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Journal:	*The Learning Organization*
Manuscript ID	TLO-11-2023-0202.R2
Manuscript Type:	Article
Keywords:	Knowledge acquisition, Challenges, Facilitating factors, Interorganizational knowledge acquisition, Interorganizational project

Challenges and facilitating factors in interorganizational knowledge acquisition: Evidence from the Orange Line Metro Train System and Sustainable Bus Rapid Transit Corridor

Abstract

Purpose: This paper aims to identify challenges and facilitating factors in interorganizational knowledge acquisition. For this purpose, the interorganizational settings of the Orange Line Metro Train System and Sustainable Bus Rapid Transit Corridor in Pakistan are examined.

Design/methodology/approach: This study employs an exploratory multiple case study approach. The empirical data encompasses semi-structured interviews and archival documents. Within and cross-case analysis is used for analyzing the data.

Findings: The findings identify challenges such as time pressure, knowledge hiding, finding credible information sources, and organizational red tape, as well as facilitating factors such as clear objectives, individual interest, and personal commitment, and revisiting the organizational culture and environment in which interorganizational knowledge acquisition takes place.

Originality: By examining knowledge acquisition in interorganizational projects, this article contributes to the literature on knowledge-based theory.

Keywords: Knowledge acquisition, Challenges, Facilitating factors, Interorganizational knowledge acquisition, Interorganizational project.

Introduction

There is no doubt that knowledge is an important asset to organizations in the twenty-first century (Mas-Machuca & Costa, 2012), but it is also complex, cross-functional, and multifaceted (Alavi & Leidner, 2001; Nonaka, 1994). It is made up of experiences, information, context, interpretations, and reflections, and can be used in making decisions and informing actions (Chang & Lin, 2015; Davenport at al., 1998). The management and processing of knowledge is increasingly being viewed as critical to organizational success (Iftikhar & Lions, 2022). In a project, knowledge serves as (i) an essential resource for completing assigned tasks and finding innovative solutions to problems (Sergeeva & Duryan, 2021), and (ii) an outcome, typically a combination of lessons learned and good practices, as well as expertise accumulated by key participants (Sergeeva & Zanello, 2018).

Prior research on knowledge acquisition has primarily focused on single organizational contexts, commonly connected with change readiness (Rusly et al., 2015), formation of trust (Maurer, 2010), tacit knowledge acquisition (Koskinen et al., 2003), and organizational competitiveness (Bloodgood, 2019). Recent research on interorganizational projects (Braun, 2018; Lumineau & Oliveira, 2018) has mainly focused on interorganizational team building (Manning, 2017), interorganizational knowledge sharing (Iftikhar & Ahola, 2022; Swan et al., 2010), interorganizational knowledge sharing barriers and enablers (Iftikhar & Lions, 2022), and interorganizational knowledge storage and accessibility (Iftikhar & Mawra, 2023). Even though interorganizational projects are becoming increasingly common, and the importance of utilizing external sources of knowledge is acknowledged, research on interorganizational knowledge acquisition is limited (Foss et al., 2013; Lyles & Salk, 2007). Existing studies focus

on high-tech firms (Xie et al., 2018), biotechnological and pharmaceutical firms (Ortiz et al., 2018), and the engineering industries (Maurer, 2010).

Interorganizational projects involve several heterogeneous organizations (Manning, 2017) working together on short-term and complex tasks (Jones & Lichtenstein, 2008; Lundin & Söderholm, 1995). They typically involve organizations sharing knowledge and resources to produce a product or service which they cannot achieve independently, as a single organization does not have all the resources and knowledge required for an interorganizational project (Liu & Zhang, 2021; Maurer, 2010; Xie et al., 2018). Silva et al. (2018) suggest that knowledge exists both within and beyond organizational boundaries, namely within an organization's internal networks (Thomas-Hunt et al., 2003), and in its external network with other organizations (Uzzi & Lancaster, 2003). To solve novel problems, organizations need to tap into complementary external expertise and gain useful knowledge; this is called interorganizational knowledge acquisition (Foss et al., 2013).

Interorganizational knowledge acquisition entails integrating project-related knowledge into existing knowledge bases (Fey & Birkinshaw, 2005). However, there are challenges in knowledge acquisition. Challenges in interorganizational knowledge acquisition have become increasingly relevant but received little research attention. The reason being is that interorganizational projects are conspicuously different from traditional projects because they involve multiple organizations with disparate interests, representing various organizational identities, obligations, and commitments within a project network (Hu et al., 2019); in such projects, knowledge and resources are shared among organizations that cooperate and compete (i.e., co-opetition) simultaneously (Vuori et al., 2019). The current research available focuses on the pitfalls of knowledge acquisition from experts (Almeida et al., 2017), as well as alliances (Forsythe & Buchanan, 1989) and uncertainty in tacit knowledge acquisition (Akhavan et al., 2018). This suggests a need to understand the challenges in knowledge acquisition process in interorganizational projects, since it is important to understand the challenges which will help to better plan future projects. This paper explores challenges and facilitating factors in knowledge acquisition process in two interorganizational projects by answering the following research questions:

What are the challenges in knowledge acquisition process in interorganizational projects?
What are the facilitating factors to minimize the challenges in knowledge acquisition process in interorganizational projects?

The unit of analysis is the interorganizational project, which allows multiple organizations to collaborate to achieve their individual and collective goals. We examine Orange Line Metro Train System and Sustainable Bus Rapid Transit Corridor from Pakistan, both of which are interorganizational projects. Our study makes two contributions. The first contribution is to explore different challenges related to knowledge acquisition process in interorganizational projects. Second, this paper also demonstrates that if these challenges were minimized through facilitating factors, it would improve the knowledge acquisition process in interorganizational projects.

Theory

Knowledge acquisition

Knowledge acquisition is essential for individuals and organizations (Bolisani & Bratianu, 2017; Vătămănescu et al., 2023). Acquiring and using new knowledge is important for the organization to be able to benefit from new understandings (Bloodgood, 2019), as the newly acquired knowledge is both shaped by and shapes existing knowledge (Smith et al., 2005). According to Rusly et al. (2015), knowledge acquisition focuses on identifying and seeking new knowledge and recognizing existing knowledge. This enables an organization to perform its tasks and operations efficiently and effectively (Levinthal & March, 1993; Rosenkopf & Nerkar, 2001). Organizations may seek access to other organizations' knowledge and skills, but not necessarily with the goal of integrating the knowledge into their own operations (Inkpen & Dinur, 1998). There are others means for organizations to acquire knowledge, such as intraorganizational processes (Argote et al., 2022; Carlsson, 2003). However, the organization increasingly depends on complementary knowledge created outside. Therefore, organizations must be able to search for, identify, and absorb such complementary knowledge (Schienstock, 2009) through alliances (in this case for projects) (see Lyles, 1988). A significant amount of this knowledge may be applied to managing future projects (alliances) (Radziwon & Bogers, 2019).

The knowledge acquisition process involves both external and internal sources of knowledge (Acevedo & Diaz-Molina, 2023; Audretsch & Belitski, 2023; Lopez & Esteves, 2012). For an organization to achieve innovation capability, knowledge acquisition within and across organizational boundaries complement each other (Cassiman & Veugelers, 2006; Van Wijk et al., 2008). In internal knowledge acquisition, seeking knowledge within organizations from personal networks, colleagues' expertise and experience, and organizational routines is pivotal (Fong & Lee, 2009; Ryu et al., 2005; Yang & Farn, 2010). In the nonexistence of internal knowledge sources, organization acquired knowledge externally from its environment and from other organizations, including from policymakers, suppliers, sponsors, contractors, and clients (Andreeva & Kianto, 2011; Ardito & Petruzzelli, 2017; Parikh, 2001), as well as through the recruitment of external experts and involvement in professional networks (Fong & Lee, 2009; Kim & Lee, 2010). Thus, organizations involved in interorganizational projects do not merely rely on internal knowledge, but they have to seek out complementary external knowledge (Cohen & Levinthal, 1990) which makes the process of knowledge acquisition challenging and difficult.

