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Knowledge Transfer in Cross-border Collaboration within Multinational Companies

A Systematic Literature Review

Master's thesis
International Business

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Abstract

Knowledge transfer is a strategic imperative for multinational companies operating in increasingly globalized and complex environments. This thesis explores the challenges, processes, and outcomes of knowledge transfer in cross-border collaborations. Through a thematic synthesis of 72 peer-reviewed journal articles published between 2015 and 2025, it identifies critical barriers such as cultural misalignment, trust deficits, and hierarchical structures that constrain effective knowledge transfer. Conversely, enabling factors include codification of tacit knowledge, use of information and communication technologies (ICTs), and the cultivation of psychological safety. The findings emphasize that successful knowledge transfer enhances innovation, coordination, and competitive advantage, while failure results in redundancy, inefficiency, and reputational harm. Theoretically, the research contributes a holistic perspective on knowledge transfer by integrating socio-cultural, organizational, and technological dimensions. Managerially, it offers actionable insights for leaders to build trust, adapt communication practices, and develop knowledge transfer strategies tailored to diverse contexts. Future research directions are proposed, including longitudinal studies and investigations into the role of digital transformation in knowledge transfer.

Key words: Knowledge, Knowledge Transfer, Cross-border Collaboration, Multinational Companies.

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1 Introduction

1.1 Knowledge Transfer in Cross-border Collaborations

The phenomenon of knowledge transfer in cross-border collaboration within multinational companies (MNCs) is a complex interaction of several challenges or factors that determine how knowledge is shared and used across boundary settings (Gupta & Govindarajan 2000, 474). Various challenges, such as cultural, administrative, geographical, and economic distances, impede successful knowledge transfer in multinational companies, and these problems can be minimized through strategy alignment and successful integration, which has been found to improve organizational performance (Nguyen et al. 2024, 218-221). Among these, cultural distance—defined as the extent to which norms, values, and communication practices differ between countries—is highlighted because it has a direct impact on communication dynamics and the transfer of tacit knowledge, especially when headquarters and subsidiaries operate in culturally dissimilar environments (Sapuarachchi 2021, 2316). Tacit knowledge is crucial for organisational growth and knowledge generation but transferring it between cultures is tough since it relies on shared understanding, social interactions, and contextual nuances, which are difficult to explain and differ greatly between different cultural settings (Abdillah et al. 2024, 121). Differences in communication norms, language, and power structures frequently impede trust-building and mutual understanding, making the transfer of tacit knowledge more challenging. Cultural differences remain a key hindrance to knowledge transfer in multinational companies, particularly in cross-border contexts where the complexity of interactions keeps on increasing (Qin & Wang, 2008). Although this issue has long been recognised, current studies highlight its ongoing significance; knowledge transfer remains a highly complicated and challenging process for multinational companies functioning in multiple cultural locations (Sapuarachchi 2021, 2317).

MNCs operate in different geographical and cultural settings, posing unique challenges in effectively transferring knowledge among their subsidiaries, though knowledge transfer is a very important component (De Marchi et al. 2022, 2). Knowledge transfer between HQ and subsidiaries in multinational companies is difficult, specifically when cross-border collaboration is involved; here, interdependence and limited collaboration between HQ and subsidiaries hinder successful knowledge transfer (Geifman-Broder & Zaidman 2021). Researchers emphasize cultural differences where misalignment can cause complications and power dynamics, where misunderstanding can cause friction, affecting knowledge transfer in MNCs, affecting a subsidiary's willingness to share ideas and effectively integrate local knowledge (Geifman-Broder & Zaidman 2021, 309, 326).

Cross-border collaboration serves as both a setting and a channel for knowledge transfer within multinational companies, whereas it enhances the movement of people, knowledge, and resources across national borders, and knowledge transfer plays an important role in improving these flows, streamlining processes, and overcoming infrastructural or regulatory hurdles (Brunet-Jailly 2022). Collaborative activities, such as collaborative projects, inter-subsidiary networks, and shared learning platforms, create chances for knowledge sharing by encouraging regular interaction, joint problem-solving, and alignment of organizational long term goals (Cillo et al. 2019). There is a strong need for cross-border collaborations to improve countries' socio-economic conditions, which helps to grow and influence overall developments (Nave & Franco 2024, 1016). Cross-border collaboration creates a network that boosts innovation, and knowledge transfer is key to spreading innovation (Nava & Franco 2024: 1018). To validate this phenomenon, one needs to deeply understand cross-border knowledge transfer and the key drivers that facilitate collaboration within multinational companies (Foxon & Pearson 2008).

Cross-border collaboration is an important component of regional development because it brings together companies across borders to meet common concerns such as sustainability, economic growth, and elimination of inequalities, and improves the quality of life among countries (Chamusca 2024). Cross-border collaboration helps to improve performance and stimulates creativity without strict geographical restrictions (Pereira et al. 2023). Nowadays, such collaborations are increasingly focused on large-scale, global projects rather than specific fields (Zhong et al. 2022). Local or regional concerns can frequently be resolved more successfully through cross-border collaboration than by a single country (Zebakh et al. 2024).

Cross-border knowledge sharing supported by collaborative initiatives that frequently involve mobility, is crucial for driving global technological innovation and economic change by bringing together different skills and experiences to address common challenges and develop long-term solutions (Zebakh et al. 2024). Diverse international partnerships increase innovation by allowing for a variety of collaborative paths, which improves potential outcomes (Zhong et al. 2022). Knowledge is the most important part of innovation; organizations are now aware of gathering specialized knowledge and cross-border knowledge transfer for staying competitive and following sustainable issues (Pereira et al. 2023). This thesis explores the major challenges to knowledge transfer in the context of cross-border collaboration within MNCs, with a particular focus on the dynamics between headquarters and subsidiaries, and highlights the processes that facilitate more effective and collaborative knowledge sharing across borders (Pereira et al. 2023).

1.2 Background

Multinational companies (MNCs) are companies that operate across national borders by engaging in international business activities such as employing foreign resources, managing subsidiaries in multiple countries, and integrating global management structures, foreign subsidiaries, and the extent to which management adopts a global perspective (Aggarwal et al. 2011, 557-558). To gain a competitive advantage in the market MNCs require collaboration across subsidiaries allowing for knowledge sharing and transfer (Hansen & Nohria 2004, 22). Naturally, multinational companies collaborate across borders, and operating across borders with their subsidiaries by default requires communication and intra-organizational collaboration between many departments spread across cross borders (Roberts & Fuller 2010, 3-5).

Collaborating with subsidiaries to generate value and increase performance, large companies have already realized that long-term development necessitates collaboration among numerous groups to allocate resources wisely (Yoon et al. 2017). The three key strengths of successful collaboration are the ability to learn by recognizing and combining resources with collaborators, the ability to connect effectively through aligned goals, and the capacity to recognize ways to establish new industry standards (Mousavi & Bossink 2020). Key knowledge transfer procedures in multinational companies are strongly related to collaborative capacities, which allow subsidiaries to adapt to new settings and promote growth by sharing tacit and experiential knowledge (Rammal et al. 2023, 3). Building strong connections based on common goals and trust enhances the dissemination of situational or context-specific knowledge, ensuring its applicability and successful execution in a variety of settings (Rammal et al. 2023, 5). Furthermore, the capacity to establish common standards allows the codification and dissemination of best practices, allowing subsidiaries to compare, align, and improve performance across borders via structured, repeatable processes (Rammal et al. 2023, 7). Cross-border collaboration can increase research productivity and creativity by pooling resources, expertise, and knowledge from different geographic areas (Zhang et al. 2023).

Cross-border partnerships prioritize fair knowledge sharing and well-defined learning processes, which creates a higher chance of producing sustainable performance (Kruckenberg 2015). Cross-border knowledge transfer is critical for improving firm performance, according to (Gao et al. 2021), who emphasize that no single organization or subsidiary can own all necessary expertise-making external knowledge-seeking and collaboration across borders.

Knowledge transfer is the process where one unit within an organization, such as an individual, group or division, benefits from the experiences and practices of another, which enhances learning and

performance across the organization or the boundary (Argote et al. 2000, 2). Knowledge transfer has become essential for organizations in a globalized environment to operate efficiently for sustainable innovation, adapt rapidly, collaborate successfully, and use different skills, however, it requires tackling organizational, social, cultural, and other challenges (Argote et al. 2000, 3).

1.3 Research Gap and Need for Systematic Literature Review

Knowledge transfer in cross-border collaboration within multinational organizational success, innovation, and performance (Gupta & Govindaraja, 2000). However, despite extensive research on knowledge management and international business, several gaps remain in understanding the challenges that affect knowledge transfer in multinational companies operating across diverse cultural, institutional, and geographical boundaries (King 2009).

Prior research mostly concentrated on operational, strategic, and temporal decoupling as knowledge transfer obstacles (Chatterjee et al. 2021; Friesl & Silberzahn 2012). However, despite their significant impact on the efficacy of knowledge sharing, specific aspects of institutional misalignment—such as discrepancies between formal structures like policies, procedures and informal practices like organisational norms, unwritten rules—remain underexplored (Riege 2005; Michailova & Mustaffa 2012, 388). Additionally, current research frequently has a regional or industry-specific viewpoint, which restricts its generalizability in a variety of global contexts (Leszczynska & Pruchnickifaces 2017; De Marchi et al. 2022).

Even though multinational companies use a variety of formal and informal knowledge-sharing mechanisms, research on knowledge-sharing mechanisms is still dispersed and lacks a cohesive framework for successful knowledge-transfer tactics (Geifman-broder & Zaidman 2021). There is a need for an integrative framework that defines how diverse mechanisms—such as digital platforms, face-to-face contacts, and organisational routines—interact to promote effective knowledge transfer across multiple settings (Geifman-broder & Zaidman 2021). For instance, not enough research has been done on how digitalization affects remote cooperation and virtual knowledge exchange (Levine & Prietula 2012). Recent studies demonstrate that while digital technologies might promote connectedness, they may also pose issues relating to information codification and contextual comprehension, especially in virtual environments (Lin et al. 2023, 987). This study investigates how multinational companies improve knowledge transfer among regionally distant teams by utilizing organizational culture and strategic actions.

Effectiveness in transferring knowledge is still not consistently measured, frequently depending on personal data that is subject to bias (Van Dijk et al. 2016). Moreover, there is a lack of established metrics and procedures to analyse knowledge transfer effects, making it difficult to compare results across research and situations (Van Dijk et al. 2016). Furthermore, little attention has been paid to how knowledge sharing is dynamic in response to organizational and technological developments (De Beule & Van Beveren 2019). As companies develop and implement new technologies, it becomes increasingly important to comprehend how these developments affect transferring knowledge procedures (Sarala et al. 2024, 409). While one previous research explored, that effective knowledge transfer within networks, especially in strategic alliances and international companies, promotes their innovation, productivity, and competitive advantage by enabling the sharing of knowledge among partners, subsidiaries, and nearby businesses (Inkpen & Tsang 2005, 149-150), few research explicitly address the particular difficulties that emerge inside multinational companies internal networks. In particular, more research is needed to comprehend the barriers and obstacles within these internal networks of knowledge transfers between headquarters and subsidiaries, including reverse knowledge transfer (Zhang et al. 2023, 480-481).

A Systematic Literature Review offers an objective, rigorous, and methodical investigation of previous research, highlighting gaps, summarizing patterns, and directing further investigations, and it increases reliability, avoids biases, and ensures a theoretical foundation, avoiding duplication (Okoli 2015, 882-883). Because of its thorough and organized approach, an SLR is the best tool for investigating the intricate relations between challenges to cross-border knowledge transfer within multinational companies.

1.4 Research Purpose and Questions

The purpose of this study is to investigate thoroughly the challenges, processes, and outcomes of knowledge transfer across borders inside multinational companies. By tackling important challenges, the study hopes to uncover effective knowledge transfer strategies that improve organizational learning and performance. Overall, the study will synthesize the selected literature, identify the challenges, find the approaches, and make connections on how successful or unsuccessful knowledge transfer affects multinational company's performances, giving useful insights for increasing cross-border collaboration.

