value" (Sternberg, Wagner, Williams, & Horvath, 1995, p.916).

6. Research Works on Tacit knowledge

This paper presents an extensive review of research works done on tacit knowledge. The research works have been collected from different databases. We first present publications by year and then by field.

6.1 Publications by year

The following figure 1shows distribution of research works by year (from 2000-2019).

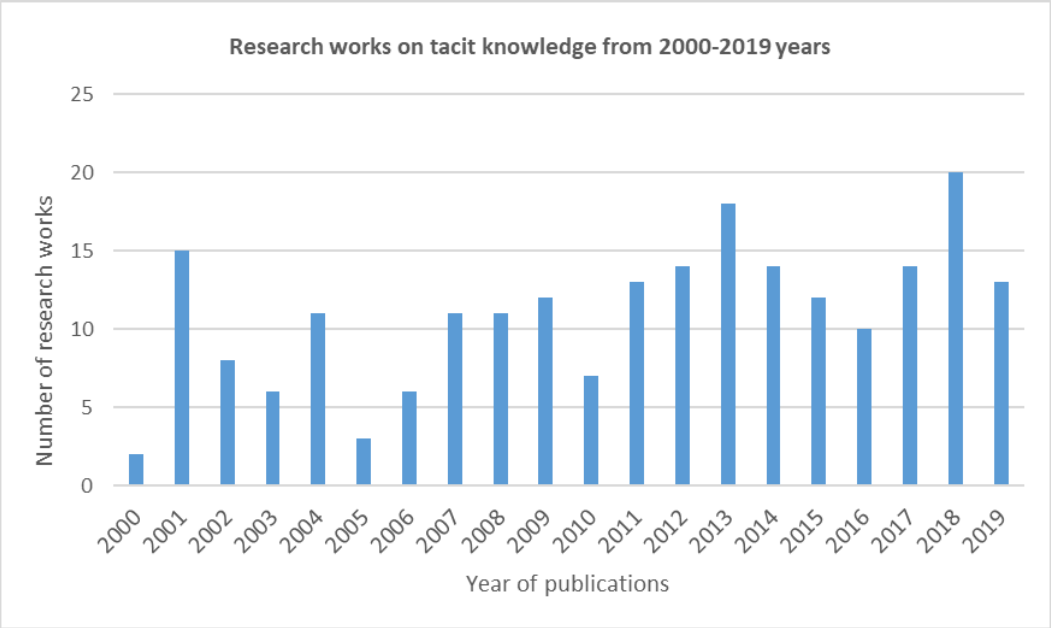

Fig 1. The amount of research works on tacit knowledge from 2000-2019 EC.

It is observed that knowledge in general and tacit knowledge in particular is an active research area. On the average, from 2000-2019 the researchers' publication is 10.65. Additionally, starting from 2011 there are more than 15 publications produced by researchers. We expect that more research will be produced to make tacit knowledge usable and practical for organizational success and competitive advantage.

The published research works on tacit knowledge focused on different organizations and on the meaning of it. Discuss in the research gap section first the concern of most works, and then the gap.

6.2 Publications by sectors/areas

We also attempted to analyze research works by sectors/areas, as shown in figure 2.

