

# Factors Affecting Knowledge Transfer between Project Managers: A Conceptual Framework

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**Keywords:** Knowledge Transfer, Knowledge Transfer Factor, Project Manager, Project Management.

**Abstract:** The purpose of this study is to identify factors from the literature review that influence knowledge transfer among project managers at all levels. Findings indicate nine factors to potentially benefit knowledge transfer amongst project managers. They can be used by project managers involved in government agencies and private sector organizations as a preliminary guidance for the practice, improvement, and growth of project managers in order to achieve a competitive edge in business.

## 1 INTRODUCTION

Innovative technology has evolved swiftly, and the market is intensely competitive nowadays. As a result, corporations have pushed for digital transformation to enhance product sales and profitability, streamline workflows, and increase customer engagement (Barthel & Hess, 2019; Kohli & Melville, 2018). Organizations must adapt their strategy, structure, and culture to the changing area (Matt, Hess, & Benlian, 2015). Apparently, the corporate world is undergoing a major digital shift (Chaffey, 2020).

The digital transformation is a collection of projects that are deliberately linked to digital technology in order to alter the way an organization employs computer software and technology (Bloomberg, 2018). Mostly as result, the business should manage software projects efficiently, which will increase the likelihood of project success. Additionally, because each project has a unique timeframe, scope, and budget, there is frequently a project manager assigned to oversee the project's impact and control operations, as well as project members working within the framework of the project manager's protocols and standards (Kaleshovska & Pulevska-Ivanovska, 2019). Involvement of the project manager in project

member performance increases unity and operational efficiency of teamwork (Nootjarat, 2014) to ensure project success, achieve the goal, meet the standards, and create value to the business, ultimately propelling the organization forward and ensuring long-term success (PMI, 2017).

To ensure enterprise success, project managers must have a wide range of project management skills, including communication, management, leadership, and people skills (Alvarenga, Branco, Guedes, Soares, & Silva, 2019). The project managers can build those skills from theory training, on-the-job training, and knowledge transfer by top-notch project managers. Today's enterprises require project management skills and techniques to handle project management knowledge (Yeong & Lim, 2011).

Knowledge management is an integration of the four aspects (organizational culture, people, process, and technology) in procuring, presenting, applying knowledge to suit organizations' needs, in the form of knowledge assets. It is in contact with knowledge and then utilizes it to make possible the development, expansion, and creation of new opportunities in the future (Quintas, Lefrere, & Jones, 1997). The management of knowledge is divided into four stages: knowledge generation, knowledge representation, knowledge accessibility, and the most essential stage, knowledge transfer (Liyanage, Elhag, Ballal, & Li, 2009; Thomas & Pretat, 2009). In every project, tacit

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knowledge is embedded in the mind of project personnel and transferring it is vital for organizations of all types and sizes (R. J. I. J. o. E. Chugh & Systems, 2017).

In terms of the sender and the receiver, knowledge transfer is distinct from learning in general. While learning entails the receiver acquiring the sender's information, knowledge transfer entails the receiver acquiring the sender's knowledge and branching out from it (Gick & Holyoak, 1987). A successful knowledge transfer process enables firms to gain a competitive edge (Argote & Ingram, 2000; Osterloh & Frey, 2000)

For decades, researchers in several fields have investigated the knowledge transfer in numerous circumstances, including in the education of children in the elementary grades (Brown, Sharpe, & Andrews, 2020), transfer of knowledge in financing the private sector (Carrillo, Robinson, Anumba, & Bouchlaghem, 2006), transfer of knowledge in the creative industry (Dameri & Demartini, 2020), transfer of knowledge in energy technology companies (Haglund & Wählberg, 2015), transfer of knowledge between projects through PMO (Tshuma, Steyn, & Van Waveren, 2018), transfer of knowledge in universities (R. Chugh, 2018) and so forth.

However, only a few types of research have looked into knowledge transfer between project managers, and the vast majority of project managers have not been properly trained or transferred project management best practices (Carbone & Gholston, 2004). The whole investigation leads to this question: what factors influence the knowledge transfer between project managers?

## 2 LITERATURE REVIEW

The authors have carried out an integrative review that summarises past empirical or theoretical literature to provide a more comprehensive understanding of a particular phenomenon (Broome, 1993).