Interorganizational project

Interorganizational projects are highly complex, temporary, and dynamic settings (Jones & Lichtenstein, 2008; Söderlund et al., 2017) in which multiple and heterogeneous constellations of organizations (e.g., sponsors, clients, consultants, executing agencies, contractors, regulatory authorities, etc.) (Manning, 2017; Roehrich et al., 2023) engage in an interactive process to integrate and acquire resources. According to Jones and Lichtenstein (2008), and Ligthart et al. (2016), the interorganizational project can be characterized by strong temporal boundaries as well as an expectation of collaboration beyond the focal project. In interorganizational projects, each organization is committed to delivering an integrated product or service that concentrates on a distinctive competency, leaving others to perform

complementary functions (Barringer & Harrison, 2000). These complementarities establish different kinds of interdependencies between organizations (Braun & Sydow, 2019).

Although organizations involved in interorganizational projects often lack the required knowledge (Parra-Requena et al., 2015), they can leverage interorganizational relationships to develop new knowledge with partners beyond their own organizations and enhance output (Cassiman & Veugelers, 2006; Chung & Yeaple, 2008; Micheli et al., 2020; Morgan & Berthon, 2008). It is possible for organizations to gain access to the vast knowledge resources and capabilities of their partners because of interorganizational knowledge acquisition (Liao & Marsillac, 2015; Singh et al, 2020), which may increase the breadth and depth of an organization's knowledge base. Meanwhile, a collaborative process involves an extensive exchange of knowledge among the employees of different partners (Ma & Huang, 2016), employees within an organization may be able to advance their innovative ideas and deepen their thinking through the acquisition of knowledge acquired from external partners (Chang et al., 2015). However, the process has some challenges.

Interorganizational knowledge acquisition

Interorganizational knowledge acquisition is required for knowledge management in projects and to promote a culture of growth and innovation. While it can bring valuable insights and benefits, it is not free from challenges associated with the process. Organizations maintain their confidentiality and may not be comfortable with trusting external organizations (Ho et al., 2018). This may create a hesitancy in knowledge sharing, as organizations may not be ready to compromise on their competitive advantage. Organizations involved in an interorganizational project are operating with different organizational cultures, values, and norms. Distinct organizational cultures in an interorganizational project may affect the way in which knowledge is acquired, interpreted, and used within the project. Moreover, differences of language, communication style, and level of openness may hinder knowledge acquisition and understanding (Situmorang & Japutra, 2024). Some effort may be required to integrate and align the acquired knowledge with existing knowledge and processes (Zollo & Singh, 2004). Some resources, skills and infrastructure may be required by the knowledge acquiring organization to absorb and utilize the knowledge newly acquired from the other organization (Martin-de Castro, 2015). Organizations involved in a project do not have equal resources and power, and thus, acquiring knowledge from a powerful organization and maintaining a fair knowledge sharing scenario could be a challenge (He et al., 2013). Organizations have a duty to protect their intellectual property rights, licensing agreements, and compliance with laws and regulations; this needs to be maintained while acquiring knowledge from external organizations (Jiang et al., 2023).

On the other hand, while we have multiple challenges that may hinder the way of interorganizational knowledge acquisition, there are various factors that facilitate interorganizational knowledge acquisition. Organizational relationships based on trust and mutual understanding develop a conducive environment for knowledge acquisition. In a trustworthy environment organizations become open, transparent, and willing to share knowledge (Easterby-Smith et al., 2008; Maurer, 2010). Organizations that foster a knowledge sharing culture which values learning and rewards collaboration are a more favorable environment for interorganizational knowledge acquisition (Ravikumar et al., 2022).

Organizations collaborating on a project will bring their unique expertise, resources, and perspective, which may provide mutual benefits and higher opportunities for knowledge acquisition (Kavusan et al., 2016). Organizations with appropriate infrastructure, resources, skills, and processes will be able to absorb, interpret, and apply newly acquired knowledge (Cohen & Levinthal, 1990). Industry networks, research institutions, and collaborative networks can provide access to expertise, facilitate connections, and offer resources to facilitate interorganizational knowledge acquisition (Ortiz et al., 2018).

Knowledge-based theory

Knowledge-based views (KBVs) are the main theoretical anchor, which suggests that organizations should be analyzed in terms of their knowledge resources (Grant, 1996). Knowledge, in this view, is an intangible resource and the most important asset that sustains an organization's competitive advantage (Grant, 1996; Hemmert, 2019; Kogut & Zander, 1992). The KBV is considered appropriate, since the existence and success of an organization is the result of the effective use of knowledge (Håkansson, 2010; Rebolledo & Nollet, 2011). Moreover, the KBV incorporates the notion of knowledge acquisition (i.e. organizational learning), which significantly improves organizational performance in the process of assimilating new information (Eisenhardt & Santos, 2002). Thus, organizations that are effective in finding, absorbing, and exploiting new knowledge will tend to outperform their competitors (Martin-de Castro, 2015). It is presumed that organizations are heterogeneous knowledge-bearing entities that employ their knowledge in producing goods and services (Foss, 1996). In the context of interorganizational projects, the KBV may help to determine what knowledge is needed for successful outcomes, since the ability to acquire and use knowledge is important for improving performance. However, the process is not without challenges, so in this study, we identified the challenges in the knowledge acquisition process; this provides a desirable position for an organization to determine the challenges and look for solutions to improve the overall knowledge acquisition process.

Methodology

Research design

This research employed a multiple-case study design (Eisenhardt, 1989). This allows for in-depth analysis, which is appropriate for the identification of phenomena in their real-life context (Yin, 2015). A multiple-case design with two interorganizational projects from Pakistan, (i) the Orange Line Metro Train System, and (ii) the Sustainable Bus Rapid Transit Corridor, was used as a research strategy in a cross-sectional setting. Our logic of reasoning was abductive (Dubois & Gadde, 2002; Timmermans & Tavory, 2012), with a view to elaborating theoretical understanding of knowledge acquisition processes by applying existing theories and extending them through the findings made during the analysis of the data. This allows the first author to go back and forth between existing theories, the empirical data collected during the study, and the researcher's own experiences for the interpretation of phenomena.

Case contexts

Interorganizational projects were selected to ensure homogeneity and heterogeneity in the research design (Eisenhardt, 1989). Both projects share some characteristics: they are large, complex, and have multiple organizations involved. On the other hand, each project is specific to its own geographical location and budget, timelines, and participatory organizations. See Table I for a description of the case studies.

*** Insert Table I about here***

Orange Line Metro Train System

The Orange Line (OL) was constructed in Lahore. Lahore is the capital city of Punjab province, and Pakistan's second largest city, with an estimated population of 13 million. OL offers a well-organized and effective form of transportation for the public, enhancing access to jobs with an improved level of transportation service. As well as improving the region's current transit system, it also reduced traffic jams, noise, and air pollution on adjacent main roads. The train line is 27.1km long with 26 stations, including 24 elevated and 2 underground stations. With a speed of 70 km/hr, the train can transport 1000 passengers per hour in each direction. The amount of Pakistani rupees (Rs.) 162.628 billion (USD 1.626 billion) was approved by the administration in April 2015. The project was scheduled to last 27 months. There were nine different organizations involved in the project: the client, the designer, the consultant, the sponsor (a foreign organization), the executing agency, four different local contractors, and a foreign contractor. The civil works were further divided into four packages (sub-projects) assigned to four different contractors. A foreign organization was assigned the electronic and mechanical work. In October 2020, the project became operational (archival data).

Sustainable Bus Rapid Transit Corridor

The Bus Rapid Transit (BRT) was constructed in Peshawar. Peshawar is the capital city of Khyber Pakhtunkhwa province, and Pakistan's sixth largest city, with an estimated population of 2.5 million. BRT was designed to introduce an efficient, reliable, and comfortable bus rapid transit system integrated with existing transport facilities, reducing travel times and delays for the whole city's transportation system, and improving commuters' quality of life. With 32 stations (including 26 at grade level, 5 elevated and 1 underground station), the BRT extends over 25.8km. In addition to the main corridor, seven feeder routes were integrated into the project scope, covering the major areas of trip generation in the city. Up to 21,000 passengers would be able to travel through the project per hour in either direction. As of mid-2017, the project was anticipated to be completed in a period of 12 months for a total cost of Rs. 57.86 billion (USD 587 million). Among the eleven organizations involved in the project were a client, a designer (a foreign-based organization), a consultant, two sponsoring agencies, two executing agencies, and four contractors. A total of four reaches (sub-projects) were assigned to contractors for the civil works. In August 2020, the project became operational (archival data).