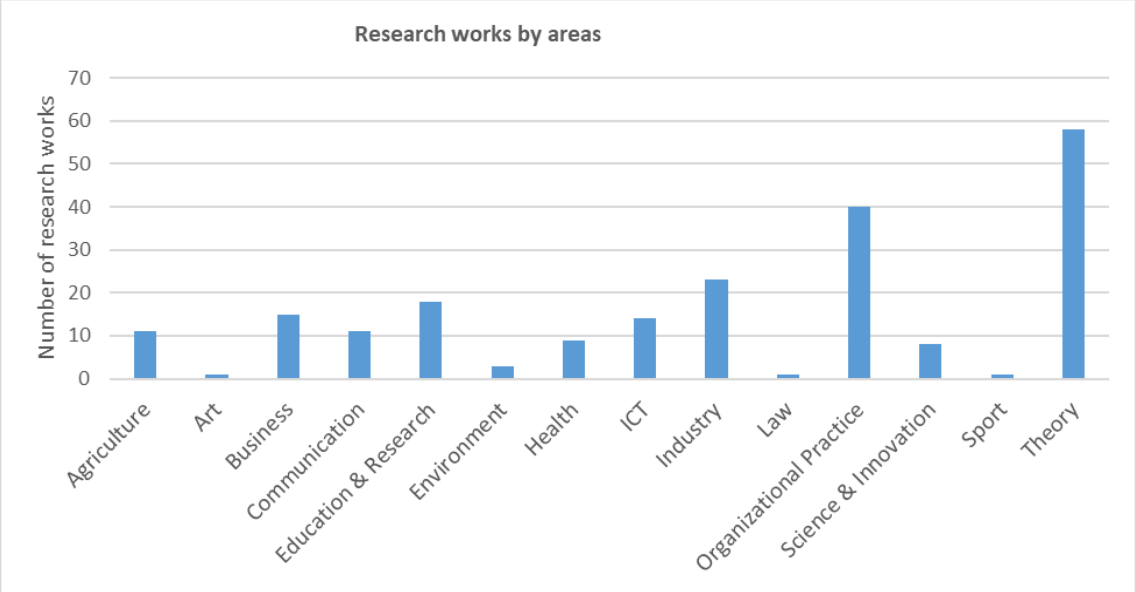

Fig 2. Researchers focused areas from 2000-2019 EC.

The above graph shows that the theory part of tacit knowledge is most extensively studied. The next studied part is an organizational practice of tacit knowledge. Sport, art, and law are least studied sectors sequentially. Though, the transport sector is a knowledge interactive service giving sector, it does not given due attention by the use of tacit knowledge for organizational success.

7. Research gap

Knowledge is a driver for enhancing the performance of economic resources like land, capital, and labor. The characteristic of knowledge is tacit and explicit. Researchers have attempted to explore the role of tacit knowledge in the various organizations, including ICT, health, international firms, agriculture, education, and constructions. The sharing of tacit knowledge in various organizations is also another research topic to enhance its use and application. This indicates that the researchers in knowledge management, especially with tacit knowledge should investigate the particular behavior of work places and sectors towards tacit knowledge sharing.

The transport sector is organized into different departments with experts having different professionals to accomplish its day to day activities. These experts have tacit knowledge which is gained through experience. These experts have to be motivated to share and externalize their tacit knowledge. Hence the KM researchers should give emphasis to explore the practice of tacit knowledge sharing and its use along explicit knowledge. However, this survey of the literature review shows nothing is found in fig. 2 about tacit knowledge related studies on transport sector from 2000-2019. The result of this study shows that the transport sector is untouched area.

According to the above graphs, researchers have not given attention yet. This sector is playing a significant role for development of a country. The transport sector has various departments and a lot of employees. Due to the importance of this sector to the development of a country the KM researchers should give emphasis, especially, focused on the extract and use of tacit knowledge integration.

8. Conclusion

Currently, organizations are giving more emphasis for economic resources, such as land, labor, and capital. Knowledge in an organization is found in both tacit and explicit forms. Each organization doesn't focus on both parts equally. The lack of concentration on tacit knowledge make hard on the organizations' competition. Hence, the competitive advantage of organizations is measured by not only using their labor, capital, and land effectively, but also by using their employees' knowledge better than their competitors.