To do this, the researcher seeks to address three questions:

RQ1: What are the major challenges to knowledge transfer in cross-border collaboration inside multinational companies?

RQ2: What are the processes of knowledge transfer in cross-border collaboration?

RQ3: What are the outcomes of successful or failed knowledge transfer on a multinational company's performance?

Knowledge transfer in multinational companies is frequently hindered by a variety of challenges, which can limit productivity, performance, and cause misalignment between headquarters and subsidiaries (Leszczynska & Pruchnickifaces 2017). RQ1 addresses the need to investigate understudied issues in knowledge transfer, including linguistic barriers, cultural differences, and institutional misalignment, specifically the differences between formal structures like policies and procedures and informal practices like organizational norms and unwritten rules (Riege 2005; Michailova & Mustaffa 2012, 388). Understanding these challenges are essential for building effective cross-border knowledge transfer and collaboration.

Once the challenges are identified, it is important to investigate how multinational companies might effectively support cross-border knowledge transfer. RQ2, which focuses on knowledge transfer procedures, emphasizes the absence of a unified framework that unifies different information-sharing systems. Although multinational corporations utilize a range of formal and informal approaches, there is currently no complete framework in research that successfully integrates various approaches (Geifman-Broder & Zaidman 2021). However present research lacks a comprehensive framework that incorporates these methods. Exploring how multinational companies promote knowledge sharing will aid in the identification of best practices for improving knowledge transfer, communication, and cross-border collaboration using different platforms (De Beule & Van Beveren 2019).

The importance of knowledge transfer ultimately rests in how it affects organizational performance. The potential consequences of successful or unsuccessful knowledge transfer are discussed in this question. RQ3 explores the effects of successful or unsuccessful knowledge transfer on a multinational company's performance, bridging the gap in consistent measurement of knowledge transfer efficacy. Effectiveness in knowledge transfer is still not consistently quantified, with many studies relying on biased personal data (Van Dijk et al. 2016). Furthermore, little consideration has been given to how information sharing evolves in response to organizational and technological changes (De Beule & Van Beveren, 2019). This study can offer strong evidence for the significance of efficient knowledge transfer processes in multinational companies.

The following chapter explores the theoretical underpinnings of the diverse situations, including the attributes of multinational companies, the dynamics of cross-border collaboration, and the basic concepts of knowledge and its transfer.

2 Theoretical Foundation

2.1 Multinational Companies

Multinational companies are engaging in international business where they actively seek new knowledge from foreign markets to benefit from it (Wu & Fan 2025, 254). The transfer of knowledge within MNCs is not simply a top-down process; rather, it includes complicated relationships across borders that can considerably influence their innovation, process, and potentiality (Gupta & Govindarajan 2000). Knowledge sharing is vital for multinational companies, and the success of cross-border collaboration is dependent on understanding employee attitudes, overcoming change resistance, and implementing tactics to enhance participation and successful knowledge transfer (Chatterjee et al. 2021, 3). Multinational corporations, through cross-border collaboration, transfer tacit and explicit knowledge across subsidiaries and local partners by overcoming social, cultural, organisational, and technological challenges, with the effectiveness of this transfer largely dependent on employee motivation and the adaptability of organisational practices (Leszczynska & Pruchnicki 2017, 1191-1192).

A multinational company's (MNC) headquarters must effectively leverage knowledge from its subsidiaries to understand local customers and competitors, enhance creativity, and develop differentiated products and services. This strengthens the MNC's strategic capabilities through enriched cross-border collaboration on knowledge. To achieve global market leadership, the headquarters of an MNC must manage host country operations through strategies like management participation, joint ventures, and technology transfer (Abdullah et al. 2013, 661). In multinational firms, local networks, relational dynamics, and subsidiary responsibilities impact knowledge transfer, resulting in flexible and sometimes dispersed processes that require customised tactics that are in line with the strategic environment of each subsidiary (Baskici 2019, 331-332).

Knowledge transfer in multinational companies faces problems such as the liability of being foreign, which refers to cultural differences, communication barriers and differing absorptive capacity among subsidiaries and different levels of creative autonomy between subsidiaries results in variations in their contributions to the MNCs overall performance (De Marchi et al. 2022, 2-6). Knowledge transfer has an impact on organizational performance, with a focus on the conditional benefits, the cost-benefit balance in cross-border collaboration, the role of environmental stability, and the possible benefits of using local talent over multinational expertise (Levine & Prietula 2012, 1762).

2.2 Cross-border Collaboration

Cross-border collaboration is the process by which entities from different countries, particularly within multinational organisations, work together to improve information exchange, strategic alignment, and organisational performance through collaborative efforts such as institutional collaborations, trade agreements, and infrastructure projects (Brunet-Jailly 2022, 13). It involves collaboration among stakeholders from different geographic, cultural, or organizational backgrounds working toward achieving common goals (Valkering et al. 2013). Through such cross-border collaboration, companies to acquire vital resources like raw materials, technology and skilled labour, enter new markets, and take advantage of local networks (Brunet-Jailly 2022, 9, 13-14). Developing collaborations between two or more countries to increase local and global concerns, and reforming of the system to increase efficiency to stimulate innovation and performance, these cross-border collaborations are particularly valuable in bridging knowledge gaps, fostering mutual learning, and forming balanced partnerships that show interest for local and global sustainable goals (Smit et al. 2013).

Cross-border collaboration is a cooperative effort of communities or regions across international borders to address similar difficulties, promote regional development, and create integration through joint communication, resource sharing, and common goals (Hataley & Leuprecht 2018, 321,322). Cross-border collaboration stimulates the performance of the company by pooling resources, encouraging environmentally friendly projects, aligning regulations, improving infrastructure and encouraging communities to address global challenges with local solutions (Brunet-Jailly 2022, 9, 12-14). These collaborative efforts necessitate the transfer of specific knowledge types tailored to the drivers of collaboration; technical knowledge facilitates joint innovation projects and sustainable development initiatives, market knowledge enables regulatory alignment and local adaptation strategies, while procedural knowledge supports efficient resource pooling and infrastructure improvement (Liu 2019).

Cross-border collaboration allows companies to get access to specialised knowledge, boost performances, adapt to differed markets, and form long-term global relationships that promote long-term competitive advantage (Pérez Nordtvedt et al. 2008, 734). Cross-border collaboration (CBC) is caused by a desire to address global challenges, stimulate progress, and utilise cultural diversity. These factors require the transfer of critical knowledge types, including technical knowledge to solve collaborative technological difficulties and improve product development, market knowledge to tailor products to local preferences, and procedural knowledge to align organisational processes and assure

consistency (Liu 2019). Cross-border skills not only provide new ideas that fuel an organization's innovativeness but also represent an open-minded approach that goes beyond simple connections across borders, encouraging organizations to explore diverse perspectives and recognize many new ways of thinking and adopting for long-lasting growth (Joshi & Lahiri 2015). Collaboration frequently relies on strong organisational structures, social networks, and leadership to help communities work together despite challenges posed by border security measures (Hataley & Leuprecht 2018, 325).

Cross-border collaborations allow companies to enter new markets, understand local consumer behaviour, and gain access to established distribution networks, all while securing limited resources such as raw materials, specialised technology, and experience for fostering innovation (Tripl 2010). These benefits are realised through the strategic transfer of different types of knowledge: market knowledge promotes competitiveness and consumer understanding; technical knowledge provides access to specialised technology and expertise; and procedural knowledge optimises distribution networks and supply chains (Tripl 2010, 150,157). Furthermore, CBC reduces operational costs by lowering labour expenses, sharing R&D investments, and optimising supply chains, all while encouraging the transfer of knowledge, regulatory insights, and technology (Tripl 2010, 150,157). Researcher Tripl (2010) also explained different forms of collaboration in his study, including joint ventures in which organizations form a new entity to share resources and risks, strategic alliances in which independent firms collaborate on specific projects, mergers and acquisitions for rapid market entry and resource expansion, and global teams in which members from different countries combine to enhance cultural diversity and expertise.

Cross-border collaboration ultimately increases competitiveness by enabling access to resources, technology, and skilled labour, facilitating knowledge transfer and innovation, sharing financial and operational risks in new markets, and creating unique value propositions through combined strengths and expertise (Subramaniam 2006, 553).

The figure below shows the four stages of cross-border collaboration in multinational companies (MNCs), illustrating how things move from initial setup to strategic development. It focusses on systematic planning, linked objectives, and continuous improvement to provide effective knowledge transfer and collaboration in cross-borders. Each stage facilitates different types of knowledge exchange: the initiation phase establishes channels for preliminary procedural knowledge sharing; the environmental analysis stage enables market knowledge development; the implementation phase

deepens technical knowledge transfer; and the expansion stage integrates all knowledge types into a comprehensive collaborative framework.

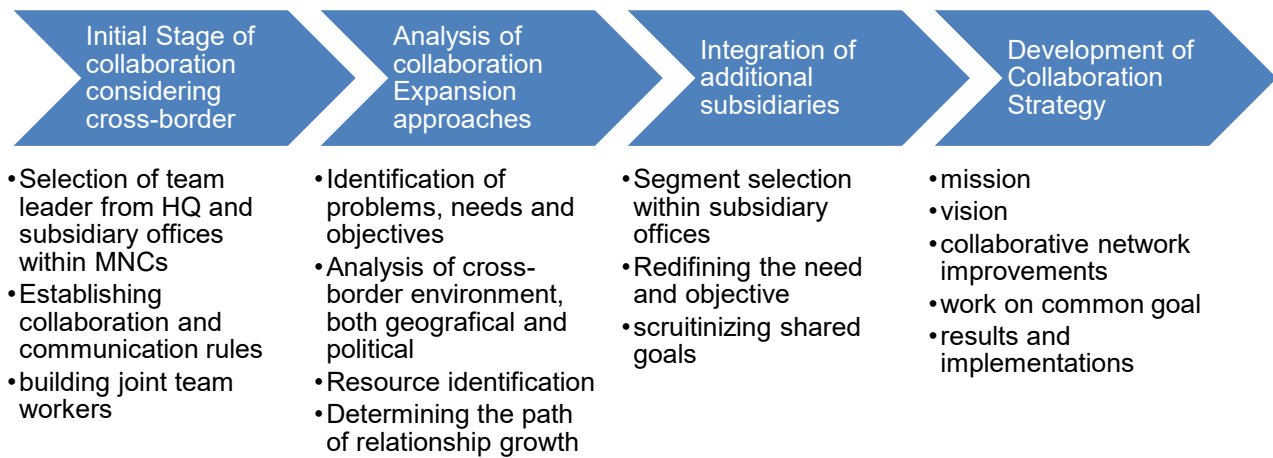


Figure 1. Stages for Building Cross-border Collaboration within Multinational Companies. (Adapted from Kurowska-Pysz et al. 2018, 17).

The strategic development process for cross-border collaboration, as illustrated in figure 1, outlines a structured pathway through which multinational companies (MNCs) initiate collaboration by selecting team leaders, establishing communication norms, and identifying shared objectives, followed by analysing the cross-border environment to guide resource planning and relationship growth, and ultimately by integrating additional subsidiaries and redefining shared goals, aligning closely with the formulation of a comprehensive collaboration strategy that supports effective knowledge transfer and long term cross-border collaboration (Kurowska-Pysz et al. 2018, 17-18). This strategic process helps the transfer of technical knowledge during the implementation stage, where collaborative innovations emerge, then market knowledge during the environmental analysis stage, where local conditions are assessed, and procedural knowledge throughout all stages, ensuring organisational alignment and efficient collaboration practices.