Data collection

We relied on two sources: semi-structured interviews and archival documents. However, data collection was primarily based on interviews. In total, 22 in-depth, face-to-face semi-structured interviews were conducted with 22 informants (details are provided in Table II): 11 related to

the OL and 11 related to BRT. The interviews ranged in duration from 26 to 164 minutes and were recorded and transcribed. To encompass a wide range of viewpoints, we interviewed several personnel in different roles. We conducted interviews with project directors, project managers, general managers, and other team members (deputy project directors, deputy project managers, planning engineer, project coordinator, technical advisor and quantity surveyor, director of coordination, and transport planning specialist). Informants included members of the client team, the designer, the consultant, contractors, and the executing agencies. Informants were selected using snowball sampling, asking each informant who they believed could help us to understand the knowledge acquisition process in each of the case projects. An extensive set of structured questions and open-ended probes were used with the informants. During the interview process, informants were encouraged to use their own terminology and to steer the discussion toward issues and concepts that they felt best represented their own experiences.

*** Insert Table II about here***

To develop sufficient background understanding of the case, we gathered internal and publicly available documents either provided by informants or electronically available. The archival data consists of 197 internal and publicly available data. It contains PowerPoint presentations, environmental impact assessment reports, design details (preliminary design report, design layouts and drawings), monthly and weekly progress reports, an economic and financial analysis, a conceptual report, a project administration manual, a pre-feasibility study, a project feasibility report, and planning commission (PC-1) documents. In this study, archival data was used to develop a better background understanding of the case contexts.

Data analysis

For multiple-case studies, within-case, and cross-case analyses, are considered (Eisenhardt, 1989; Yin, 2015). During the within-case analysis, the main objective was to gain a thorough understanding of each case on its own, no comparisons were made between the cases at that point. To become intimately familiar with each case as a whole, the first author compiled detailed narratives that included notes, comments, and quotes from interviews. For within case analysis, we use thematic analysis, following these steps: (i) reading the transcripts several times to familiarize with the data collected; (ii) coding: identify related and intriguing text that can assist in answering the research questions; (iii) within the dataset, search for themes through the identification of salient features of meaningful patterns; (iv) review themes to determine whether they are compatible with the coded data; (v) define and name themes; and (vi) prepare the report describing the identified themes (Braun & Clarke, 2012). This process allowed unique patterns and relationships to emerge, exclusive to a specific case, and created a platform for the cross-case analysis.

In the cross-case analysis, there were two main phases. A cross-case comparison first produced a final code hierarchy and a unified set of concepts by examining the similarities and differences between the cases, as recommended by Eisenhardt (1989). For each case, similarities and differences were identified between the empirical-level codes, code categories, and concepts to establish tentative relationships between them. To refine these relationships, replication logic was employed (Yin, 2015), by revisiting each level of coding, and verifying the similar theoretical logic between the two cases. Typically, in replication logic, a theoretical

framework is applied to examine one case in depth; subsequent cases are examined to determine whether the pattern identified reflects that of previous cases (forming a cluster) (Yin, 2015).

Findings

Our findings provide evidence of challenges and facilitating factors associated with knowledge acquisition process in interorganizational projects. For challenges in knowledge acquisition, we found subthemes of time pressure, knowledge hiding, finding credible information sources, and organizational red tape. For facilitating factors, our findings support the sub-themes of clear objectives, individual interest, and personal commitment, and revisiting the organizational culture and environment.

Challenges

Time pressure

One of the major challenges is time pressure. People are busy and do not have time to share their knowledge with others. Moreover, time pressure is typically increased in projects, as they are time-constrained activities with an urgency to make the right decisions. As stated below:

> *There are barriers, there are problems. When you have to get information from someone and he is busy somewhere, or he is not available, then of course, you will have problems somewhere at some stage. Problems are always there in the way of knowledge.* (Deputy Project Manager, Contractor 1, OL)

The evidence from OL is aligned with that from BRT, as people just want to follow the daily routine of 9-5; they do not want to spare time for knowledge sharing and acquisition. As illustrated below:

> *When we acquire knowledge, be it within an organization or across organizations, the main problem that we face is that people do not have time... People just want to work in their routine. For instance, if 9-5 are their duty hours, they will work over here and after that if you want anything from them, they don't have time for it.* (Deputy Director 1, Executing agency 1, BRT)

Knowledge hiding

Another challenge is knowledge hiding, people tend not to share the knowledge they have. This takes several forms, such as providing wrong and incomplete information, delaying in providing information, or not providing information at all. As stated below:

> *Sometimes people linger on things for no reason. If you need some drawing... there are many complicated problems. Like if the information or knowledge is incomplete, or if it is doubtful, or that it cannot be implemented. You have received some information but if you look at the site, you find things different than what you received… So, gaining knowledge is always a difficult task.* (Project Manager, Contractor 2, OL)

Moreover, the above demonstration from OL is supported by the evidence from BRT. However, the BRT evidence shows that people tend to hide because of job insecurity; when they share knowledge with another person, that person will then have the same knowledge, so they are preparing their competitors and replacements in the workplace. As illustrated below:

> *People tend to be reluctant to share, because then there will be same level if people share experience with others… Some are reluctant... because they think of job insecurity. They think if they share knowledge, it will make them unvaluable, and they might lose their job… This means other people will be specialized; competition may be increased.* (Deputy Director 2, Executing agency 1, BRT)

Finding credible information sources

Another challenge is to find the right and credible sources to provide relevant and credible information. Each individual is different and has different priorities and goals, which lead to different approaches. As stated below:

> *Basically, finding the right sources would be the problem. Even if I find the right source, they won't get the right thing… They are different natured people, they carry out different tasks, and they have different priorities. They are not typically from engineering sector or project management sector… So, they have different approaches.* (Planning Engineer, Designer, OL)

The OL findings support the evidence from BRT, which emphasizes the importance of key sources. The key source should be knowledgeable, as well as dedicated to providing credible knowledge. As stated below:

> *The most important thing is that you need to know the key source from where you get the information, the availability of the source and dedication of the resource, that he/she wants to share the experience... must have relevant experience. For knowledge, he/she must have theoretical knowledge, the relevant degree, the principles, the laws, and he/she should be keen and dedicated to resolving your issue*. (Project Coordinator, Consultant, BRT)

Organizational red tape

Organizational structure and red tape are another challenge. Departments and organizations need proper channels to acquire knowledge. The request would have to be made, then, if it were approved, the knowledge would be shared. As stated below:

> *In government organizations, we do have the transparency of this level that we can have information only if we come through a proper channel. When we come through a channel, we will utilize our department head and their department head will receive the request, when the request is head-to-head, then it will certainly be answered.* (Project Director, Client, OL)

The findings from BRT also show that organizational structure and hierarchy is a very strong barrier to acquiring knowledge, particularly when we are dealing with external sources. Each organization has its standard operating procedure which needs to be followed to acquire knowledge. As illustrated below:

> *There are document controllers, first the directors give us permission and then we reach the document controller. It should be in everyone's knowledge that I am accessing it and why I need it… See, every organization has their own protocol. If you build an understanding with their protocols, then I don't think there is a problem*. (Deputy Project Manager, Contractor 2, BRT)

Facilitating factors

Clear objectives

To optimize knowledge acquisition, it is important to have clear objectives regarding what exactly the acquired knowledge would be used for. For this reason, when organizations have a

need for information, they need to convey it clearly, which will enable them to acquire the requisite knowledge from the other organizations. As stated below:

> *For acquisition, you have to clearly convey what you are actually going to do. For example, if utility department wants some knowledge, you convey to them all your major structural components, your right of way and layout, so then according to that they tell you about the lines that are passing under your right of way or structural component, this one need to be shifted, this one is fine even if it is not shifted. So that is why you have to share a complete picture with them to let them know what you are going to do basically.* (Deputy Director 1, Executing agency, OL)

Moreover, the findings from OL support those of BRT. The objectives and usage of acquired knowledge are crucial. The quote below illustrates this with an example of a mobile app.