Knowledge management is at an infant stage in developing countries. One of the knowledge is tacit knowledge which has managed so as contact its creation, identification, acquisition, sharing, and updating. Accordingly, research in tacit knowledge grows from year to year with an average of 10.65 articles, published per year, which shows an increase in research works in the area. However, most of the studies focus on theory of tacit knowledge. The findings of the review show that little attention is given to transport. As most scholars agreed, knowledge is context dependent, because of the tacit knowledge created by professionals in their organization based problem solving and decision making. Hence, attention needs to be given to the transport sector, which is a knowledge intensive service giving institution.

References

Ackoff, R.L. (1989). From data to wisdom. Journal of Applied Systems Analysis, Vol. 15, pp. 3-9.

Alageeli, O, M., Aalyateem, A.M.A. (2015). The role of the tacit knowledge in developing the human resources: Critical analytical study of the knowledge center in the industrial, commercial chamber in Jeddah, the kingdom of Saudi Arabia. International Conference on Communication, Management and Information Technology (ICCMIT 2015).

Armstrong, J. Steven, and Mahmud, A. (2008). Experiential learning and the acquisition of managerial tacit knowledge. Academy of management learning and education. Vol. 7, No.2, pp. 189-208.

Ashour, I., Zorkany, M., and Shiple, M. (2015). Design and Implementation of Transportation Management System. In Proceedings of the 1st International Conference on Vehicle Technology and Intelligent Transport Systems (VEHITS). Science and Technology Publication.

Bardi, E.J., Coyle, J.J, & Noack, R.A. (2006). Management of transportation: Thomson/ South Western.

Bartlett, S.J. (2017). Epistemological Intelligence. http:// creativecommons.org/licenses/by-nc-ND/4.0/legalcode

Barvarz, R., Nami, Y., & Ahmadi, S. (2014). The relationship between the epistemological beliefs and academic performance. Social and Behavioral Sciences Vol.114, pp.121-129.

Bierly, P., and Alok, C. (1996). Generic knowledge strategies in the U.S. Pharmaceutical Industry: Strategic Management Journal, Vol. 17 (Winter Special Issue), pp.123-35.

Boiral, O. (2002). Tacit knowledge and environmental management.
Long Range Planning Vol.35. pp. 291-317.

Bonner, D. (2000). Knowledge from theory to practice to golden opportunity. American Society for Training and Development, No. September- October, pp. 12-13.

Buckley, R.C. (2010). Adventure tourism management. Oxford: Wallingford. CAB International.

Burstein, F., and Linger, H. (2003). Supporting post-Fordist work practices: A knowledge management