2.3 Classification of Knowledge

Knowledge can be conceptualized as a dynamic set of processes, approaches, practices, and systems through which organizations systematically generate, develop, renew, and integrate knowledge-based resources into organizational capabilities-rooted in individual experience and expertise, while being shaped by the firm's structural, social, and resource allocation frameworks to build core competencies that enable the exploitation of opportunities, the creation of market value, and the sustenance of long-

term competitive advantage (Moustaghfir & Schiuma 2013, 499). It changes over time as new knowledge and insights become available (Lehrer 2018, 1,6). Knowledge is an important reason why companies exist and succeed over time, as it includes what people and groups know, which can be used, searched for, and shared through communication or tools (Levine & Prietula 2012, 1748). Knowledge is a dynamic combination of personal understanding, experiences, values, and expert insight, which exist in individual knowledge formed by personal context and collective knowledge shared throughout organizations, impacting behaviour (Greenhalgh 2010, 492).

Tacit knowledge is personal, experience-based know-how that operates outside of conscious awareness and is difficult to express in words, but is typically demonstrated through actions rather than explicitly stated, as it is often implicit (Pozzali 2008, 228). A significant distinction between knowledge types is that explicit knowledge is easily documented and shared—such as theories, statistics, and manuals, whereas implicit knowledge is experience-based, learnt via practice and social contact, and difficult to explain or transfer without direct participation (Jensen et al. 2007, 157).

In addition, knowledge can be categorized according to its depth and effectiveness also, knowledge also covers both common and distinctive ideas that organisations use to transform their operations and gain a competitive advantage (Moustaghfir & Schiuma 2013, 501). Local knowledge is context-specific, based on community customs, cultures, and traditions, and it helps in addressing of specific challenges, conversely, global knowledge is standardized, freely available, and shared across regions, allowing for cross-border collaboration and the exchange of best knowledge practices (Jensen et al. 2007, 392). Empirical research suggests that using existing knowledge helps decision-making but can cause cognitive overload, and the efficacy of knowledge management is measured by the degree of knowledge reuse, assessed via metrics comparing used knowledge to what is available, and organizational knowledge which includes both explicit and tacit forms (Alavi & Leidner, 2001,131).

The significance of knowledge sharing between headquarters and subsidiaries has risen due to globalization, advancements in information technology, and heightened competitive pressures. As domestic markets become saturated, MNCs are exploring growth opportunities in emerging economies (Abdullah et al. 2013, 661). Table 1 shows how these varied knowledge types and their distinct characteristics can be systematically organized to better understand their roles in organisational situations.

Table 1. Knowledge Types from Different Sources

Type of Knowledge	Description	Key Characteristics	References
Tacit Knowledge	Personal, experience-based knowledge that is hard to formalize or express.	<ul style="list-style-type: none"> - Learned through experience - Demonstrated through actions - Hard to codify or communicate 	Pozzali 2008, 228
Explicit Knowledge	Knowledge that can be easily documented, stored, and shared.	<ul style="list-style-type: none"> - Codified and structured - Includes manuals, theories, and data - Easily transferable 	Jensen et al. 2007, 157
Implicit Knowledge	Knowledge acquired through practice and social interaction, not fully codified but easier to externalize than tacit knowledge.	<ul style="list-style-type: none"> - Experience-based - Developed through interaction - Difficult to articulate but not as deep as tacit 	Jensen et al. 2007, 157
Individual Knowledge	Knowledge possessed and shaped by individuals based on their own experiences and context.	<ul style="list-style-type: none"> - Personal understanding - Formed by individual values and insights 	Greenhalgh 2010, 492
Organizational Knowledge	Shared knowledge that exists across an organization and influences collective behavior.	<ul style="list-style-type: none"> - Collective - Includes both tacit and explicit forms - Shapes organizational practices 	Greenhalgh 2010, 492; Alavi & Leidner 2001, 131
Local Knowledge	Context-specific knowledge tied to a particular community or culture.	<ul style="list-style-type: none"> - Rooted in customs and traditions - Useful for addressing local issues 	Jensen et al. 2007, 392
Global Knowledge	Standardized knowledge accessible and applicable across regions.	<ul style="list-style-type: none"> - Freely available - Facilitates cross-border collaboration - Best practice sharing 	Jensen et al. 2007, 392
Resource Based knowledge	Organizational assets developed through knowledge processes.	<ul style="list-style-type: none"> - Built into core competencies - Enable value creation and competitiveness 	Moustaghfir & Schiuma 2013, 501
Reused Knowledge	Knowledge retrieved and applied from existing resources.	<ul style="list-style-type: none"> - Enhances decision-making - Can cause cognitive overload - Assessed through usage metrics 	Alavi & Leidner 2001, 131

As outlined in Table 1, knowledge types vary in their degree of codifiability, context dependence, and ease of transmission of which shape the strategic approaches required in cross-border settings. Different types of knowledge present varying degrees of complexity and require different mechanisms for successful transfer within MNCs. Tacit knowledge, which is highly personal and embedded in individual experience, is particularly challenging to transfer across borders, as it relies on rich communication channels, socialization, and trust-based relationships to be effectively shared (Pozzali 2008). This means that MNCs must often rely on face-to-face interactions, job rotation, or

long-term expatriate assignments to facilitate the flow of such knowledge. In contrast, explicit knowledge is being codified and structured can be more readily transferred through formal systems such as manuals, databases, or digital platforms (Jensen et al. 2007), making it less susceptible to the challenges posed by geographical and cultural distances.

Implicit knowledge although less deeply embedded than tacit knowledge, still requires interactive environments for successful transfer and may benefit from mentorship or collaborative project work (Jensen et al. 2007). Similarly, individual knowledge, shaped by personal values and context, depends heavily on motivation, trust, and organizational support mechanisms to be shared effectively (Greenhalgh 2010). Organizational knowledge, which encompasses both tacit and explicit forms at the collective level, may face structural barriers in cross-border contexts if organizational cultures or routines differ significantly (Alavi & Leidner 2001; Greenhalgh 2010).

Local knowledge, rooted in specific cultural or community contexts, may not easily translate across borders and can be undervalued or misinterpreted in cross-border operations (Jensen et al. 2007). In contrast, global knowledge, being standardized and widely accessible, supports alignment and best-practice dissemination across MNC subsidiaries. Resource-based knowledge, which constitutes a firm's strategic assets, requires a strong internal integration mechanism and shared understanding to be effectively leveraged across geographically dispersed units (Moustaghfir & Schiuma 2013). Finally reused knowledge while enhancing efficiency and decision-making, must be carefully contextualized to avoid overload or misapplication in diverse environments (Alavi & Leidner 2001). Overall, a nuanced understanding of these knowledge types is essential for developing knowledge transfer strategies that are sensitive to the demands of cross-border collaboration.

2.4 Knowledge Transfer

Knowledge sharing or transfer improves organizational performance and competitiveness by allowing experts to exchange critical information, which is facilitated by online forums and interactive platforms that organize discussions for quick response (Alavi & Leidner 2001, 115). In the context of multinational companies, Knowledge transfer is greatly influenced by the organizational structure, especially the relationships between their headquarters and subsidiaries. Successful cross-border collaboration depends on efficient communication choices and absorptive capacity (Subramaniam 2006, 543). However, knowledge transfer procedures may develop over time and may not be entirely addressed through a specific model, which might be a challenge for transferring explicit knowledge in cross-border collaborations (Tallman & Chacar 2011, 206).

The fundamental concept of knowledge transfer between MNC headquarters and subsidiaries is implicitly captured by the definition of knowledge sharing as a systematic procedure for producing, obtaining, synthesising, learning, sharing, and using knowledge to accomplish organisational goals (Abdullah et al. 2013, 660). Knowledge transfer is the process by which individuals or organisations apply knowledge, skills, or experiences gained in one context—such as previous tasks or environments—to new situations, allowing them to solve problems more effectively, learn faster, adapt to changes, and improve innovation and decision-making without having to start from the beginning (Nokes 2009, 32-33). Knowledge transfer involves three main mechanisms: analogy, where a known situation is compared to a new one to conclude (effective in similar scenarios); knowledge compilation, where factual knowledge is transformed into reusable procedures (helping apply it in diverse contexts); and constraint-based reasoning, where solutions are developed by testing ideas within the limits of domain-specific rules through repeated evaluation and revision (Nokes 2009, 3-7). Knowledge transfer can be challenging when one firm relies on clear, written knowledge and the other one relies on informal, difficult-to-explain knowledge also, managing the organization's knowledge and work can make collaboration difficult and hinder effective cross-border sharing (Lam 1997, 992).

Despite its importance, cultural, linguistic, and organisational variations pose considerable challenges to knowledge transfer within multinational corporations (MNCs), complicating cross-border collaboration. Knowledge transfer as 'hectic,' even in areas with frequent interactions, for example, despite frequent interactions Helsinki-Tallinn, emphasising the importance of historical and sociological disparities (Lepik & Krigul 2014). According to (Rulke et al. 2000), effective knowledge transfer is dependent on strong relational pathways, and frequent and deep human encounters improve collaboration. However, issues such as partner resemblance (Almeida & Kogut 1999) and divergence of interests (Alchian & Demsetz 1972) might pose additional challenges.

To overcome these problems, MNCs must invest in intercultural training, develop clear communication strategies, and seek external funding to support seamless knowledge-sharing programs (Lepik & Krigul 2014, 332-335). After establishing the theoretical foundation, the following chapter 3 describes the systematic literature review (SLR) approach used to analyse knowledge transfer in multinational companies.

3 Methodology

This section explores the methodology used in this thesis and explains the reasoning behind the study approach that was selected. It highlights the distinctive characteristics of this approach and clarifies how appropriate it is to answer the research topic. This section then goes into detail about the approaches used for database selection, literature search, literature selection, and literature analysis. Subsequently, it analyses the reliability and credibility of the study's outcome.

3.1 Systematic Literature Review

For conducting this study, a systematic literature review approach has been adopted. As per definition, a systematic literature review is the explicit, thorough, and repeatable approach for finding, assessing, and synthesizing all previous research to a certain topic or phenomenon of interest, which has been carried out by academics and researchers (Fink 2005). A systematic literature review is a disciplined way to collect and structure the information regarding the investigated topic.

In order to ensure an extensive understanding of cross-border collaboration and sustainable innovation in global organizations, the SLR approach will provide an in-depth and systematic synthesis from the previous available research. Many fields of study are involved with cross-border collaboration or relationships and sustainable innovation in global organizations. Global organization can be meant in two ways, one is the same organization in different countries, which may be defined as global project-based organizations (PBOs) (Wiewiora et al. 2020), and another is a different organizational framework in different geographic locations.

The primary purpose of conducting SLRs is to increase the quality of the examined topic and minimize redundancy (Diirr & Cappelli 2018). An SLR approach will integrate numerous viewpoints that stimulate an organization to maintain cross-border collaboration. A systematic approach aims to provide a comprehensive overview of the theoretical, conceptual, practical, and managerial dimensions related to cross-border collaboration, offering valuable insights for researchers, practitioners, and policymakers in supporting sustainable innovation within global organizations. The exploratory and synthesizing nature of research topics lends itself well to the systematic literature review (SLR) technique, which aims to completely collect, critically analyze, and integrate data from various studies (Snyder 2019).

When research questions are broad or seek to explore theoretical frameworks, patterns, or knowledge gaps, a systematic literature review's structured and comprehensive methodology is suitable because

it ensures that all relevant evidence is considered systematically, allowing for the synthesis of diverse findings, clarification of existing theories, and identification of opportunities for new theoretical contributions ((Snyder 2019, 335-336). Given the exploratory nature of the research questions—which focus on identifying challenges (RQ1), explaining processes (RQ2), and measuring outcomes (RQ3) of knowledge transfer in cross-border collaboration, the SLR approach is suitable. It allows for the synthesis of different and fragmented literature across disciplines in order to generate a holistic understanding of complex, changing phenomena within multinational companies. By synthesizing the findings from the previous research, this approach will help to understand how organizations maintain the cross-border collaboration for supporting sustainable innovations and exploration of the potential outcomes by assessing systematic, thorough research.

3.2 Database Selection

The selection of an appropriate database is a fundamental step in conducting a thorough systematic literature review (SLR). This choice specifically impacts the reliability, comprehensiveness, and reproducibility of the review process. As emphasized by (Okoli 2015), a well-defined review protocol starts with the researcher's clear understanding of the subject area, which includes systematically identifying existing literature that aligns with the research objectives. Moreover, an SLR is not a static process but rather associated to managing a structured research project. Additionally, it is very important to decide which previous works to include and how to locate them, simply by finding out the related literature from previous works.