### 2.1 Knowledge Transfer Meaning

According to Quinn, Anderson, and Finkelstein (1998), knowledge transfer is a stage in knowledge management that is circulated within an organization that takes place between individuals and groups. It starts with defining the vision, mission, and values that create a knowledgeable work environment to share knowledge and accumulate knowledge at all levels until it reflects the behavior of knowledge transfer through the collaboration of organization

members. This is consistent with Argote and Ingram (2000)'s research describing that knowledge transfer is the process of passing from one thing (person, group, department) through experience to another. Zarinpoush, Von Sychowski, Sperling, and Li (2007) said that knowledge transfer would occur in either direction (one way) to pass knowledge between those who know and those who are interested or need that knowledge.

Knowledge transfer is a frequent activity in knowledge management, such as training new employees, professional coaching and mentorship programs, corporate libraries, and coworkers discussing operations. Today's knowledge transfer is based on computer technology and expert systems. It offers a more convenient and easier manner to convey knowledge (Garavelli, Gorgoglione, & Scozzi, 2002). The knowledge transfer process should be a circle that generates fresh knowledge and competitive advantage (Liyanage et al., 2009).

Organizations can profit from a successful knowledge transfer process in many ways (Meixell, Shaw, & Tuggle, 2002):

- Reduce repetitive mistakes in the work.
- Increase the quality of work by improving operational guidelines.
- Increase the speed of decision making on various matters
- Reduce the cost of work
- Reduce employee training and learning time
- Create innovation in the organization

Numerous previous studies have examined the elements affecting knowledge transfer. According to Liyanage et al. (2009), the factors can be classified into the following categories.

- Receiver: consists of the ability to absorb knowledge and willingness to learn.
- Modes of knowledge transfer: divided into four categories based on the concept of Nonaka and Takeuchi (1995)
- Source: contains the knowledge and willingness to transfer knowledge
- Performance measurement: including quality, precision, and success of knowledge transfer.
- Influence factors: consist of motivation, technology, and culture.
- Networking: both in terms of individuals, teams, organizations, and inter-organizations.

Zarinpoush and Gotlib Conn (2006) identify the following factors as being similar:

- Recipient (audience) or the person who has received the knowledge. This could be either a

community leader, media representative, academic, government, non-profit organization, and volunteer.

- knowledge transmitted (message), which should be concise, clear, and practical. Such messages should be consistent with the body of knowledge and can be referred to, not just personal research
- Sender (messenger) or a person who transmits knowledge. transferring knowledge will effectively be enhanced if the messenger is credible.
- Activity, especially the ones related to face-to-face talking which will be interactions better than other methods. The more interactions with the recipient, the higher the efficiency of knowledge transfer. Examples of activities include website development, presentations through workshops, training, report writing, various training documents, discussion and meeting through video conferences, seminars, field trips, interviews.
- The effect of external factors, including impact measurement to reflect on the effectiveness of knowledge transfer.

A similar approach is offered by Lavis, Robertson, Woodside, McLeod, and Abelson (2003) who define five factors that affect the knowledge transfer in the context of research from the researchers to the director including target audience, message, messenger, process, and communication structure and evaluation.

From the view of activities and communication, it was found that the factors of Zhao, Zuo, and Deng (2015) are consistent with the preceding concepts, namely the context of the recipient, the context of the messenger, the ability to transfer knowledge, the context of the work to be conveyed and relationship of both parties, which is in line with the concept of Ali, Al - Salti, and Hackney (2011) concluding the factors of knowledge transfer in the context of outsourcing IT projects, which are details of the hirer group, details of the outsource group, details of knowledge, and the relationship between the two groups, together with the concept of Ibidunni, Kolawole, Olokundun, and Ogbari (2020) describing two factors in the context of small and medium-sized entrepreneurs, namely how knowledge is transferred, and social networking, which is endorsed by Reagans and McEvily (2003) explaining that social cohesion and network range of the two parties will enhance knowledge transfer. In addition, Bellini, Aarseth, and Hosseini (2016) proposed three additional factors from the view of activities, which are the cooperation

of both parties, open communication, and trust. This is consistent with research by Glaser, Blake, Bertolini, te Brömmelstroet, and Rubin (2021) that suggests the factor in the field trip learning context: personal learning, activities that integrate knowledge, flexibility, and participatory leadership