> *Basically, your objectives should be defined... I mean the usage of knowledge that you want to acquire, for example a mobile app, so basically you should be clear about why you need it? If you are working in the transport sector and you see mobile apps are being used all over the world... The point is, first be clear about why you need it. So, if you know about that industry, you will know that the passenger has this demand that he should know about the arrival and departure. He should be able to know that at what time and in how much fare he would reach his desired destination etc. So, basically you should know what your need is of what you want to acquire.* (General Manager Operations, Executing agency 2, BRT)

Clear objectives reduce the challenges of time pressure and knowledge hiding. If people are clear about what is required, there is no confusion about what the acquired knowledge will be used for, so people are more open to sharing knowledge and less time is needed for sharing and acquiring knowledge.

Individual interest and personal commitment

Knowledge acquisition is facilitated by individual interest and commitment. It is important to understand what needs to be acquired and how. If people are clear about that, then dedication and commitment enable them to go the extra mile to find the right source for acquiring knowledge. As stated below:

> *No. 1 factor would be dedication because here it would be most important… The factor that helped me in getting the knowledge, like if I had some idea that what I specifically require... If I am going to ask something and the other person is not going to understand or not answering me… then I have to look for some other source… I have the thing in my mind, I have to choke down the number of sources from where I can get that knowledge.* (Planning Engineer, Designer, OL)

The above evidence from OL is consistent with the evidence provided by BRT. If people are not learning due to lack of commitment, then new knowledge created by the industry, organizations, projects will not come to them, so it essential to work hard to acquire knowledge, as stated below:

> *I believe the most important factor is your own personal interest. Even the other person will give you time according to your level of interest. Like, you have asked me about 16 questions on the same thing, and I am responding to you accordingly. If you asked only one question and then changed the topic, then I would have also stopped after giving you one answer. So, personal interest is the first thing that is considered, as in what does the person sitting in front of you want from you and to how much depth.* (Project Manager, Contractor 3, BRT)

The above quotations from OL and BRT acknowledge that individual interest and personal commitment are useful in addressing the challenges of time pressure and finding credible information sources.

Revisiting the organizational culture and environment

It is important to revisit the organizational culture and environment to bring about positive changes. Most of the public institutions do not participate in training and workshops as they do not have impact on the organization, so there is a need to adopt such a culture, as stated below:

> *We haven't ever sent our staff for training as such. We might bring a change in ourselves in times to come and send people for training. For example, there was one workshop from Malaysia, and I wrote that there is no nomination from our side. Why? Because we know that we do not even have time for this… This is very common in the private sector and consultants. They go for new learning and learning like in foreign countries there are CEUs - credit earn units or education units. But in Pakistan, in govt. sector, there is nothing like that.* (General Manager, Client, OL)

Moreover, the OL finding supports the BRT evidence, with the addition that people go into defensive mode, thinking others are interfering, but if there were common objectives communicated clearly the issue could have been resolved. However, it is not that easy because every organization has its own competing priorities and agendas that they do not want to compromise upon. As stated below:

> *You have to create a new environment so that people feel there is a common objective because at many places here, when you talk to people, they get into defensive mode by thinking that you are either interfering to their work or questioning their performance. It is crucial to create an environment where projects should have a common objective despite being from different organizations involving government, civil engineers.* (General Manager Planning and Construction, Executing agency 2, BRT)

Revisiting the organizational culture and environment would be useful to minimize the challenges of knowledge hiding, organizational structure, and red tape.

Discussion

Knowledge-based view provides a lens to view knowledge as a strategic resource for an organization (Grant, 1996). This affirms that organization unique knowledge assets are the source of power and encourages them to seek external knowledge for their growth (Martin-de Castro, 2015). In an interorganizational setting, acquiring knowledge from external organizations is much needed and requires trust and a conducive environment (Maurer, 2010). Interorganizational knowledge acquisition is a process of obtaining and exchanging knowledge from other organizations (Zollo & Singh, 2004). It involves the transfer of information, expertise, and insights between organizations for collective knowledge gain and hence improved performance (Martin-de Castro, 2015). Such knowledge acquisition may occur through partnerships, collaborations, alliances, joint ventures, and networks (Ortiz et al., 2018). For effective knowledge management, organizations need to develop processes, systems, and structures to capture, store, organize, and disseminate acquired knowledge (Alavi & Leidner, 2001). Both case studies under discussion are large and complex, involving multiple organizations. The Orange Line project involved 9 organizations directly and the BRT project involved 11 organizations; both required intensive knowledge acquisition process. The

findings from both cases provided valuable insight into the challenges and facilitating factors (see Figure 1) associated with knowledge acquisition in these interorganizational projects.

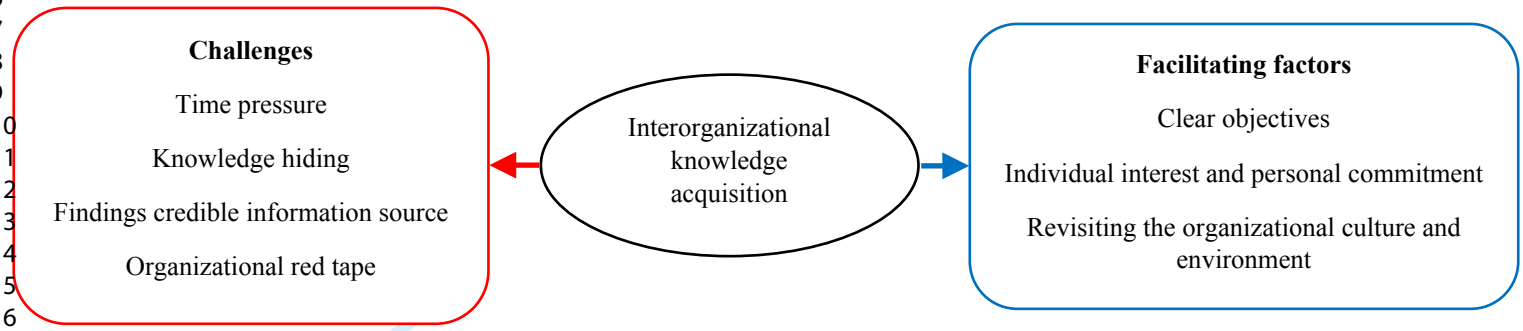

Figure 1: Model of challenges and facilitating factors in interorganizational knowledge acquisition

Challenges in interorganizational knowledge acquisition

The challenges found for interorganizational knowledge acquisition include time pressure, knowledge hiding, finding credible information sources, and organizational red tape. It is crucial to recognize that time constraints are inherent in project environments, and individuals may have limited availability to share knowledge (Li et al., 2023). Moreover, time pressure can create challenges for the coordination between temporary projects and permanent organizations (van Berkel et al., 2016). Knowledge hiding is another challenge, where individuals deliberately conceal knowledge. Interpersonal factors such as job insecurity or competition related concerns may push individuals and organizations to withhold information deliberately (Moh'd et al., 2021; Oliveria et al., 2021). Our findings also show that finding credible information sources is a challenge. Credibility is often conceived of as a combination of expertise and trust (Rieh & Danielson, 2007). Rather than solely focusing on the challenge of finding the 'right' source, it may be worthwhile to explore strategies for identifying and leveraging credible sources of knowledge and expertise within interorganizational projects. The findings highlight the need for navigating appropriate channels and protocols to acquire knowledge (Currie et al., 2010). Red tape is considered a negative phenomenon. Turaga and Bozeman offered a definition of red tape as "burdensome administrative rules and procedures that have negative effects on the organization's performance" (Turaga & Bozeman, 2005, p. 368). Organizational red tape can be expensive and time consuming (George et al., 2021), and its impact may be manifold in a project setting.