Most of the time, doing a Systematic literature review is almost like maintaining a Project management, where it needs to keep all updates of existing literature to generate new skills and knowledge (Booth et al. 2021). Given these considerations, the selection of databases must be deliberate, ensuring they provide access to high-quality, peer-reviewed, and multidisciplinary scholarly content.

For this review, Web of Science (WoS) and Scopus were chosen as the primary databases due to their unparalleled reputation as leading bibliographic sources for academic research. Both platforms are widely recognized for their extensive coverage of high-impact journals, conference proceedings, and book chapters—key publication types for identifying theoretical and empirical contributions related to knowledge transfer and cross-border collaboration. The inclusion of these databases is strategic, as they complement each other in terms of coverage and functionality, thereby minimizing publication bias and enhancing the review's credibility (Gusenbauer & Haddaway 2020).

Web of Science is a premier database renowned for its rigorous journal selection process and high-impact indexing. It is particularly valued for its robust data standards, citation tracking capabilities, and advanced analytical tools, which are crucial for citation analysis and longitudinal studies (Falagas et al. 2008). WoS allows researchers to trace influential works, identify emerging trends, and map the evolution of research fields through features like citation reports and visualizations. The database's rigorous journal selection procedure and high-impact indexing were perfectly suited to the review's aim to capture reliable sources on cross-border collaboration techniques. WoS's advanced analytical tools, particularly its citation reports and research area classifications, helped to identify developing trends in cross-border knowledge transfer and the evolution of theoretical frameworks over time. The platform's selective indexing, which assures that only the most acknowledged journals are included, directly supports the review's requirement for high-quality, peer-reviewed sources to increase the credibility of the knowledge transfer process findings.

Scopus, managed by Elsevier, is another cornerstone database that offers comprehensive access to scholarly literature across a wide range of disciplines. Notably, Scopus boasts broader journal coverage than WoS, particularly in the social sciences, business, and management fields (Mongeon & Paul-Hus 2016). This makes it an invaluable resource for capturing diverse perspectives and interdisciplinary research. Scopus further enhances the research process and helps identify key publications. Its user-friendly interface and advanced search functionalities enable researchers to explore topics thoroughly, ensuring that no significant contributions are overlooked. Moreover, Scopus's continuous updates ensure that the most recent scholarly works are accessible, which is essential for maintaining the timeliness of the review.

The decision to utilize both WoS and Scopus is grounded in their complementary strengths. While WoS excels in citation analysis and high-impact journal coverage, Scopus provides broader disciplinary reach and more inclusive content, particularly in applied fields. This dual-database approach mitigates the risk of publication bias—a common critique in SLRs—by capturing a more diverse array of literature (Gusenbauer & Haddaway 2020). Furthermore, both databases are frequently updated, enabling the identification of significant developments in the field, such as shifts in multinational companies' knowledge management practices, the advent of digital collaboration tools, and evolving strategies for cross-border partnerships. These updates are critical for ensuring the review's depth and relevance to contemporary research and practice.

By leveraging the strengths of WoS and Scopus, this review not only achieves comprehensive coverage of foundational literature but also incorporates the most recent scholarly contributions. This

approach ensures that the findings reflect ongoing advancements and emerging trends in global knowledge transfer and multinational collaboration, thereby enhancing the review's academic rigor and practical applicability.

3.3 Literature Search

Literature search should be thorough and need to ensure all relevant materials are found from the search engine. Searching can be ends when repeated searches giving no new results and the date or timing should be saved (Okoli 2015).

To perform the search in a systematic manner, first the core concepts involved in this phenomenon were identified. Then, for each core concept, the potential keywords that denote to each core concept was selected. To evaluate the precision and sensitivity of the initial keywords, a number of trial searches were performed on Web of Science and Scopus prior to finalising the search string. To increase comprehensiveness without compromising clarity, the wildcard * was added to terms like “company” and “firm”, ensuring the inclusion of plural and related forms like companies and firms.

Table 2.Keyword Used for Literature Search

Core Concept	Selected Key words
Knowledge	Knowledge
Transfer	Sharing, Exchange, Transfer, Dissemination
Collaboration	Collaboration, cooperation
Cross-border	Cross-border, Multinational, International, MNC, MNE*
Companies	Compan*, Firm*, subsidiar*, corporation*, enterprise*.

The keywords for this systematic literature review were chosen based on the need to comprehensively identify and retrieve relevant scholarly literature addressing the complex phenomenon of knowledge transfer within the context of cross-border collaborations involving multinational companies. The keywords were chosen to capture the essential conceptual aspects of the research issue while also accounting for terminological variances that may arise between academic disciplines and during scholarly discussion.

To capture the breadth of the knowledge-related dimension of the study, terms such as “sharing”, “exchange”, “transfer”, and “dissemination” were included. These terms reflect the various terminologies used in the academic literature to describe the movement and communication of knowledge within and across organizational boundaries. Including these variations increases the

likelihood of identifying relevant studies, regardless of the specific wording employed by individual authors. Furthermore, these keyword variations allow for a more nuanced retrieval of literature by considering slight variations in the conception of knowledge processes—for example, “exchange” implies a reciprocal process, whereas “dissemination” may suggest a top-down flow.

Considering the collaborative aspect of the research, terms such as “collaboration” and “cooperation” were selected to encompass a wide range of joint activities, alliances, and inter-organizational efforts that support cross-border knowledge transfer. These keywords are essential in locating studies that explore how organizations coordinate and interact in multinational settings.

To address the geographical and organizational context of the study, keywords such as “*cross-border*”, “*global*”, and “*international*” were included. These terms are intended to filter literature that examines knowledge activities occurring across national boundaries. Furthermore, to reflect the diversity of terminology used to describe globally operating firms, a range of words was employed, including “*multinational*”, “*MNC*”, “*MNE*”, “*company*”, “*firm*”, “*corporation*”, “*subsidiary*”, and “*enterprise*”. Abbreviations like “MNC” and “MNE”, which are commonly used in titles and abstracts but are typically left out of determined vocabularies, were included.

The combination of these selected keywords enhances the literature search's comprehensiveness and reliability, as well as ensuring that the review includes an extensive selection of studies that are relevant to the research objectives.

Finally, related keywords were grouped and then combined into a search string. This modified search string, produced through iterative testing, improved both sensitivity and specificity, establishing a better balance between capturing a full dataset and being relevant to the study's topic.

Search string for Web of Science and Scopus

(“Knowledge”) AND (“sharing” OR “exchange” OR “transfer” OR “dissemination”) AND (“Collaboration” OR “cooperation”) AND (“Multinational” OR “Global” OR “Cross-border” OR “International” OR “MNC” OR “MNE*”) AND (“compan*” OR “firm*” OR “subsidiar*” OR “corporation*” OR “enterprise*”)

3.4 Inclusion and Exclusion Criteria for Data Selection

To ensure methodological rigour and conceptual relevance, a systematic and transparent search strategy was applied across two major bibliographic databases: Web of Science (WOS) and Scopus. The objective was to identify peer-reviewed academic studies focusing on knowledge transfer

challenges in cross-border collaboration within multinational corporations (MNCs). The search was conducted using logical inclusion and exclusion criteria, figure and description detailed below.

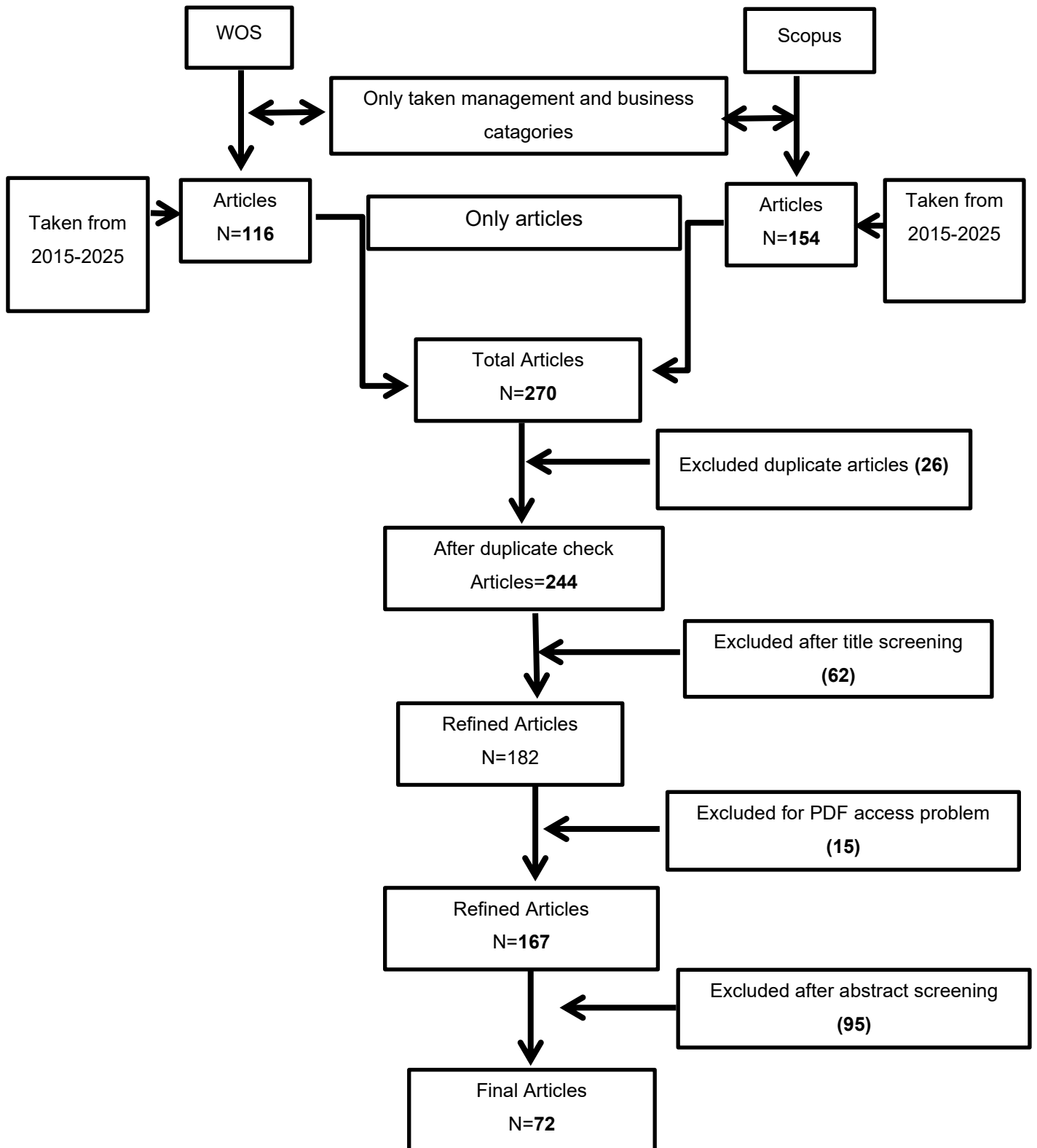


Figure 2. An Adapted PRISMA Flow Diagram (Stovold et al. 2014).

An initial search yielded 116 records from WOS and 154 records from Scopus, resulting in a combined total of 270 documents. A series of refinement stages were applied to this dataset, as outlined below. To ensure consistency and accessibility in analysis, only articles published in English were retained. Publications in other languages (e.g., Portuguese, Russian) were excluded. Furthermore, only articles classified under the disciplines of Business and Management were retained, while records from unrelated domains such as Environmental Science, Political Studies, and Analytical Chemistry were excluded to ensure disciplinary relevance.

To capture recent developments and align with the contemporary context of knowledge transfer and cross-border collaboration within multinational companies, the publication date range was restricted to 2015-2025. Additionally, only journal articles were selected, excluding conference proceedings, editorials, book chapters, and non-peer-reviewed sources to preserve academic reliability.