Given the recipient and the messenger, Davenport and Prusak (1998) describe two factors primarily affecting the transfer of knowledge, consisting of the knowledge of the messenger. and the ability to absorb the knowledge of the recipient. This corresponds to two factors of Argote and Ingram (2000), including the messenger who knows the context in the situation and the recipient's ability to adapt knowledge to the context. Lockett, Kerr, and Robinson (2008) has also proposed five factors related to this view, consisting of the clustering of knowledge, knowledge transfer management and evaluation, trust, and motivation and reward from knowledge transfer while Osterloh and Frey (2000) describe that intrinsic motivation is an important factor in the transfer of embedded knowledge.

while considering the content and knowledge to be conveyed, the factors described by Bacon, Williams, and Davies (2020) contains the relationship characteristics of the recipient and the messenger, the context of the organization that has an impact on knowledge transfer, and knowledge content. This is in line with the concept of Simonin (2004) that contains knowledge transfer consistency, knowledge transfer willingness to learn, and the clarity of knowledge. Porrawatpreyakorn, Quirchmayr, and Chutimaskul (2009) has proposed covering the different views: understand the benefits of knowledge transfer, incentives for receiving and sending messages, the ability of the recipient and messenger, the credibility of the messenger, the ability to absorb the knowledge of the recipient, knowledge transfer techniques, relationships, and comprehensive communication.

In addition, from the perspective of the surrounding environment, Al-Gharibeh (2011) suggests the key factor of knowledge transfer in the context of telecommunication companies: knowledge strategy, knowledge leadership, Information technology, and culture. This corresponds to the factors of Sarker, Sarker, Nicholson, and Joshi (2003) that include communication methods, the ability of the recipient and the messenger, the credibility of the messenger, and the culture of both parties while the factors of Karlsen and Gottschalk (2015) consist of knowledge transfer method and culture. Ajmal and Koskinen (2008); Eskerod & Skriver, 2007 stated that

the key factor in successful knowledge transfer for an organization is culture.

The authors described the meaning of knowledge transfer as the transfer of experience and expertise from a messenger to a recipient under one setting in order to allow the receiver to be the expert in their own context based on the findings of the literature review on this topic.

## 2.2 Knowledge Transfer in Project Management

Before discussing knowledge transfer in Project Management, the authors would like to describe the term project manager. According to Sane (2019), a project manager is a position in charge of project management related to various businesses or industries such as construction, research, software, etc. This includes planning, operation, inspection, control, as well as project closure. The project manager is responsible for the overall projects from the goal setting, project personnel management, resource stewardship, and making projects successful by using the project manager's skills, techniques, and tools to help keep the business moving. Project success depends on the skills of the project manager primarily (Millhollan & Kaarst-Brown, 2016).

However, discussion on project knowledge transfer can be found in extensive study such as Ekambaram and Økland (2018)'s research to study environmental factors that affect the transfer of knowledge in project management. The research of Tshuma et al. (2018) establishes a conceptual framework for the process of project management knowledge transfer between projects using the Project Management Office (PMO) agency. Haglund and Wahlberg (2015) have studied issues arising from the transfer of knowledge from project completion to the future project. Voigt (2009) studies the process of knowledge transfer of outsourcing project management to pass on their knowledge to the internal staff, which is similar to the research of Hlova (2019) that studies management framework to transfer knowledge from one outsource project to another one. Wei and Miraglia (2017) state that the transfer of project management knowledge from previous construction projects to new construction projects to provide knowledge flow helps to better project management by reducing the repetition of problems in the project, reduce costs and losses, and brings about innovative project management that affects the reputation of the organization in attracting new customers as well.

Considering from the view of the recipient, Zhao et al. (2015) offer ideas about factors affecting knowledge transfer of project management including ability to pass on knowledge of project members, context of the transmitted material, context of the team involved in the knowledge transfer, and the relationship of the project members. Vinke-de Kruijf, Hulscher, and Bressers (2013) expand on the relationship factor by research on knowledge transfer of flood warning project from the Netherlands to Romania and found that the tight interaction of two project teams will stimulate the knowledge transfer as well. This corresponds to the factors of Zhao et al. (2015) that consist of recipient context, messenger context, ability to transfer knowledge, the context of the work to be transmitted, and the relationship of the two parties at the time. While Bakker, Cambré, Korlaar, and Raab (2011) studied the knowledge transfer from the project to the organization and found that the ability to absorb knowledge is an important factor in the project management knowledge transfer.