Facilitating factors in interorganizational knowledge acquisition

The facilitating factors found for interorganizational knowledge acquisition include having clear objectives, individual interest, and personal commitment, and revisiting the organizational culture and environment. Well-defined objectives reduce confusion and enable effective knowledge acquisition (White & Cicmil, 2016). The project will become more goal and results-oriented instead of activity-based by enhancing a common understanding of the project. By setting clear objectives, a team is able to focus on the target and creates a sense of commitment and agreement on the project's objectives, which will facilitate knowledge acquisition and address the challenges of time pressure and knowledge hiding (Clarke, 1999).

Additionally, individual interest influences employees to search for and process information based on cues, hence the different cues can significantly influence cognitions, motivations, and behaviors associated with the workplace (De Dreu & Nauta, 2009). Individual control and knowledge sharing depend on commitment (Lin, 2007). In contemporary settings, such as interorganizational projects, employee commitment has a significant impact on knowledge sharing behavior (Swart et al., 2014). Individual interest and personal commitment encourage individuals to acquire knowledge (Williams, 2014), supporting the prioritizing of activities that will enable effective time allocation to tasks; such individuals will also make the effort to search for credible information sources.

Being a learning organization requires a strong organizational culture (Ravikumar et al., 2022). A learning organization's culture is one in which all members agree with the organization's processes, activities, functions, and interactions with its environment. In this community, there is a strong sense of belonging, a sense of caring for one another, and a sense of trust. Learning organizations are places where employees are free to communicate openly, share ideas, experiment, and learn without fear of criticism or retribution (Lewis, 2002), which will overcome the challenges of knowledge hiding and red tape. Multiple organizations are involved in an interorganizational project, each having different values, norms, and cultures (Kavusan et al., 2016). These different values, norms and cultures need to be aligned by revisiting the organizational culture and environment.

Overall, interorganizational knowledge acquisition plays a vital role in the growth, competitiveness (Ge & Liu, 2022), and innovation of organizations as suggested by knowledge-based view. By actively seeking and sharing knowledge with external partners, organizations can enhance their capabilities, expand their knowledge base, and create value in today's interconnected and rapidly changing business environment (Gaines, 2013).

Conclusion

Complex and multifaceted concepts of knowledge and related processes are crucial for interorganizational projects. Research on individual knowledge processes like storage, sharing, creation, application, integration, and acquisition are well established, but there is limited research on interorganizational knowledge acquisition. The nature of interorganizational projects i.e., as temporary, complex, involving multiple organizations and task interdependencies, as well as knowledge residing in the networks linking the organizations, needs to be understood to solve novel problems. The aim of the study was to explore the challenges in interorganizational knowledge acquisition and to identify facilitating factors to help mitigate these challenges. The challenges for interorganizational knowledge acquisition include time pressure, knowledge hiding, finding credible information sources, and organizational red tape. The factors that facilitate interorganizational knowledge acquisition include clear objectives, individual interest, and commitment, revisiting the organizational culture, and creating a supportive environment. By enhancing their capability for knowledge acquisition, interorganizational projects can be more competitive and innovative in today's dynamic business world.

This study has emphasized the importance of effective knowledge management beyond organizational boundaries for successful interorganizational projects. This paper contributes to our understanding of knowledge management and knowledge acquisition in the literature on

complex interorganizational projects. First, it extends the dimensions of knowledge management and knowledge acquisition to include factors that may hinder or facilitate the acquisition of knowledge. A second major finding pertains to the relationship between interorganizational knowledge acquisition challenges and facilitating factors. Third, the challenges and facilitating factors identified from interorganizational projects and from a pool of diverse stakeholders, team members, and organizations may increase project robustness. Fourth, our findings demonstrate challenges and facilitating factors from two case studies, which are aligned to each other. Finally, we believe that Figure 1 can serve as a refined mapping of the evidence found in the data.

Regarding the practical implications, this research offers managers assistance in overcoming the challenges that may prevent knowledge acquisition and in enhancing the facilitating factors which accelerate knowledge acquisition during the life cycle of a project. This study provides senior management with a more comprehensive and structured framework to understand knowledge requirements and to improve knowledge capture practices. Moreover, different challenges and facilitating factors provide valuable guidelines for practitioners who wish to optimize the effectiveness of knowledge acquisition within and across organizations. In particular, the paper shows how the facilitating factors can be enhanced to mitigate the challenges.

This research has several limitations. First, the study has a limited focus on the literature on project and knowledge management within the discipline of business and management, although the factors challenging and facilitating knowledge acquisition are widespread and have been utilized in various ways in other branches of social sciences, which could be a potential future research topic. Second, the study focuses on interorganizational projects, particularly infrastructure projects. The challenges and facilitating factors in knowledge acquisition may be different in other industries. Future research may replicate and validate the findings in other project-based sectors. Third, empirical data is from Pakistan, future research should consider empirical data from wider geographies and diverse projects could provide more insight into the subject matter, especially considering the impact of organizational and geographical cultures and related impacts. Lastly, interorganizational projects have societal impact and influences on public policy, however our study did not focus on it, hence is a good topic for future research.

References

Acevedo, J., & Diaz-Molina, I. (2023). Learning organizations in emerging economies: the effect of knowledge management on innovative culture in Chilean companies. *The Learning Organization*, *30*(1), 37–54, https://doi.org/10.1108/TLO-01-2021-0009.

Akhavan, P., Shahabipour, A., & Hosnavi, R. (2018). A model for assessment of uncertainty in tacit knowledge acquisition. *Journal of Knowledge Management*, *22*(2), 413–431, https://doi.org/10.1108/JKM-06-2017-0242.

Alavi, M., & Leidner, D. E. (2001). Review: knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly*, *25*(1), 107–136, https://doi.org/10.2307/3250961.

Almeida, P., Grant, R., & Phene, A. (2017). Knowledge acquisition through alliances: Opportunities and challenges. In M. J. Gannon, & K. L. Newman (Eds.), *The Blackwell handbook of cross-cultural management*. Blackwell Publishers Ltd, https://doi.org/10.1002/9781405164030.ch4.

Andreeva, T., & Kianto, A. (2011). Knowledge processes, knowledge-intensity and innovation: A moderated mediation analysis. *Journal of Knowledge Management*, *15*(6), 1016–1034, https://doi.org/10.1108/13673271111179343.

Ardito, L., & Petruzzelli, A. M. (2017). Breadth of external knowledge sourcing and product innovation: The moderating role of strategic human resource practices. *European Management Journal*, *35*(2), 1–12, https://doi.org/10.1016/j.emj.2017.01.005.

Argote, L., Guo, J. Park, Sae-Seul., & Hahl, O. (2022). The mechanisms and components of knowledge transfer: The virtual special issue on knowledge transfer within organizations. *Organization Science*, *33*(3), 1232–1249, https://doi.org/10.1287/orsc.2022.1590.

Audretsch, D. B., & Belitski, M. (2023). Evaluating internal and external knowledge sources in firm innovation and productivity: An industry perspective. *R&D Management*, *53*(1), 168–192, https://doi.org/10.1111/radm.12556.

Barringer, B. R., & Harrison, J. S. (2000). Walking a tightrope: Creating value through interorganizational relationships. *Journal of Management*, *26*(3), 367–403, https://doi.org/10.1016/S0149-2063(00)00046-5.

Bloodgood, J. M. (2019). Knowledge acquisition and firm competitiveness: The role of complements and knowledge source. *Journal of Knowledge Management*, *23*(1), 46–66, https://doi.org/10.1108/JKM-09-2017-0430.

Bolisani, S., & Bratianu, C. (2017). Knowledge strategy planning: An integrated approach to manage uncertainty, turbulence, and dynamics. *Journal of Knowledge Management*, *21*(2), 233–253, https://doi.org/10.1108/JKM-02-2016-0071.

Braun, T. (2018). Configurations for interorganizational project networks: The interplay of the PMO and network administrative organization. *Project Management Journal*, *49*(4), 53–61, https://doi.org/10.1177/8756972818781710.

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology: Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association, https://doi.org/10.1037/13620-004.

Braun, T., & Sydow, J. (2019). Selecting organizational partners for interorganizational projects: The dual but limited role of digital capabilities in the construction industry. *Project Management Journal*, *50*(4), 398–408, https://doi.org/10.1177/8756972819857477.