The search was conducted across two well-established academic databases—Web of Science (WOS) and Scopus—due to their broad coverage of high-impact scholarly literature. The initial search retrieved 116 articles from WOS and 154 from Scopus, resulting in a total of 270 records. A deduplication process was performed, removing 26 overlapping records, leaving 244 unique entries.

A two-stage screening process was then applied to ensure thematic alignment with the study's research objectives.

Stage One: Title Screening - All 244 articles were reviewed based on their titles, and 62 articles were excluded due to irrelevance to the central themes of knowledge transfer or cross-border collaboration in multinational contexts.

Stage Two: Abstract and Full-Text Screening - From the remaining articles, 15 were excluded due to difficulties in accessing the full text (e.g., paywalls, broken links), and a further 95 articles were removed following detailed screening of abstracts and full texts, as they lacked a clear methodological connection or theoretical relevance to the study's focus.

Following this systematic filtering process, 72 articles met all criteria and were included in the final dataset for comprehensive review and analysis.

3.5 Data Extraction and Thematic Analysis

Data extraction and thematic analysis were used to systematically organise and evaluate the data from the 72 selected articles. Effective access to unstructured web information is made possible by data

extraction, which also supports advanced analysis and business intelligence, gets beyond the drawbacks of conventional browsing, makes database population easier, boosts automation, and organizes complex data for simpler integration and analysis (Laender et al. 2002, 88). Thematic analysis is a flexible and rigorous qualitative method that enables researchers to systematically explore complex social phenomena and participants' lived experiences across various contexts while maintaining analytical credibility and supporting interdisciplinary inquiry through its adaptability to multiple theoretical frameworks (Clarke & Braun 2017). The analytical approach followed (Clarke & Braun 2017) six-step framework, which included: (1) familiarising with the data, (2) generating initial codes, (3) looking for themes, (4) going through themes, (5) defining and naming themes, and (6) creating the final report. This strategy enables the identification of both semantic patterns and more hidden meanings across studies, resulting in a more sophisticated understanding of cross-border knowledge transfer.

Each 72 shortlisted articles was thoroughly reviewed. The coding matrix for the thematic analysis is Appendix 1, which also contains detailed coding criteria and article-specific insights, such as challenges, processes, and outcomes. During the familiarisation phase, the article content was summarised to establish its relevance to the thesis topic. Initial descriptive codes were entered into designated columns based on the content's relation to knowledge transfer challenges, processes, and outcomes. These codes were then iteratively modified and organised into higher-level categories that corresponded to the study's three broad research questions. After data extraction, descriptive codes from the Excel sheet were aggregated into higher-order categories that corresponded with the three research questions to conduct an inductive thematic analysis (Breit & Volkmann 2024, 231).

Where relevant, overlapping themes were acknowledged. For instance, several studies discussed how recognizing challenges to knowledge transfer prompted the development of specific process mechanisms, which in turn influenced the outcomes. These interrelationships were noted within the matrix, offering insight into the dynamic and iterative nature of cross-border knowledge flows in MNCs.

3.6 Evaluation of the Study

To ensure the rigor and trustworthiness of this systematic literature review, the evaluation was driven by widely recognized quality criteria such as credibility, transferability, dependability, and confirmability (Lincoln & Guba 1985; Nowell et al. 2017; Shenton 2004). Credibility was increased by completing a thorough and transparent two-stage screening process using two credible databases, Web of Science (WOS) and Scopus. Only peer-reviewed studies published in English between 2015

and 2025 were considered, ensuring that the data sources were relevant and scientific. This technique is consistent with the guidelines for improving internal validity in qualitative synthesis (Nowell et al. 2017).

Transferability was enhanced by clearly documenting inclusion and exclusion criteria and presenting synthesised insights in accordance with the respective research topic. This extensive contextualization provides readers with enough information to judge the findings' relevance to other cross-border management scenarios (Shenton 2004). Dependability was enhanced by extensive documentation of the research process, which included the development of search strings, the usage of certain Boolean operators, and the step-by-step criteria used throughout article screening and coding. This is consistent with the concept of dependability in qualitative research, which refers to the long-term stability and consistency of research findings and emphasises the importance of well-documented and logically traceable analysis techniques. To accomplish this, a manual path was maintained throughout the process, assuring transparency in all choices, coding techniques, and data management. The evidence-based path allows external reviewers to assess the research's rigour and reliability, hence boosting repeatability of results and validating that conclusions are data-driven (Korstjens & Moser 2018, 122).

Finally, confirmability was established through an objective and thorough review of the literature from different studies. Coding decisions and theme creation were based on data and can be verified independently using the extraction matrix, reducing any researcher bias. The synthesis of findings from different sources, as well as the clear allocation of findings to specific studies, contribute to the review process's neutrality and analytical reliability (Bowen 2009).

3.7 Ethical Consideration

Throughout the research process, careful attention was given to ethical integrity, particularly concerning the use of digital tools, including Artificial Intelligence (AI). AI tools were employed as supplementary aids to enhance the efficiency, accuracy, and clarity of the systematic literature review without compromising the academic rigor or originality of the study.

Specifically, multiple AI tools were used to support article screening, thematic relevance, and data validation. These tools were applied at multiple phases of the study process. ChatGPT and Gemini were used to develop academic wording, help structure arguments, and facilitate the synthesis of theoretical discoveries. ChatPDF and LM Notebook were used to extract and examine content from huge academic publications and aid in topic classification. Site.ai assisted with determining the

thematic relevance of selected studies during article screening to assess their alignment with the research questions and overarching theme of knowledge transfer in cross-border collaboration within multinational companies. A paraphrase tool was employed to improve language refinement, while ZeroGPT was utilized to analyze text originality and ensure responsible AI inclusion.

AI technologies also played a supportive role in analyzing and structuring the extracted content. They were used to help formulate academic expressions, summarize theoretical insights, and organize scrutinized data in a coherent and academically sound manner. However, all AI-assisted outputs were critically reviewed, refined, and verified by the researcher to maintain intellectual control and uphold academic standards. Following institutional requirements, Appendix 2 contains a summary of AI tools utilisation to support the writing and analysis processes.

After outlining the methodological approach, data analysis techniques, and ethical issues, the following chapter gives the thematic findings from the systematic review, which are linked with the study's objectives.

4 Findings

This section delineates the principal findings emerging from a thematic synthesis of 72 peer-reviewed journal articles examining knowledge transfer within cross-border collaboration in multinational corporations. Employing an interpretive analytical lens, the results are categorized into three overarching themes that align with the study's core research questions: (1) the major challenges impeding knowledge transfer in cross-border collaboration, (2) the processes and mechanisms underpinning knowledge transfer across multinational boundaries, and (3) the outcomes resulting from both successful and failed knowledge transfer. These themes were inductively derived through a systematic coding framework and subsequently refined via cross-case comparative analysis, thereby offering a nuanced and empirically grounded understanding of the dynamics shaping knowledge in multinational companies.

4.1 The Major Challenges Impeding Knowledge Transfer in Cross-border Collaboration

The major challenges are identified and expressed briefly in a table. The table below summarises those major challenges that hinder knowledge transfer within multinational companies. These challenges were found through a comprehensive evaluation of 72 peer-reviewed studies and organised into thematic groups based on frequent findings from the literature. Critically, these challenges do not work in separately, but rather as interconnected webs of limitations that strengthen each other's effects on knowledge transfer efficacy.

Table 3. Summary of the Major Challenges for Knowledge Transfer

Challenge	Issues	References
Cultural and Language Challenges	<ul style="list-style-type: none"> -Miscommunication due to cultural differences, language, norms, values, and expectations ; -Tacit knowledge distortion; Reduced trust due to linguistic constraints 	Fiedler et al. 2021, 1037-1038; Mabey & Zhao 2017, 4; Vuorenmaa 2024, 16; Mabey et al. 2015, 493-494; Zhu et al. 2019, 36; Yu et al. 2022, 2775; Korbi & Chouki 2017, 1273; Tenzer & Pudelko 2016, 449; Bagheri et al. 2019, 207
Challenges for Institutional and Operational Differences	<ul style="list-style-type: none"> -Institutional distance (formal & informal), regulatory divergence, lack of integration mechanisms; -Resistance due to incompatible legal environments. 	Raziq et al. 2021, 2; Fiedler et al. 2021, 1037-1038; Melnychuk et al. 2021, 2-3; Hung et al. 2021, 602; Lundan & Cantwell 2020; Pratono 2020, 150; Meyer et al. 2023, 57; Yu et al. 2022, 2774; Hänle et al. 2023, 1555;

Geographical and Temporal Separation	<p>-Physical separation limits interaction: Time zone disparities hinder real-time collaboration;</p> <p>-Technological disparities create unequal access to knowledge-sharing tools.</p>	<p>Corsi et al. 2021, 2-4; Faems et al. 2020, 419; Ingršt & Zámorský 2021, 948; Charpin et al. 2024, 3; Breunig 2016, 251; Ervits 2024, 2575-2576; Yu et al. 2022, 2779; Aghmiuni et al. 2020, 8; Zhu et al. 2019, 25</p>
Trust and Relational Challenges	<p>-Trust is essential for effective knowledge transfer, especially in multinational settings.</p> <p>-Lack of trust—due to negative past experiences, hierarchical control, or geographic/cultural distance—reduced openness.</p> <p>-Tacit knowledge transfer, which relies on mutual understanding and relational depth, is particularly sensitive to trust deficits.</p> <p>-Systemic issues like corruption and favoritism further undermine trust and hinder transparent knowledge transfer.</p>	<p>Fiedler et al. 2021, 1037-1038; Corsi et al. 2021, 2-4; van Dijk et al. 2016, 329; Vuorenmaa, 2024, 1,5; Faems et al. 2020, 419; Chatterjee et al. 2021, 310; Zhu et al. 2019, 37; Hung et al. 2021, 607; Yu et al. 2022, 2772; Hänle et al. 2023, 1555; Barrell & Hsu 2019, 75; Bagheri et al. 2019, 207; Zahedi et al. 2016, 1004; Meyer et al. 2023, 57; Spekman 2016, 50</p>
Organizational and Structural Challenges	<p>-Complex structures hinder knowledge sharing;</p> <p>-Siloed communication; Bureaucracy slows down decision-making;</p> <p>-Fragmented internal networks; Power struggles within MNCs.</p>	<p>Mabey & Zhao 2017, 9; Sytch et al. 2018, 4, 16; Lundan & Cantwell 2020; Ervits 2024, 2589-2590; Tlemsani et al. 2023, 296; Korbi & Chouki 2017, 1280; Bagheri et al. 2019, 211; Osabutey et al. 2024, 2074-2075</p>
Challenges for Absorptive Capacity and Capability Gaps	<p>-Limited technical or managerial expertise in subsidiaries;</p> <p>-Insufficient integration of transferred knowledge;</p> <p>-Resistance to change due to misalignment with local context.</p>	<p>Melnychuk et al. 2021, 2-3; Benito et al. 2022, 421-422; Pratono 2020, 150; van Dijk et al. 2016, 337; Xiong et al. 2021, 1; Nair et al. 2015, 284-294; Zahedi et al. 2016, 1004</p>
Psychological and Motivational Challenges	<p>-Knowledge hiding due to fear, distrust, or competitive concerns;</p> <p>-Lack of incentive or support to engage in knowledge sharing.</p>	<p>Hurtado-Torres et al. 2018, 11; Xiong et al. 2021, 1; Scuotto et al. 2020, 8; Chatterjee et al. 2023, 84; Gurkov & Saidov 2017, 894,904; Spekman 2016, 47</p>
Communication and Technological Challenges	<p>-Language differences, poor digital infrastructure, inconsistent use of knowledge management systems;</p> <p>-Lack of integrated communication platforms.</p>	<p>Scuotto et al. 2020, 4; Hung et al. 2021, 600; Nguyen et al. 2024, 217; Chatterjee et al. 2021, 2; Yu et al. 2022, 2772; Korbi & Chouki 2017, 1273; Zahedi et al. 2016, 1004; Breunig 2016, 249,264</p>
Challenges for Knowledge Protection and Appropriation Risks	<p>-Risk of knowledge leakage, appropriation hazards;</p>	<p>Du 2021, 187,195,203; Bhatnagar et al. 2023, 2227,2232; Zahedi et al. 2016, 1004</p>

	-Intellectual property concerns; High employee turnover impacts tacit knowledge retention.	
External Environmental Challenges	-National regulatory differences, strained political relations, rising economic nationalism; -COVID-19 disruptions.	Chatterjee et al. 2023, 77-84; Charpin et al. 2024, 3; Faems et al. 2020, 419

Each of these challenges affects the effectiveness of cross-border knowledge transfer. The subsections that follow provide greater detail about how they occur and affect knowledge flows within MNCs. Before examining individual challenges, it is essential to understand that knowledge transfer challenges within multinational companies function as interconnected systems rather than separate challenges. These problems generate integrating consequences in which one challenge stimulates or amplifies others, resulting in a group of challenges that together hinder knowledge transfer effectiveness.