From the view of the messenger who transmits knowledge, Waveren, Oerlemans, and Pretorius (2014) examine the factors of knowledge transfer in organizations that focus on project management, which can be divided into three components: knowledge transfer mechanism, the success of the transfer, and the type of knowledge to be transmitted, while Disterer (2002) mentions obstacles in the process of project management knowledge transfer from the old project to the new project which consists of lack of focusing on project documents, lack of employee motivation, and lack of understanding the benefits to transferring knowledge to others. This is in line with the research of Landaeta (2015), who studied the relationship between the degree of willingness to transfer knowledge across projects and project performance by the survey data over 46 projects and found that the intention of knowledge transfer across the project resulted in increased project management efficiency.

If considered given the environmental factors, Karlsen and Gottschalk (2015) studied factors that affect knowledge transfer between projects which are knowledge transfer practice and culture. Ajmal and Koskinen (2008) state that the most important factor in successful knowledge transfer for project management is the adaptation of the project culture to the organizational culture as Bellini et al. (2016) describes the factors affecting the knowledge transfer in project management which are project members cooperation, open communication in the project, and trust in the project. This is consistent with research by

Ren, Yan, Wang, and He (2019) that describes some factors including meeting methods, rewards, project nature, communication, shared culture, and the trust of the project team which is a factor that promotes knowledge transfer between projects while Disterer (2002) mentions the factors that support knowledge transfer which are lessons learned documentation from the project and technology used for the knowledge documents management in the project.

Also, the authors touch on the notion of knowledge transfer with regard to project management by looking at the process of transfer in Owen, Burstein, and Mitchell (2014) which explain the process of knowledge transfer in the context of project management consisting of project planning based on experience gained from previous projects, implementation as planned, lessons learned, and build familiarity with new knowledge following Hlova (2019), who researches about the process of transferring knowledge in the context between external contractors of projects related to information technology and organized into 4 steps:

- Determine the source of knowledge including both at the organization level and the team level, from the contract documents, source code, work process, technical information, project documents to the personal level, which is the most important part of the knowledge transfer, consisting of discussions, face-to-face interactions, and various forums where individual works are presented
- Determine the appropriate transferees and transferors from the sales department, legal department, finance department, executives, project managers to the experts like software engineers and software developers.
- Conducting knowledge transfer through discussions, meetings and storing knowledge in various documents such as technical documents and training documents
- Assess whether the knowledge transfer was effective or not by looking at the results of the next delivery.

### 2.3 Knowledge Transfer for Project Manager

For years, an attempt was made to explore the connection between knowledge transfer and project managers., such as research of Eskerod and Skriver (2007) which states that project managers have barriers to knowledge transfer between them because each person receives experience and culture of projects at a different level, Mannan, Haleem, and

Jameel (2013) indicate that the project manager is responsible for the integrated management of knowledge and transfer body of knowledge that is easy to use in organization culture context, etc. However, it is not research on the factors affecting the transfer of knowledge specific to project managers.

## 3 FINDING

The authors integrate and group all factors based on the literature review from all perspectives as summarized in table 1. This table reveals factors according to knowledge transfer components along with related authors. Based on these factors, the conceptual framework is shown in figure 1. The outcomes of this study's framework will be knowledge transfer guidelines for project managers at all levels. It aids in the development of knowledge and aptitude, facilitates the creation of commercial prospects, and aids in the acquisition of a competitive edge (Argote & Ingram, 2000)

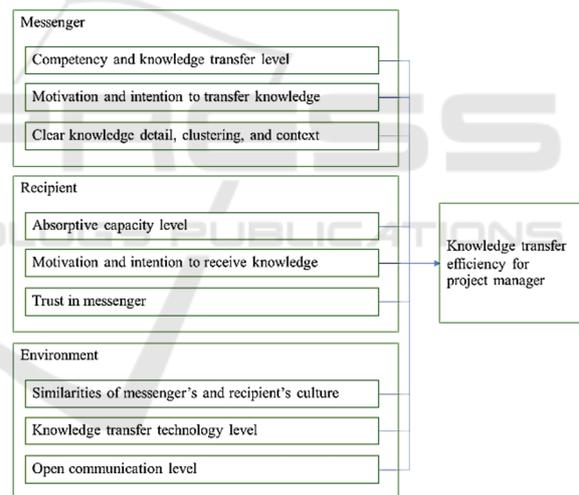


Figure 1: Conceptual Framework.