Carlsson, S. A. (2003). Knowledge managing and knowledge management systems in inter-organizational networks. *Knowledge and Process Management*, *10*(3), 194–206, https://doi.org/10.1002/kpm.179.

Cassiman, B., & Veugelers, R. (2006). In search of complementarity in innovation strategy: Internal R&D and external knowledge acquisition. *Management Science*, *52*(1), 68–82, https://doi.org/10.1287/mnsc.1050.0470.

Chang, C. L. H., & Lin, T. C. (2015). The role of organizational culture in the knowledge management process. *Journal of Knowledge Management*, *19*(3), 433–455, https://doi.org/10.1108/JKM-08-2014-0353.

Chang, J., Bai, X., & Li, J. J. (2015). The influence of leadership on product and process innovations in China: The contingent role of knowledge acquisition capability. *Industrial Marketing Management*, *50*, 18–29, https://doi.org/10.1016/j.indmarman.2015.04.014.

Chung, W., & Yeaple, S. (2008). International knowledge sourcing: Evidence from US firms expanding abroad. *Strategic Management Journal*, *29*(11), 1207–1224, https://doi.org/10.1002/smj.706.

Clarke, A. (1999). A practical use of key success factors to improve the effectiveness of project management. *International Journal of Project Management*, *17*(3), 139–145, https://doi.org/10.1016/S0263-7863(98)00031-3.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, *35*(1), 128–152, https://doi.org/10.2307/2393553.

Currie, L., Devlin, F., Emde, J., & Graves, K. (2010). Undergraduate search strategies and evaluation criteria: Searching for credible sources. *New Library World*, *111*(3/4), 113–124, https://doi.org/10.1108/03074801011027628.

Davenport, T. H., De Long, D. W., & Beers, M. C. (1998). Successful knowledge management projects. *Sloan Management Review*, *39*(2), 43–57.

De Dreu, C. K. W., & Nauta, A. (2009). Self-interest and other-orientation in organizational behavior: Implications for job performance, prosocial behavior, and personal initiative. *Journal of Applied Psychology*, *94*(4), 913–926, https://psycnet.apa.org/doi/10.1037/a0014494.

Dubois, A., & Gadde, L. E. (2002). Systematic combining: An abductive approach to case research. *Journal of Business Research*, *55*(7), 553–560, https://doi.org/10.1016/S0148-2963(00)00195-8.

Easterby-Smith, M., Lyles, M. A., & Tsang, E. W. (2008). Inter-organizational knowledge transfer: Current themes and future prospects. *Journal of Management Studies*, *45*(4), 677–690, https://doi.org/10.1111/j.1467-6486.2008.00773.x.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, *14*(4), 532–550, https://doi.org/10.2307/258557.

Eisenhardt, K. M., & Santos, F. M. (2002). Knowledge-based view: A new theory of strategy. In A. Pettigrew, H. Thomas, & R. Whittington (Eds.), *Handbook of strategy and management* (pp. 139–164). Sage.

Fey, C., & Birkinshaw, J. (2005). External sources of knowledge, governance mode, and R&D performance. *Journal of Management*, *31*(4), 597–621, https://doi.org/10.1177/0149206304272346.

Fong, P. S. W., & Lee, H. F. (2009). Acquisition, reuse and sharing of knowledge in property management firms. *Facilities*, *27*(7/8), 291–314, https://doi.org/10.1108/02632770910956148.

Forsythe, D. E., & Buchanan, B. G. (1989). Knowledge acquisition for expert systems: Some pitfalls and suggestions. *IEEE Transactions on Systems, Man, and Cybernetics*, *19*(3), 435–442, https://doi.org/10.1109/21.31050.

Foss, N. J. (1996). Knowledge-based approaches to the theory of the firm: Some critical comments. *Organization Science*, *7*(5), 470–476, https://doi.org/10.1287/orsc.7.5.470.

Foss, N. J., Lyngsie, J., & Zahra, S. A. (2013). The role of external knowledge sources and organizational design in the process of opportunity exploitation. *Strategic Management Journal*, *34*(12), 1453–1471, https://doi.org/10.1002/smj.2135.

Gaines, B. R. (2013). Knowledge acquisition: Past, present and future. *International Journal of Human-Computer Studies*, *71*(2), 135–156, https://doi.org/10.1016/j.ijhcs.2012.10.010.

Ge, S., & Liu, X. (2022). The role of knowledge creation, absorption and acquisition in determining national competitive advantage. *Technovation*, *112*, 102396, https://doi.org/10.1016/j.technovation.2021.102396.

George, B., Pandey, S. K., Steijn, B., Decramer, A., & Audenaert, M. (2021). Red Tape, organizational performance, and employee outcomes: Meta-analysis, meta-regression, and research agenda. *Public Administration Review*, *81*(4), 638–651, https://doi.org/10.1111/puar.13327.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, *17*(S2), 109–122, https://doi.org/10.1002/smj.4250171110.

Håkansson, L. (2010). The firm as an epistemic community: The knowledge-based view revisited. *Industrial and Corporate Change*, *19*(6), 1801–1828, https://doi.org/10.1093/icc/dtq052.

He, Q., Ghobadian, A., & Gallear, D. (2013). Knowledge acquisition in supply chain partnerships: The role of power. *International Journal of Production Economics*, *141*(2), 605–618, https://doi.org/10.1016/j.ijpe.2012.09.019.

Hemmert, M. (2019). The relevance of inter-personal ties and inter-organizational tie strength for outcomes of research collaborations in South Korea. *Asia Pacific Journal of Management*, *36*(2), 373–393, https://doi.org/10.1007/s10490-017-9556-6.

Ho, M. H. W., Ghauri, P. N., & Larimo, J. A. (2018). Institutional distance and knowledge acquisition in international buyer-supplier relationships: The moderating role of trust. *Asia Pacific Journal of Management*, *35*, 427–447, https://doi.org/10.1007/s10490-017-9523-2.

Hu, N., Wu, J., & Gu, J. (2019). Cultural intelligence and employees' creative performance: The moderating role of team conflict in inter-organizational teams. *Journal of Management and Organization*, *25*(1), 96–116, https://doi.org/10.1017/jmo.2016.64.

Iftikhar, R., & Ahola, T. (2022). Knowledge sharing in an interorganizational setting: Empirical evidence from the Orange Line metro train project. *Journal of Knowledge Management*, *26*(4), 854–872, https://doi.org/10.1108/JKM-06-2020-0485.

Iftikhar, R., & Lions, C. (2022). Interorganizational knowledge sharing barriers and enablers: The case of Peshawar Bus Rapid Transit project. *International Journal of Managing Projects in Business*, *15*(5), 769–792, https://doi.org/10.1108/IJMPB-11-2021-0313.

Iftikhar, R., & Mawra, K. (2023). Knowledge storage and accessibility in an interorganizational project: Empirical evidence from the Orange Line metro train. *International Journal of Managing Projects in Business*, *16*(2), 279–300, https://doi.org/10.1108/IJMPB-03-2022-0075.

Iftikhar, R., & Wiewiora, A. (2022). Learning processes and mechanisms for interorganizational projects: Insights from the Islamabad–Rawalpindi metro bus project. *IEEE Transactions on Engineering Management*, *69*(6), 3379–3391, https://doi.org/10.1109/TEM.2020.3042252.

Inkpen, A. C., & Dinur, A. (1998). Knowledge management processes and international joint ventures. *Organization Science*, *9*(4), 454–468, https://doi.org/10.1287/orsc.9.4.454.

Jiang, Y., Ma, Z., & Wang, X. (2023). The impact of knowledge management on intellectual property risk prevention: Analysis from China's strategic emerging industries. *Journal of Knowledge Management*, *27*(1), 197–207, https://doi.org/10.1108/JKM-03-2022-0216.

Jones, C., & Lichtenstein, B. (2008). Temporary inter-organizational projects: How temporal and social embeddedness enhance coordination and manage uncertainty. In S. Cropper, M. Ebers, C. Huxham, & P. Smith (Eds.), *The Oxford handbook of inter-organizational relations* (pp. 231–255). Oxford University Press, https://doi.org/10.1093/oxfordhb/9780199282944.003.0009.