The Cultural-Trust-Communication triangle is likely the most widespread group of interconnected challenges. Cultural and linguistic differences directly impede trust creation by causing misunderstandings and misinterpretations that foster suspicion and scepticism (Fiedler et al. 2021; Bagheri et al. 2019). This cultural divide generates communication hurdles that impede the clarification required to foster mutual understanding, while diminished trust further impedes open communication (Tenzer & Pudelko 2016; Yu et al. 2022).

The Distance-Technology-Relationship triangle underscores how geographical separation increases technical and interpersonal challenges. Physical distance implies a growing reliance on technical solutions, yet technological differences result in unequal access to communication tools, further exclusion geographically scattered groups (Aghmiuni et al. 2020; Charpin et al. 2024). Reduced face-to-face interaction opportunities weaken relationship building, which is especially harmful for tacit knowledge transfer (Korbi & Chouki 2017; Hänle et al. 2023).

The Structure-Capacity-Motivation triangle explains how organisational complexities have an indirect influence on individual capabilities and motivations. Complex organisational structures and bureaucratic processes not only impede decision-making, but also cause confusion about roles and duties, resulting in lower individual willingness to share knowledge (Mabey & Zhao 2017; Sytch et al. 2018). When combined with low absorptive capacity, these structural impediments create circumstances in which people feel both not capable and unwilling to participate successfully in knowledge transfer activities (Melnychuk et al. 2021; Xiong et al. 2021).

4.1.1 Cultural and Language Differences Challenge

Cultural differences, widely recognized as persistent and critical impediments to effective knowledge transfer in multinational and cross-border contexts, often lead to miscommunication due to variations in language, norms, values, and expectations, resulting in knowledge misinterpretation and a lack of mutual understanding (Fiedler et al. 2021, 1037-1038; Mabey & Zhao 2017, 4; Vuorenmaa 2024, 16). These challenges are particularly pronounced when project teams comprise individuals from culturally diverse backgrounds, as the absence of a shared cognitive and interpretive framework can hinder the co-creation and dissemination of knowledge (Mabey & Zhao, 2017, 4).

Notably, the impact of hierarchical versus egalitarian cultural orientations is significant in shaping the nature and quality of knowledge exchanges, as high power-distance societies, such as China. They often exhibit organizational hierarchies that discourage open dialogue from junior staff members, thereby suppressing the upward flow of potentially valuable insights (Mabey et al. 2015, 493-494).

Further, cultural disparities manifest not only in overt behavioural differences but also in deeply embedded work ethics, communication styles, and managerial approaches, which frequently result in misunderstandings and inconsistencies in the interpretation of shared knowledge, thereby impeding the effectiveness of knowledge transfer (Fiedler et al. 2021, 1037-1038; Zhu et al. 2019, 36; Jones & Coates 2020, 726).

The notion of “knowledge icebergs”-wherein only explicit knowledge is exchanged while tacit knowledge remains submerged and inaccessible-is emblematic of the challenges posed by cultural heterogeneity (Yu et al. 2022, 2775). Tacit knowledge, being deeply embedded in social and cultural contexts, is particularly vulnerable to distortion or loss when shared across disparate cultural environments (Hänle et al. 2023, 1555; Korbi & Chouki 2017, 1273; Tenzer & Pudelko 2016, 449; Barrell & Hsu 2019, 75; Bagheri et al. 2019, 207).

Language barriers further compound these cultural challenges. Differences in vocabulary, syntax, and underlying cognitive schemas introduce syntactic, semantic, and pragmatic boundaries, which hinder the effective articulation, transmission, and assimilation of complex or nuanced knowledge (Korbi & Chouki 2017, 1280; Tenzer & Pudelko 2016, 437). The use of non-native languages elevates cognitive load, reduces information processing capacity, and detracts from the overall efficiency of communication (Tenzer & Pudelko 2016, 446). Such linguistic constraints also affect relational dynamics by impeding trust formation, which is essential for sustained knowledge collaboration and mutual learning (Bagheri et al. 2019, 207).

4.1.2 Challenges for Institutional and Operational Differences

Institutional distance—defined by disparities in both formal institutions such as legal and regulatory systems, and informal institutions such as social norms and business practices—poses a substantive challenge to the effective dissemination and application of knowledge across borders (Raziq et al. 2021, 2). These divergences create friction in knowledge transfer, as subsidiaries often struggle to adapt practices originating from the headquarters due to incompatible legal environments or misaligned local expectations (Fiedler et al. 2021). For instance, formal institutional differences may constrain subsidiaries' operational autonomy, while informal discrepancies—such as divergent communication norms and culturally embedded work practices—can generate resistance to externally driven knowledge initiatives (Raziq et al. 2021, 2; Melnychuk et al. 2021, 2; Hung et al. 2021, 602).

Moreover, the absence of integrative mechanisms and a lack of alignment in organizational structures exacerbate these institutional challenges, impeding the smooth exchange of knowledge between headquarters and subsidiary units (Fiedler et al. 2021, 1037–1038; Melnychuk et al. 2021, 3; Ingršt & Záborský 2021, 950). These difficulties are particularly pronounced in emerging or peripheral markets, where infrastructural limitations and weaker institutional environments hinder the local adaptation and implementation of transferred knowledge (Lundan & Cantwell 2020; Pratono 2020, 150).

Systemic barriers also arise from regulatory divergence and variations in compliance environments, which complicate the sharing of sensitive or proprietary information, especially in highly regulated industries (Yu et al. 2022, 2774; Hänle et al. 2023, 1555; Bagheri et al. 2019, 211). In sectors such as petroleum, informal practices, corruption, and opaque institutional frameworks obstruct transparent and effective knowledge transfer, although legal compliance remains more robust in certain jurisdictions (Meyer et al. 2023, 57). Together, these institutional discrepancies—both formal and informal—create complex, multilayered obstacles that significantly constrain the capacity of multinational companies to achieve efficient and contextually responsive knowledge transfer.

4.1.3 Geographical and Temporal Separation Challenges

Geographic dispersion constitutes a critical structural impediment to effective knowledge transfer by reducing the frequency and quality of interactions through physical separation, which in turn limits opportunities for both formal and informal knowledge exchange (Corsi et al. 2021, 2–4; Faems et al. 2020, 419; Ingršt & Záborský 2021, 948). Time zone disparities further complicate this issue by constraining real-time collaboration, delaying responses, and undermining the synchronicity

necessary for efficient knowledge flows (Charpin et al. 2024, 3; Breunig 2016, 251). These temporal and spatial gaps significantly increase coordination costs and may result in knowledge being lost, distorted, or underutilized (Faems et al. 2020, 419; Ingršt & Zámorský 2021, 948).

Moreover, geographic separation often coexists with social and cultural distance, which can exacerbate perceptions of isolation or marginalization among subsidiaries, particularly those operating in peripheral or remote regions (Mabey et al. 2014, 497; Ervits 2024, 2575–2576). This sense of detachment can diminish subsidiary engagement and erode their integration into global knowledge networks. In this regard, face-to-face interactions—critical for building trust and facilitating the transfer of tacit knowledge—are limited by spatial constraints, reducing the efficacy of interpersonal learning mechanisms (Yu et al. 2022, 2779; Hänle et al. 2023, 1555; Korbi & Chouki 2017, 1273; Gurkov & Saidov 2017, 895; Spekman 2016, 43).

In addition to spatial barriers, technological disparities compound the problem by creating unequal access to communication platforms and knowledge management systems. Subsidiaries with limited ICT infrastructure or outdated tools may struggle to engage effectively in knowledge-sharing activities, thereby widening knowledge gaps and reinforcing asymmetries within multinational networks (Zhu et al. 2019, 25; Aghmiuni et al. 2020, 8; Charpin et al. 2024, 3).

4.1.4 Trust and Relational Challenges

Trust is consistently recognized as a pivotal enabler of effective knowledge transfer, particularly in multinational and cross-border organizational contexts. A recurring theme across the literature is that the absence of trust, whether interpersonal or inter-organizational, diminishes the willingness of actors to share or absorb knowledge, thereby impeding the efficacy of knowledge transfer (Fiedler et al. 2021, 1037-1038; Corsi et al. 2021, 2-4; van Dijk et al. 2016, 329; Vuorenmaa, 2024, 1).

Historical inequalities, unresolved tensions from prior collaborations, and negative past experiences frequently intensify relational distrust, which in turn fosters knowledge hoarding and limited openness (Faems et al. 2020, 419). Rigid hierarchical governance structures and overly centralized control mechanisms may further weaken interpersonal trust by provoking defensive organizational behavior and resistance to knowledge sharing (Vuorenmaa 2024, 5).

Establishing trust is particularly challenging in geographically and culturally dispersed environments, where actors often lack prior collaborative experience and struggle with aligning divergent interests (Fiedler et al. 2021, 1037-1038; Vuorenmaa 2024, 1; Chatterjee et al. 2021, 310). In such settings,

perceived inequalities and skepticism regarding the partner's intent or competence often lead to guarded communication and hinder open dialogue (Zhu et al. 2019, 37; Hung et al. 2021, 607).

The absence of trust is especially detrimental in scenarios requiring the transfer of tacit knowledge, which relies heavily on informal interaction, mutual understanding, and relational depth (Yu et al. 2022, 2772; Hänle et al. 2023, 1555; Barrell & Hsu 2019, 75; Bagheri et al. 2019, 207). Tacit knowledge, by its nature, is less codifiable and more context-specific, demanding high levels of interpersonal trust for successful transmission (Zahedi et al. 2016, 1004).

Furthermore, systemic issues such as political corruption, favoritism, and opportunistic behavior significantly erode trust and compromise the transparency essential to knowledge flows, particularly in contexts where governance structures are weak or unevenly enforced (Meyer et al. 2023, 57; Spekman 2016, 50).

4.1.5 Organizational and Structural Challenges

Organizational structure is a critical determinant of knowledge transfer effectiveness, particularly in multinational corporations (MNCs) where internal complexity often presents substantial barriers. Complex organizational structures, high levels of bureaucracy, and fragmented internal networks can obstruct effective knowledge sharing (Mabey & Zhao 2017, 9; Conroy et al. 2023, 2–3). Centralized decision-making may inhibit subsidiary autonomy and responsiveness, while siloed communication prevents horizontal knowledge dissemination (Mabey & Zhao 2017, 9).

Knowledge often remains concentrated within small, tightly knit social groups, making it difficult to scale or transfer across the wider organization (Mabey & Zhao 2017, 9). Organizational structures, particularly matrix configurations, contribute significantly to knowledge transfer challenges in MNCs (Sytych et al. 2018, 16). The need to coordinate across functional, geographic, and product units increases complexity, leading to delays in decision-making and difficulties in processing knowledge effectively (Sytych et al. 2018, 16).

Overlapping authority and conflicting goals may generate internal power struggles, undermining knowledge flows across different regions or divisions (Sytych et al. 2018, 4). This “double-complexity discount” phenomenon—where complex internal structures intersect with complex external collaborations—further reduces organizational efficiency and complicates knowledge transfer (Sytych et al. 2018, 16). Internal divisions and siloed communication exacerbate these issues, favoring core units while marginalizing peripheral subsidiaries (Lundan & Cantwell 2020).