## 4 DISCUSSION AND CONCLUSIONS

The goal of this study is to determine the factors that influence knowledge transfer among project managers at all levels. Findings generate nine factors based on the comprehensive literature review and offer the conceptual framework. Moreover, findings indicate that nine factors influenced knowledge transfer between project managers positively. The findings of this research can benefit both academic

Table 1: Factors affecting knowledge transfer between project managers.

Components	Factors	Authors
Messenger	Competency and knowledge transfer level	(Ali et al., 2011; Davenport & Prusak, 1998; Glaser et al., 2021; Ibidunni et al., 2020; Karlsen & Gottschalk, 2015; Liyanage et al., 2009; Porrawatpreyakorn et al., 2009; Sarker et al., 2003; Zarinpoush & Gotlib Conn, 2006; Zhao et al., 2015)
	Motivation and intention to transfer knowledge	(Argote & Ingram, 2000; Liyanage et al., 2009; Lockett et al., 2008; Osterloh & Frey, 2000; Porrawatpreyakorn et al., 2009; Simonin, 2004)
	Clear knowledge detail, clustering, and context	(Al-Gharibeh, 2011; Ali et al., 2011; Bacon et al., 2020; Lockett et al., 2008; Simonin, 2004; Zarinpoush & Gotlib Conn, 2006; Zhao et al., 2015)
Recipient	Absorptive capacity level	(Ali et al., 2011; Argote & Ingram, 2000; Davenport & Prusak, 1998; Glaser et al., 2021; Liyanage et al., 2009; Porrawatpreyakorn et al., 2009; Sarker et al., 2003; Zhao et al., 2015)
	Motivation and intention to receive knowledge	(Glaser et al., 2021; Liyanage et al., 2009; Lockett et al., 2008; Osterloh & Frey, 2000; Porrawatpreyakorn et al., 2009; Simonin, 2004)
	Trust in messenger	(Ali et al., 2011; Bacon et al., 2020; Bellini et al., 2016; Glaser et al., 2021; Ibidunni et al., 2020; Lockett et al., 2008; Porrawatpreyakorn et al., 2009; Reagans & McEvily, 2003; Zarinpoush & Gotlib Conn, 2006; Zhao et al., 2015)
Environment	Similarities of messenger's and recipient's culture	(Ajmal & Koskinen, 2008; Al-Gharibeh, 2011; Bacon et al., 2020; Eskerod & Skriver, 2007; Karlsen & Gottschalk, 2015; Liyanage et al., 2009; Quinn et al., 1998; Sarker et al., 2003)
	Knowledge transfer technology level	(Al-Gharibeh, 2011; Liyanage et al., 2009; Lockett et al., 2008; Zarinpoush & Gotlib Conn, 2006)
	Open communication level	(Bellini et al., 2016; Porrawatpreyakorn et al., 2009; Sarker et al., 2003; Zarinpoush & Gotlib Conn, 2006)

and practical perspectives. For academic standpoint, this study shows the elements of knowledge transfer between project managers and building a body of knowledge at an individual level. It illuminated potential factors from three angles: messenger, recipient, and environment. These insights can be used to future research in other areas. For a practical sense, these findings signal the components in knowledge transfer amongst project managers. In this setting, the traits of the messenger and recipient have been exposed. It also demonstrates that the environment plays a vital part in knowledge transfer, indicating the appropriate potential element in such a circumstance. Project managers involved in government entities and private enterprises can use the factors as recommendations for project manager practice, improvement, and development in order to gain a competitive edge in the market. As this is a review of the literature and the conceptual framework has not been tested, it is not generalisable and testing is recommended.

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