Kavusan, K., Noorderhaven, N. G., & Duysters, G. M. (2016). Knowledge acquisition and complementary specialization in alliances: The impact of technological overlap and alliance experience. *Research Policy*, *45*(10), 2153–2165, https://doi.org/10.1016/j.respol.2016.09.013.

Kim, S., & Lee, H. (2010). Factors affecting employee knowledge acquisition and application capabilities. *Asia Pacific Journal of Business Administration*, *2*(2), 133–152, https://doi.org/10.1108/17574321011078184.

Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, *3*(3), 383–397, https://doi.org/10.1287/orsc.3.3.383.

Koskinen, K. U., Pihlanto, P., & Vanharanta, H. (2003). Tacit knowledge acquisition and sharing in a project work context. *International Journal of Project Management*, *21*(4), 281–290, https://doi.org/10.1016/S0263-7863(02)00030-3.

Levinthal, D., & March, J. (1993). The myopia of learning. *Strategic Management Journal*, *14*(S2), 95–112, https://doi.org/10.1002/smj.4250141009.

Lewis, D. (2002). Five years on – the organizational culture saga revisited. *Leadership & Organization Development Journal*, *23*(5), 280–287, https://doi.org/10.1108/01437730210435992.

Li, X., Xu, Z., & Hu, Y. (2023). How time pressure is associated with knowledge sharing: A dual-path mechanism study. *Journal of Knowledge Management*, *27*(7), 1765–1786, https://doi.org/10.1108/JKM-04-2022-0256.

Liao, Y., & Marsillac, E. (2015). External knowledge acquisition and innovation: The role of supply chain network-oriented flexibility and organisational awareness. *International Journal of Production Research*, *53*(18), 5437–5455, https://doi.org/10.1080/00207543.2015.1008106.

Ligthart, R., Oerlemans, L., & Noorderhaven, N. (2016). In the shadows of time: A case study of flexibility behaviors in an interorganizational project. *Organization Studies*, *37*(12), 1–23, https://doi.org/10.1177/0170840616655487.

Lin, C. -P. (2007). To share or not to share: Modelling tacit knowledge sharing, its mediators and antecedents. *Journal of Business Ethics*, *70*(4), 411–428, https://doi.org/10.1007/s10551-006-9119-0.

Liu, L., & Zhang, H. (2021). How does inter-organizational relational governance propel firms' open innovation? A conditional process analysis. *Sustainability*, *13*(18), 10209, https://doi.org/10.3390/su131810209.

Lopez, V. W. B., & Esteves, J. (2012). Acquiring external knowledge to avoid wheel re-invention. *Journal of Knowledge Management*, *17*(1), 87–105, https://doi.org/10.1108/13673271311300787.

Lumineau, F., & Oliveira, N. (2018). A pluralistic perspective to overcome major blind spots in research on interorganizational relationships. *Academy of Management Annals*, *12*(1), 440–465, https://doi.org/10.5465/annals.2016.0033.

Lundin, R. A., & Söderholm, A. (1995). A theory of the temporary organization. *Scandinavian Journal of Management*, *11*(4), 437–455, https://doi.org/10.1016/0956-5221(95)00036-U.

Lyles, M. A. (1988). Learning among JV-sophisticated firms. In F. Contractor, & P. Lorange (Eds.), *Cooperative strategies in international business* (pp. 301–316). Lexington Books.

Lyles, M. A., & Salk, J. E. (2007). Knowledge acquisition from foreign parents in international joint ventures: An empirical examination in the Hungarian context. *Journal of International Business Studies*, *38*(1), 3–18, https://doi.org/10.1057/palgrave.jibs.8490155.

Ma, R., & Huang, Y. C. (2016). Opportunity-based strategic orientation, knowledge acquisition, and entrepreneurial alertness: The perspective of the global sourcing suppliers in China. *Journal of Small Business Management*, *54*(3), 953–972, https://doi.org/10.1111/jsbm.12222.

Manning, S. (2017). The rise of project network organizations: Building core teams and flexible partner pools for interorganizational projects. *Research Policy*, *46*(8), 1399–1415, https://doi.org/10.1016/j.respol.2017.06.005.

Martin-de Castro, G. (2015). Knowledge management and innovation in knowledge-based and high-tech industrial markets: The role of openness and absorptive capacity. *Industrial Marketing Management*, *47*, 143–146, https://doi.org/10.1016/j.indmarman.2015.02.032.

Mas-Machuca, M., & Costa, C. M. (2012). Exploring critical success factors of knowledge management projects in the consulting sector. *Total Quality Management & Business Excellence*, *23*(11-12), 1297–1313, https://doi.org/10.1080/14783363.2011.637778.

Maurer, I. (2010). How to build trust in inter-organizational projects: The impact of project staffing and project rewards on the formation of trust, knowledge acquisition and product innovation. *International Journal of Project Management*, *28*(7), 629–637, https://doi.org/10.1016/j.ijproman.2009.11.006.

Micheli, M. R., Berchicci, L., & Jansen, J. J. (2020). Leveraging diverse knowledge sources through proactive behaviour: How companies can use inter-organizational networks for business model innovation. *Creativity and Innovation Management*, *29*(2), 198–208, https://doi.org/10.1111/caim.12359.

Moh'd, S. S., Černe, M., & Zhang, P. (2021). An exploratory configurational analysis of knowledge hiding antecedents in project teams. *Project Management Journal*, *52*(1), 31–44, https://doi.org/10.1177/8756972820939768.

Morgan, R. E., & Berthon, P. (2008). Market orientation, generative learning, innovation strategy and business performance inter-relationships in bioscience firms. *Journal of Management Studies*, *45*(8), 1329–1353, https://doi.org/10.1111/j.1467-6486.2008.00778.x.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, *5*(1), 14–37, https://doi.org/10.1287/orsc.5.1.14.

Oliveira, M., Curado, C., & de Garcia, P. S. (2021). Knowledge hiding and knowledge hoarding: A systematic literature review. *Knowledge and Process Management*, *28*(3), 277–294, https://doi.org/10.1002/kpm.1671.

Ortiz, B., Donate, M. J., & Guadamillas, F. (2018). Inter-organizational social capital as an antecedent of a firm's knowledge identification capability and external knowledge acquisition. *Journal of Knowledge Management*, *22*(6), 1332–1357, https://doi.org/10.1108/JKM-04-2017-0131.

Parikh, M. (2001). Knowledge management framework for high tech research and development. *Engineering Management Journal*, *13*(3), 27–34, https://doi.org/10.1080/10429247.2001.11415124.

Parra-Requena, G., Ruiz-Ortega, M. J., García-Villaverde, P. M., & Rodrigo-Alarcón, J. (2015). The mediating role of knowledge acquisition on the relationship between external social capital and innovativeness. *European Management Review*, *12*(3), 149–169, https://doi.org/10.1111/emre.12049.

Radziwon, A., & Bogers, M. (2019). Open innovation in SMEs: Exploring interorganizational relationships in an ecosystem. *Technological Forecasting and Social Change*, *146*, 573–587, https://doi.org/10.1016/j.techfore.2018.04.021.

Ravikumar, R., Kitana, A., Taamneh, A., Aburayya, A., Shwedeh, F., Salloum, S., & Shaalan, K. (2022). Impact of knowledge sharing on knowledge acquisition among higher education employees. *Computer Integrated Manufacturing Systems*, *28*(12), 827–845, http://cims-journal.com/index.php/CN/article/view/462.

Rebolledo, C., & Nollet, J. (2011). Learning from suppliers in the aerospace industry. *International Journal of Production Economics*, *129*(2), 328–337, https://doi.org/10.1016/j.ijpe.2010.11.008.

Rieh, S. Y., & Danielson, D. R. (2007). Credibility: A multidisciplinary framework. *Annual Review of Information Science and Technology*, *41*(1), 307–364, https://doi.org/10.1002/aris.2007.1440410114.