framework for supporting knowledge work. Information Technology & People, Vol. 16, No. 3.
Davenport, J.H., and Prusak, L. (1998). Working knowledge:
How organizations manage what they know. Harvard Business School Press.
Du, Rong, Ai, S., Ren, Y. (2007). Relationship between knowledge sharing and performance:
A survey in Xian, China. Expert Systems with Applications. Vol. 32. Pp.38-46.
Empson, L. (1999). The challenge of managing knowledge in Dickson, T. (Ed.),
Mastering strategy. The financial times mastering series, financial times/ Prentice-Hall, Harlow.
Empson, L. (2001). Introduction: Knowledge management in professional service firms.
Human relations. Vol. 54, No. 7, pp.811-17.
Essex, D., and Kakade, S. (2021). Transportation Management System. https:// searcher.techtarget.com
European Commission. (2015). Blending in the transport sector. European Union.
European Bank. (2013). Transport sector strategy. Document of the European Bank for reconstruction and development.
Fisher, S.R. and White, M.A., (2000). Downsizing in a learning organization:
Are there hidden costs? Academy of management review, Vol. 25, No. 1, pp. 244-251.
Gaghman, A.A., (2019). The impact of knowledge behavioral factors on tacit knowledge retention: Empirical study in oil and gas industry. Economies of the Balkan and Eastern European countries (EBEEC).
Galunic, C. D., and Simon R. (1998). Resource recombination in the firm: Knowledge structures and the potential for Schumpeterian Innovation. Strategic Management Journal, Vol. 19, No. 12, pp. 1193-1201.
Gamble, P.R. & Blackwell, J. (2001). Knowledge management: A state of the art guide. Kogen Page. London, UK.
Herrgard, T. H. (2000). Difficulties in the diffusion of tacit knowledge in organizations.
Journal of Intellectual Capital, Vol. 1, No. 4, pp.357-65.
Hjørland, B. (2009). The foundation of the concept of relevance. Journal of the American Society for Information Science & Technology.
Hsueh, W. C., Guo, J. L., I, Y. Y., & Kuo, P. H. (2016). Building brand equity through industrial tourism. Asia Pacific Management Review, pp. 1-10.
Hunt, P.D. (2003). The concept of knowledge and how to measure it.
Journal of Intellectual Capital Vol. 4 No. 1. pp. 100-112.
Inkepen, A. C. and A. Dinur. (1998). Knowledge management process and international joint venture. Organizational Science Vol. 9, No.4, pp. 456.
Insch, G. S., McIntyre, N. and Dawley, D. (2008). Tacit knowledge: A refinement and empirical test of the academic tacit knowledge scale. The Journal of Psychology, Vol. 142, No. 6, pp. 561-579.
Jennex, M. E. & Olfman, L. (2005). Assessing knowledge management success. International Journal of Knowledge management, 1 (2). 33-49.
Jennex, M. E. & Bartezak, S. E. (2013). A revised knowledge pyramid. International Journal of knowledge management, Vol.9, No. 3, pp. 19-30.
Kakabadse, N. K., Kouzmin, A., and Kakabadse, A. (2001). From tacit knowledge to knowledge management: Leveraging invisible assets. Knowledge process Vol.8, pp. 137-154. http://doi.org/10.1002/kpm.120.
Kamara, M.J., Anumba, J.C., Carrillo, P. and Bouchlaghem, N. (2003). Conceptual framework for live capture and reuse of project knowledge. Construction informatics digital library, available at: http://itc.scix.net/data/works/att/w78-2003-178. Content.pdf.
Kogut, B., and Udo, Z. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. Organization Science, Vol.3, No.3, pp. 383-97.
Koskinen, K. (2000). Tacit knowledge as a promoter of project success. European journal of purchasing and supply management Vol. 6, pp. 41-47.
Lee, H. & Choi, B. (2003). Knowledge management enablers, processes, and organizational performance: An integrative view and empirical examination: Journal of Management Information Systems. Vol. 20, No. 1, pp. 179-228.
Mládková, L. (2012). Leadership in management of knowledge workers. International Conference on Leadership, Technology and Innovation Management. Procedia-Social and Behavioral Science. Vol. 41 (2012), pp. 243-250.
Nonaka, I. (1994). Dynamic theory of organizational knowledge creation. Organization Science, Vol. 5, No. 1, pp. 14-37.
Nonaka, I, & Takeuchi, H. (1995). The knowledge creating company. How Japanese companies create the dynamics of innovation. New York: Oxford University Press.
Nonaka, I., and Konno, N. (1998). The concept of "Ba": Building a foundation for knowledge creation. California management review Vol. 40, No. 3.
Nonaka, I., Toyama, R., and Konno, N. (2000). SECI, Ba, and Leadership: A unified model of dynamic