As a result, horizontal knowledge transfer between subsidiaries remains weak, limiting innovation and hindering the dissemination of diverse expertise (Ervids 2024, 2589-2590). Fragmented networks and insufficient knowledge management (KM) systems prevent the effective capture, integration, and sharing of knowledge across borders (Tlemsani et al. 2023, 296; Osabutey et al. 2024, 2074-2075). Organizational silos, hierarchical rigidities, and bureaucratic inefficiencies fragment internal communication channels and obstruct inter-unit collaboration (Yu et al. 2022, 2774; Hänle et al. 2023, 1555; Meyer et al. 2023, 57; Bagheri et al. 2019, 211).

Complex reporting lines can obscure responsibility for knowledge flows, while ambiguous role definitions hinder accountability in knowledge dissemination (Bagheri et al. 2019, 211). Variations in organizational practices, routines, and procedural norms across MNC units further exacerbate coordination difficulties and reduce knowledge compatibility (Korbi & Chouki 2017, 1280; Nair et al. 2015, 283; Barrell & Hsu 2019, 75). Subsidiary autonomy and dual loyalties may lead local managers to prioritize local goals over headquarters directives, thereby resisting knowledge sharing initiatives (Geifman-Broder & Zaidman 2021: 308, 314).

4.1.6 Challenges for Absorptive Capacity and Capability Gaps

Absorptive capacity is the ability of an organization to recognize, assimilate, and apply new knowledge, which is widely recognized as a critical determinant of successful knowledge transfer (Melnychuk et al. 2021, 3; Benito et al. 2022, 421-422). A critical barrier to knowledge transfer lies in the receiving unit's limited absorptive capacity, particularly in subsidiaries operating in emerging markets (Melnychuk et al. 2021, 3; Benito et al. 2022, 421-422). Subsidiaries in these contexts may lack the technical or managerial expertise required to effectively utilize transferred knowledge (Pratono 2020, 150). Insufficient technical proficiency and managerial capabilities hinder the integration of transferred knowledge into local processes and systems (Nguyen et al. 2024, 221). Differences in work experience, technical knowledge, and the relevance of the transferred content contribute to persistent knowledge gaps and ineffective application (van Dijk et al. 2016, 337; Xiong et al. 2021, 1). Inadequate absorptive capacity not only limits the application of new knowledge but also increases resistance to change, as employees may favor familiar routines over adopting unfamiliar practices (Jones & Coates 2020, 734; Osabutey et al. 2024, 2075).

Furthermore, a misalignment of strategic goals between the headquarters and the subsidiary can hinder the effective transfer and utilization of knowledge (Melnychuk et al. 2021, 2). Differences in levels of expertise, previous experience, and domain-specific competencies between parent firms and subsidiaries lead to asymmetries in the interpretation and application of knowledge (Korbi & Chouki

2017, 1273; Spekman 2016, 55; Nair et al. 2015, 284). The tacit and context-dependent nature of knowledge presents additional challenges, particularly with respect to its codification and subsequent transferability across units (Zahedi et al. 2016, 1004; Nair et al. 2015, 294). Moreover, the parent company's perception of a subsidiary's knowledge value may influence its willingness to engage in reverse knowledge transfer, further constraining knowledge flows (Nair et al. 2015, 284).

4.1.7 Psychological and Motivational Challenges

Psychological barriers represent a significant impediment to effective knowledge transfer, often rooted in individual attitudes and perceptions that discourage open communication and collaboration (Hurtado-Torres et al. 2018, 11; Xiong et al. 2021, 1). Fear, apprehension, and a sense of ownership over knowledge can lead employees to withhold valuable information from colleagues (Hurtado-Torres et al. 2018, 11; Xiong et al. 2021, 1).

Knowledge hiding behaviors are frequently driven by distrust, fear of losing a competitive advantage, or the belief that shared knowledge is irrelevant to others' tasks (Xiong et al. 2021, 1). Employees may be reluctant to engage in knowledge-sharing activities due to concerns over losing their relevance within the organization, perceived personal costs outweighing benefits, or prior negative experiences in collaborative settings (Xiong et al. 2021, 1; Scuotto et al. 2020, 8).

In the absence of adequate managerial support or appropriate incentives, individuals are less likely to participate proactively in knowledge-sharing initiatives (Xiong et al. 2021, 1; Benito et al. 2022, 421-422). Leadership endorsement and incentive structures are crucial in motivating employees to share their expertise and insights (Chatterjee et al. 2023, 84).

Employee hesitance to adopt new communication technologies or engage in firm-wide knowledge-sharing programs further impede knowledge transfer (Gurkov & Saidov 2017, 894). Managers may favor quick, low-effort communication methods such as email, foregoing richer media like video conferencing or informal interactions that are more effective for transferring contextual and tacit knowledge (Gurkov & Saidov 2017, 904). Internal reward systems that prioritize individual accomplishments over team-based collaboration may disincentivize employees from sharing knowledge across units (Spekman 2016, 47).

4.1.8 Structural and Environmental Challenges

Inadequate support and coordination from the headquarters can serve as a significant structural impediment to effective knowledge transfer. The absence of proactive involvement in mediating or

facilitating knowledge flows—particularly those involving external alliance partners, may lead to fragmentation and isolation across subsidiaries (Faems et al. 2020, 419). When headquarters over-rely on centralized control mechanisms, it may constrain subsidiary autonomy, thereby suppressing local innovation and diminishing initiative at the subsidiary level (Vuorenmaa 2024, 5).

External environmental and political conditions further compound the challenges of cross-border knowledge transfer. Differences in national regulatory frameworks, strained political relations, and rising economic nationalism act as formidable barriers to collaboration (Charpin et al. 2024, 3; Chatterjee et al. 2023, 78). Government-imposed visa restrictions, coupled with protectionist policies, limit the international mobility of knowledge workers, impeding the physical flow of human capital essential for knowledge transfer (Charpin et al. 2024, 3; Chatterjee et al. 2023, 78).

The COVID-19 pandemic has intensified these constraints by disrupting global mobility, curtailing international travel, and reducing opportunities for face-to-face engagement, all of which are vital for effective knowledge exchange (Chatterjee et al. 2023, 77-84). These disruptions have further emphasized the importance of robust digital infrastructures and virtual collaboration tools to support remote knowledge transfer in the absence of physical proximity (Chatterjee et al. 2023, 77-84).

4.1.9 Communication and Technological Challenges

Communication barriers remain a critical challenge in multinational knowledge transfer, arising from language differences, heterogeneous communication practices, and insufficient digital infrastructure (Scuotto et al. 2020, 4; Hung et al. 2021, 600; Nguyen et al. 2024, 217). These challenges often result in the misinterpretation of knowledge, delayed dissemination, and ineffective collaboration across geographically and culturally diverse units (Scuotto et al. 2020, 4; Hung et al. 2021, 600; Nguyen et al. 2024, 217).

The inconsistent use of knowledge management systems (KMS) and enterprise social networks (ESNs) impedes effective knowledge capture and exchange, particularly when employees are unaware of available resources or lack motivation to engage in sharing activities (Chatterjee et al. 2021, 2; Tlemsani et al. 2023, 296). A lack of integrated and compatible information systems disrupts the seamless flow of knowledge among dispersed teams, further fragmenting organizational communication (Yu et al. 2022, 2772; Korbi & Chouki 2017, 1273).

Insufficient or ineffective technological tools, in combination with low acceptance of collaborative platforms, diminish employees' willingness and ability to engage in knowledge-sharing practices (Zahedi et al. 2016, 1004; Breunig 2016, 264). Prior to the implementation of digital collaborative

tools such as wikis, knowledge remained confined to localized systems and was primarily accessible through informal interpersonal relationships, which hindered broader institutional learning (Breunig 2016, 249). Media selection for knowledge communication is influenced by linguistic diversity, as some communication channels may be ill-suited for multilingual contexts, further complicating the knowledge transfer process (Tenzer & Pudelko 2016, 446).

4.1.10 Knowledge Protection, Appropriate Risks and Hidden Cost Challenges

A key challenge identified in the literature is the “paradox of disclosure,” wherein firms must simultaneously foster knowledge sharing to enable collaboration while protecting sensitive information from unintended leakage (Du 2021, 187). The risk of appropriation hazards where transferred knowledge may be exploited or misused by partners which acts as a deterrent to open exchange and may threaten a firm’s competitive advantage (Du 2021, 195).

To address these risks, scholars emphasize the strategic importance of knowledge categorization, suggesting that firms differentiate between core, related non-core, and distant non-core technologies to facilitate effective and secure knowledge transfer (Du 2021, 203). Failure to categorize knowledge appropriately, particularly in the absence of robust internal governance, can hinder inter-organizational collaboration by either excessively restricting knowledge flows or exposing firms to potential knowledge spill overs.

Concerns related to intellectual property rights further intensify firms’ reluctance to share proprietary knowledge, thereby constraining innovation and reducing the scope for meaningful collaboration (Bhatnagar et al. 2023, 2227). Such hesitancy is often magnified by mutual mistrust, particularly when sensitive research and developmental knowledge are involved (Bhatnagar et al. 2023, 2232).

In addition to strategic and relational risks, operational disruptions such as high employee turnover pose significant barriers to knowledge continuity. The departure of key personnel leads to the erosion of tacit knowledge and necessitates repeated investments in relationship-building and training (Zahedi et al. 2016, 1004). Moreover, the hidden costs associated with cross-border knowledge transfer—such as travel expenses, time investments, and the substantial effort required to codify and transfer tacit knowledge, place further strain on knowledge management systems (Zahedi et al. 2016, 1004).

4.2 The Processes for Underpinning Knowledge Transfer across Multinational Companies

To better understand how knowledge is efficiently transferred across multinational companies (MNCs), this analysis identifies key processes from Knowledge Creation and Codification to External Networks, Cultural Adaptation, and Multidirectional Flows. These dominant processes are linked and facilitated through factors such as trust-building, cultural adaptability, and technical infrastructure. The study reveals explicit sequential and reciprocal linkages between these processes, which collectively build a dynamic knowledge transfer system.

Table 4. Summary of the Processes for Knowledge Transfer

Theme	Issues	References
Knowledge Creation, Identification, and Codification	<ul style="list-style-type: none"> -Knowledge originates from R&D, partnerships, and subsidiaries -Codification makes tacit knowledge explicit -Mapping competencies prevents redundancy -Transactive memory supports efficient knowledge location 	<p>Aghmiuni et al. 2020, 2; Ingršt & Zámorský 2021, 948; Odei & Stejskal 2020, 855; Hänle et al. 2023, 1553; Tlemsani et al. 2023, 296; Ervits 2024, 2591-2592; Korbi & Chouki 2017, 1286; Conroy et al. 2023, 4,7; van Dijk et al. 2016, 328; Geifman-Broder & Zaidman 2021, 310-311; Hurtado-Torres et al. 2018, 4; Chatterjee et al. 2021, 304; Nguyen et al. 2024, 221; van Lamoen et al. 2023, 11968; Pratono 2020, 165; Audretsch et al. 2023, 2; Melnychuk et al. 2021, 2</p>
Knowledge Transmission Across Borders	<ul style="list-style-type: none"> - Formal: workshops, manuals, databases - Informal: social interaction, peer exchange - Digital tools (wikis, platforms) bridge geographic gaps - Subsidiaries adapt and contribute localized knowledge 	<p>Reilly et al. 2023, 1001; Mabey & Nicholds 2015, 44-45; Aghmiuni et al. 2020, 2; Zahedi et al. 2016, 1013; O'Dwyer et al. 2015, 301; Breunig 2016, 257,259; Chatterjee et al. 2021, 11-12; Nguyen et al. 2024, 225; Tang & Popp 2016, 196,203</p>
Trust, Motivation, and Cultural Adaptation	<ul style="list-style-type: none"> - Trust is central to tacit knowledge transfer - Motivation and identity impact KT outcomes - Cultural adaptation and shared values build cohesion - Boundary spanners bridge cultural and functional gaps 	<p>Reilly et al. 2023, 1001; Fiedler et al. 2021, 1037-1038; Søderberg & Romani 2017, 273; van Dijk et al. 2016, 327; Charpin et al. 2024, 3-4; Scuotto et al. 2020, 8; Liu & Meyer 2020, 10; Ervits 2024, 2578; Nthenya 2023, 23-24</p>
Absorption and Integration	<ul style="list-style-type: none"> - Tacit-to-explicit conversion facilitates absorption - Cultural adaptation critical to KT success 	<p>Faems et al. 2020, 417-418; Conroy et al. 2023,4; Søderberg & Romani 2017, 272;</p>