Roehrich, J. K., Kalra, J., Squire, B., & Davies, A. (2023). Network orchestration in a large inter-organizational project. *Journal of Operations Management*, *69*(7), 1078–1099, https://doi.org/10.1002/joom.1237.

Rosenkopf, L., & Nerkar, A. (2001). Beyond local search: Boundary spanning, exploration, and impact in the optical disk industry. *Strategic Management Journal*, *22*(4), 287–306, https://doi.org/10.1002/smj.160.

Rusly, F. H., Sun, P. Y. -T., & Corner, J. L. (2015). Change readiness: creating understanding and capability for the knowledge acquisition process. *Journal of Knowledge Management*, *19*(6), 1204–1223, https://doi.org/10.1108/JKM-02-2015-0092.

Ryu, C., Kim, Y. J., Chaudhury, A., & Rao, H. R. (2005). Knowledge acquisition via three learning processes in enterprise information portals: Learning-by-investment, learning-by-doing, and learning-from-others. *MIS Quarterly*, *29*(2), 245–278, https://doi.org/10.2307/25148679.

Schienstock, G. (2009). Organizational capabilities: Some reflections on the concept. *IAREG Working Paper* 1.2.

Sergeeva, N., & Duryan, M. (2021). Reflecting on knowledge management as an enabler of innovation in project-based construction firms. *Construction Innovation*, *21*(4), 934–950, https://doi.org/10.1016/j.techfore.2019.119762.

Sergeeva, N., & Zanello, C. (2018). Championing and promoting innovation in UK megaprojects. *International Journal of Project Management*, *36*(8), 1068–1081, https://doi.org/10.1016/j.ijproman.2018.09.002.

Silva, M. D., Howell, J., & Meyer, M. (2018). Innovation intermediaries and collaboration: Knowledge-based practices and internal value creation. *Research Policy*, *47*(1), 70–87, https://doi.org/10.1016/j.respol.2017.09.011.

Singh, S. K., Del Giudice, M., Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, *150*, 119762, https://doi.org/10.1016/j.techfore.2019.119762.

Situmorang, R., & Japutra, A. (2024). Knowledge transfer within MNC hotel subsidiaries: An absorptive capacity perspective. *Tourism Management*, *100*, 104794, https://doi.org/10.1016/j.tourman.2023.104794.

Smith, K. G., Collins, C. J., & Clark, K. D. (2005). Existing knowledge, knowledge creation capability and the rate of new-product introduction in high technology firms. *Academy of Management Journal*, *48*, 346–357, https://doi.org/10.5465/amj.2005.16928421.

Söderlund, J., Sankaran, S., & Biesenthal, C. (2017). The past and present of megaprojects. *Project Management Journal*, *48*(6), 5–16, https://doi.org/10.1177/875697281704800602.

Swan, J., Scarbrough, H., & Newell, S. (2010). Why don't (or do) organizations learn from projects?. *Management Learning*, *41*(3), 325–344, https://doi.org/10.1177/1350507609357003.

Swart, J., Kinnie, N., van Rossenberg, Y., & Yalabik, Z. Y. (2014). Why should I share my knowledge? A multiple foci of commitment perspective. *Human Resource Management Journal*, *24*, 269–289, https://doi.org/10.1111/1748-8583.12037.

Thomas-Hunt, M. C., Ogden, T. Y., & Neale, M. A. (2003). Who's really sharing? Effects of social and expert status on knowledge exchange within groups. *Management Science*, *49*(4), 464–477, https://psycnet.apa.org/doi/10.1287/mnsc.49.4.464.14425.

Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociological Theory*, *30*(3), 167–186, https://doi.org/10.1177/0735275112457914.

Turaga, R. M. R., & Bozeman, B. (2005). Red tape and public managers' decision making. *American Review of Public Administration*, *35*(4), 363–379, https://doi.org/10.1177/0275074005278503.

Uzzi, B., & Lancaster, R. (2003). Relational embeddedness and learning: The case of bank loan managers and their clients. *Management Science*, *49*(4), 383–399, https://doi.org/10.1287/mnsc.49.4.383.14427.

van Berkel, F. J. F. W., Ferguson, J. E., & Groenewegen, P. (2016). Speedy delivery versus long-term objectives: How time pressure affects coordination between temporary projects and permanent organizations. *Long Range Planning*, *49*(6), 661–673, https://doi.org/10.1016/j.lrp.2016.04.001.

Van Wijk, R., Jansen, J. J., & Lyles, M. A. (2008). Inter- and intra-organizational knowledge transfer: A meta-analytic review and assessment of its antecedents and consequences. *Journal of Management Studies*, *45*(4), 830–853, https://doi.org/10.1111/j.1467-6486.2008.00771.x.

Vătămănescu, E. -M., Bratianu, C., Dabija, D. -C., & Popa, S. (2023). Capitalizing online knowledge networks: from individual knowledge acquisition towards organizational achievements. *Journal of Knowledge Management*, *27*(5), 1366–1389, https://doi.org/10.1108/JKM-04-2022-0273.

Vuori, V., Helander N., & Mäenpää, S. (2019). Network level knowledge sharing: Leveraging Riege's model of knowledge barriers. *Knowledge Management Research & Practice*, *17*(3), 253–263, https://doi.org/10.1080/14778238.2018.1557999.

White, G. R., & Cicmil, S. (2016). Knowledge acquisition through process mapping: Factors affecting the performance of work-based activity. *International Journal of Productivity and Performance Management*, *65*(3), 302–323, https://doi.org/10.1108/IJPPM-01-2014-0007.

Williams, M. J. (2014). Serving the self from the seat of power: Goals and threats predict leaders' self-interested behavior. *Journal of Management*, *40*(5), 1365–1395, https://doi.org/10.1177/0149206314525203.

Xie, X., Wang, L., & Zeng, S. (2018). Inter-organizational knowledge acquisition and firms' radical innovation: A moderated mediation analysis. *Journal of Business Research*, *90*, 295–306, https://doi.org/10.1016/j.jbusres.2018.04.038.

Yang, S. C., & Farn, C. K. (2010). Investigating tacit knowledge acquisition and sharing from the perspective of social relationships – A multilevel model. *Asia Pacific Management Review*, *15*(2), 167–185.

Yin, R. K. (2015). *Case study research: Design and methods* (5th ed.). Sage.

Zollo, M., & Singh, H. (2004). Deliberate learning in corporate acquisitions: Post-acquisition strategies and integration capability in US bank mergers. *Strategic Management Journal*, *25*(13), 1233–1256, https://doi.org/10.1002/smj.426.

Table I: Case study description

Projects	Orange Line Metro Train System	Sustainable Bus Rapid Transit Corridor
Location	Lahore, Punjab	Peshawar, Khyber Pakhtunkhwa
Project investment	USD 1.626 billion	USD 587 million
Project duration	65 months	38 months
Project initiation	April 2015	May 2017

Table II: Interview participants' details

Project name	Role	Designation	Education	Experience (years)	Interview duration (minutes)
Orange Line Metro Train System	Client	Managing Director	-	45	56
		General Manager	MSc (US)	33	101
	Executing agency	Project Director	BSc	16	118
		Deputy Director 1	-	10	
		Deputy Director 2	MSc (in progress)	9	93
	Consultant and designer	Project Manager	MSc (UK)	30	61
		Planning Engineer	MSc (in progress)	4	164
	Contractor 1	Deputy Project Manager	BSc	14	74
	Contractor 2	Project Manager	-	29	52
		Quantity Surveyor & Deputy Project Manager	Matric	15	92
	Contractor 3	Technical Advisor	BSc	40	125
Sustainable Bus Rapid Transit Corridor	Executing agency 1	Director Coordination	BSc.	32	39
		Deputy Director 1	-	7	83
		Deputy Director 2	Master	26	26
	Executing agency 2	General Manager Planning & Construction	Master	24	49
		General Manager Operations	Master	17	85
		Transport Planning Specialist	-	8	62
	Consultant	Project Director	Master (US)	35	64
		Project Coordinator	MSc.	19	59
	Contractor 1	General Manager	-	28	88
	Contractor 2	Deputy Project Manager	-	30	68
	Contractor 3	Project Manager	-	18	40