knowledge creation. Long Range Planning, Vol. 33, No. 1, pp. 5-34.
Nonaka, I. and Takeuchi, H. (2004). Hitotsubashi on knowledge management. John Wiley, Singapore.
Nooteboom, B. (1999). Innovation, learning and industrial organization. Cambridge Journal of Economics. Vol. 23, No. 2, pp. 127-150.
Peng, J., Li-Hua, R., & Mofett, S. (2007). Trend of Knowledge management in China: Challenges and opportunities. Journal of Technology Management in China, Vol.2, No. 3, pp. 198-211.
Polanyi, M. (1966). The tacit dimension. Routledge & Kegan Paul Ltd. London.
Prabhu, J. C., Rajesh, K. C., and Mark, E. E. (2005). The impact of acquisitions on innovation: Poison Pill, Placebo, or Tonic? Journal of Marketing, Vol. 69 (January), pp. 114-30.
Robinson, H.S., Carrillo, P.M. Anumba, C. J. and Al-Ghassani, A.M. (2005). Knowledge management practices in large construction organizations. Engineering, Construction and Architectural Management, Vol. 12 No. 5, pp. 431-45.
Schmidt, F.L., and Hunter, J.F. (1993). Tacit knowledge, practical intelligence, general mental ability and job knowledge. American Psychology, Vol. 2, Issue 1.
Smith, E. A. (2001). The role of tacit and explicit knowledge in the workplace. Journal of Knowledge Management, 5(4), pp. 311-321.
Somech, A. and Bogler, R. (1999). Tacit knowledge in academia: Its effects on student learning and achievement. Journal of Psychology, Vol. 133, pp. 605-16.
Song, D. (2009). The tacit knowledge-sharing strategy analysis in the project work. International Business Research, Vol. 2, No. 1.
Stahle, P. (1999). New challenges for knowledge management, in Reeves, J. (Ed.), Liberating knowledge. Caspian Publishing, London, pp. 36-42.
Stefansson, G., and Sternberg, H. (2007). Smart Logistics Systems- SLS, paper presented at the 11th WCTR-World Conference on Transport Research, UC Berkeley, CA, and 24-28 June.
Sternberg, R. J. (1993). Would you rather take orders from kirk or spock? The relation between rational thinking and intelligence. Journal of learning disabilities, Vol. 26, No. 8, pp.516-519.
Sternberg, R.J. (1997). Managerial intelligence: Why IQ isn't enough. Journal of management, Vol. 23, pp. 475-93.
Sternberg, RJ. Okagaki, L., & Jackson, AS. (1990). Practical intelligence for success in school. Educational Leadership. Vol. 48, pp. 35-39.
Sternberg, R.J., & Wagner, R.K. (1989). Individual differences in practical knowledge and its acquisition. In P. Ackerman, R.J. Sternberg, & R. Glaser (Eds.). Learning and individual differences (pp. 255-278). New York: W.H. Freeman.
Sternberg, R.J., Wagner, R. K., Williams, W.M., & Horvath, J.A. (1995). Testing common sense. American Psychologist, 50 (11), pp. 912-927.
Szulanski, G., (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. Strategic Management Journal, 17 (Winter Special Issue), pp.27-43.
TRB. (2014). Transportation research thesaurus (thesaurus). Retrieved February 4, 2021, from transportation research board of the national academies. http://trt.trb.org/trt.asp?NN=Ca.
Turner, S. F., Bettis, R. A., and Burton, R. M. (2000). Exploring depth versus breadth in knowledge management strategies. The computational social and organizational science conference.
Wagner, R.K., & Sternberg, R.J. (1985). Practical intelligence in real-world pursuits: The role of tacit knowledge. Journal of personality and social psychology. Vol. 49, pp.436-458.
Wagner, R.K., & Sternberg, R.J. (1986). Tacit knowledge and intelligence in the everyday world. In R.J. Sternberg & R.K. Wagner (Eds.), practical intelligence. Nature and origins of competence in the everyday world (pp. 51-83). New York: Cambridge University Press.
Wajidi, M. Z., & Asim, M. (2009). The realms of knowledge management from an organizational perspective. International Business & Economics Research Journal, Vol. 8, No.11
Wickramasinghe, DMJ. (2019). Literature review of importance of knowledge management to developing nations. Global Scientific Journals (GSJ): Volume 7, Issue 6.
Widen-Wulff,G. and Suomi, R. (2007). Utilization of information resources for business success: The knowledge sharing model. Information Resources Management Journal 20 (1). pp. 46-67.