	<ul style="list-style-type: none"> - High absorptive capacity drives innovation - Communities of Practice (CoPs) support long-term integration 	<p>Liefner et al. 2019, 9; van Lamoen et al. 2023, 11968; Pratono 2020, 150; Bhatnagar et al. 2023, 2214; Hung et al. 2021, 606,608; Melnychuk et al. 2021, 2-3; Chatterjee et al. 2023, 84; Gurkov & Saidov 2017, 897</p>
Role of Intermediaries, Leadership, and Localization	<ul style="list-style-type: none"> -Boundary spanners (e.g., Dual Cultural Bridgers) bridge institutional and cultural gaps; -informal leaders often drive KT more effectively than formal hierarchies; -localization ensures relevance of knowledge in subsidiaries; -leadership commitment fosters knowledge-sharing culture. 	<p>Corsi et al. 2021, 2-4; Mabey & Nicholds 2015, 44-45; Osabutey et al. 2024, 2074; Hung et al. 2021, 606; Chatterjee et al. 2023, 84; Barrell & Hsu 2019, 75; O'Dwyer et al. 2015, 300</p>
Collaborative Structures and Feedback Mechanisms	<ul style="list-style-type: none"> -Collaborative networks promote trust and strategic cohesion; -feedback loops support iterative improvement; -balance between cooperation and competition is vital; -joint ventures and IRCs institutionalize KT; -reverse KT and feedback enhance R&D. 	<p>Fiedler et al. 2021, 1038; Benito et al. 2022, 426; Gurkov & Saidov 2017, 896; Charpin et al. 2024, 3; van Dijk et al. 2016, 328; Søderberg & Romani 2017, 273; Melnychuk et al. 2021, 3; Pratono 2020, 161; O'Dwyer et al. 2015, 301</p>
Institutionalization and Strategic Alignment	<ul style="list-style-type: none"> -Formal KM systems (e.g., councils, SOPs) sustain KT; -governance mechanisms define KT roles; -transactive memory systems improve access to knowledge; -cross-cultural translation and legal frameworks aid clarity; -KT systems should align with evolving strategic goals. 	<p>Fiedler et al. 2021, 1037-1038; Mabey & Nicholds 2015, 50; Faems et al. 2020, 417-418; Chatterjee et al. 2021, 304; Korbi & Chouki 2017, 1274, 1286; Zahedi et al. 2016, 1013; Hänle et al. 2023, 1536; Charpin et al. 2024, 12; Tlemsani et al. 2023, 307</p>
Digital Platforms and Technological Infrastructure	<ul style="list-style-type: none"> -Digital platforms support real-time and asynchronous KT; -ICTs foster collaboration, long-term memory, and transparency; -tailored systems increase usability; -tech intermediaries facilitate external knowledge integration; -limited platform access remains a barrier. 	<p>Chatterjee et al. 2023, 2-7; Ingršt & Zámorský 2021, 963; Stendahl et al. 2022, 2, 7, 11; Gurkov & Saidov 2017,895; Geifman-Broder & Zaidman 2021, 310-311; Meyer et al. 2023, 58; Erviš 2024, 2578; Bhatnagar et al. 2023, 2206</p>
External Networks, Cultural Adaptation, and Multidirectional Flows	<ul style="list-style-type: none"> -University and innovation partnerships support KT and capability building; -social capital (trust, shared goals) enables tacit KT; -cultural adaptation facilitates communication; -KT is multi-directional and iterative; -collocation enhances tacit knowledge exchange. 	<p>Lundan & Cantwell 2020; Garcia Martinez et al. 2019, 15; Pratono 2020, 150; Aghmiuni et al. 2020, 3; O'Dwyer et al. 2015, 300, 304; Zahedi et al. 2016, 1008, 1013; Nair et al. 2015, 279, 283-284; Demeter & Losonci 2019, 222; Osabutey et al. 2024, 2074; Oki 2015, 256</p>

The study highlights that knowledge transfer in multinational companies occurs through interrelated processes that build a dynamic system. These processes show explicit sequential and reciprocal linkages, which together influence the effectiveness of cross-border knowledge transfer.

4.2.1 Knowledge Creation, Identification and Codification

The initial stage of the knowledge transfer process in multinational companies is characterized by a dynamic interplay between knowledge generation, identification, mapping, and codification. This foundational phase is critical for setting the trajectory for successful knowledge dissemination and utilization across geographically and culturally diverse subsidiaries.

The reality is this process serves as the starting point for all knowledge transfer initiatives reflects its dominance. Knowledge comes from a variety of sources, including internal R&D initiatives, inter-organizational collaborations, and subsidiary breakthroughs (Aghmiuni et al. 2020, 2; Ingršt & Záborský 2021, 948; Odei & Stejskal 2020, 855). The importance of collaborative innovation and interaction among organizational teams is emphasized, with knowledge emerging from internal R&D efforts, alliances with external partners, and problem-solving initiatives embedded in local contexts (Hänle et al. 2023, 1553).

The explicit connection to subsequent processes happens through codification, which turns tacit, experience-based information into organised formats available across the MNC's worldwide network (Hänle et al. 2023, 1553; Tlemsani et al. 2023, 296). Codification plays a pivotal role in preserving institutional memory and ensuring the longevity of valuable insights. It is operationalized through the use of structured repositories, manuals, and databases, which function as institutional anchors for collective learning (Ervits, 2024, 2591-2592). Additionally, the use of visual and manual artifacts, such as diagrams and shared platforms which facilitates the communication of complex knowledge, particularly when knowledge is being transferred across cultural or disciplinary boundaries (Korbi & Chouki 2017, 1286).

Simultaneously, the identification and sourcing of relevant knowledge is another fundamental task at this stage. This encompasses both explicit knowledge-such as documents, procedural guides, and manuals and tacit knowledge, which is inherently experiential and more challenging to formalize (Conroy et al. 2023, 4; van Dijk et al. 2016, 328). The identification process requires a deliberate effort to recognize not only what knowledge exists but also its relevance and applicability to different operational contexts (Geifman-Broder & Zaidman, 2021, 310-311).

Within the organizational structure, both headquarters and subsidiaries engage in knowledge sourcing activities. These include leveraging internal capabilities and tapping into external networks, such as innovation intermediaries, local market participants, and strategic business alliances (Conroy et al. 2023, 7). An important component of this process is the mapping of competencies and skills across

R&D units, which helps prevent redundancy and ensures knowledge is aligned with the organization's strategic goals (Hurtado-Torres et al. 2018, 4).

Further, multinational companies must conduct knowledge asset mapping, which entails identifying critical knowledge—such as best practices, innovative techniques, and research outputs—and ensuring these assets are recognized and positioned for transfer across the enterprise (Chatterjee et al. 2021, 304; Nguyen et al. 2024, 221). Mapping activities are particularly significant in geographically dispersed firms, where misalignment and duplication risks are heightened. Transactive memory systems play a crucial linking role by facilitating efficient knowledge location, establishing explicit connections to the transmission process, and enabling targeted knowledge retrieval (van Lamoen et al. 2023, 11968). This distributed cognition enables efficient access to relevant expertise and facilitates coordinated knowledge mobilization.

The strategic selection of knowledge partners also plays a vital role in this stage. MNEs must evaluate potential collaborators based on complementary capabilities, technical compatibility, and cultural alignment (Pratono 2020, 165; Audretsch et al. 2023, 2). These selection decisions have long-term implications for the effectiveness of the knowledge transfer process, particularly in relation to mutual understanding and operational synergy.

Lastly, subsidiaries contribute significantly to the absorption of knowledge generated or shared at this stage. They are tasked with interpreting locally developed innovations, assessing their relevance, and integrating them into context-specific operational routines (Melnychuk et al. 2021, 2). This absorptive capacity lays the groundwork for future upward or lateral knowledge flows within the organization. Taken together, the initial stage of the knowledge transfer process serves as the foundational layer upon which subsequent stages—such as dissemination, assimilation, application, and feedback—are built. By systematically creating, codifying, identifying, and mapping knowledge, MNCs can ensure that their intellectual capital is mobilized effectively across their global operations.

4.2.2 Knowledge Transmission and Representation

The dominance of this process arises from its dual position as both a receiver and a distributor of knowledge, which acts with explicit reciprocal linkages to both preceding and succeeding processes and process takes codified knowledge from the creation phase and transforms it through formal channels like workshops, manuals, and databases, as well as informal mechanisms like social contacts and peer interactions (Reilly et al. 2023, 1001; Mabey & Nicholds 2015, 44-45; Conroy et al. 2023, 1). These are complemented by informal methods, including personal interactions, peer networks,

and social discourse, which often facilitate the flow of tacit knowledge that is harder to codify through traditional means. In this regard, digital platforms and consistent virtual collaboration are vital for bridging spatial and temporal distances between globally dispersed teams (Hurtado-Torres et al. 2018, 4).

A foundational element of the transmission process is the codification of knowledge, which enables its structured documentation, storage, and retrieval for future use across different locations. Codification transforms tacit knowledge into explicit formats that can be systematically shared and reused (Aghmiuni et al. 2020, 2). This process typically involves the development of manuals, guidelines, training materials, and digital databases—tools that facilitate the dissemination of knowledge to a broader organizational audience. According to (Zahedi et al. 2016, 1013), maintaining structured knowledge repositories and employing standardized procedures to capture project-specific knowledge are essential practices in this stage.

Moreover, modern technological platforms—including purpose-built websites and wiki systems—play a critical role in capturing and disseminating both explicit and tacit forms of knowledge. These digital tools increase accessibility and foster collaborative knowledge building, especially in knowledge-intensive environments (O'Dwyer et al. 2015, 301; Breunig 2016, 257, 259). They serve as centralized hubs where experiential learning and locally derived innovations can be archived and made available for other units within the MNC network.

Knowledge transmission is also intrinsically linked to the process of knowledge creation, particularly within subsidiaries that engage in R&D tailored to local market conditions. These subsidiary units contribute localized insights, often developed organically in response to their external environments. Such knowledge is valuable for feeding into the global innovation ecosystem of the MNE (Nguyen et al. 2024, 225). According to (Chatterjee et al. 2021, 11-12), the creation process often precedes knowledge sharing and is grounded in the collection of experiential insights through interaction on collaborative platforms, necessitating investment in local research infrastructure and autonomy.

The application of shared and transmitted knowledge is directed toward improving business operations, driving innovation, and informing strategic decisions. This aligns with the concept of learning-by-doing, wherein repeated practice and the accumulation of experience lead to the refinement of organizational practices and performance enhancements (Tang & Popp 2016, 196). Furthermore, learning-by-interacting with external actors such as partners and stakeholders cultivates mutual learning opportunities and supports the co-development of capabilities (Tang & Popp 2016, 196, 203).

4.2.3 Trust Motivation, and Cultural Adaptation

Interpersonal trust and employee motivation are foundational enablers of effective knowledge transfer in cross-border contexts. These human and relational dimensions significantly influence the willingness of individuals to share both explicit and tacit knowledge within multinational companies. Emotional engagement, particularly during periods of organizational transition such as subsidiary closures, plays a decisive role in shaping cooperative behaviours and knowledge transfer outcomes. As (Reilly et al. 2023, 1001) emphasize, diminished motivation and emotional detachment can obstruct knowledge sharing, necessitating proactive managerial strategies to address identity-related concerns and sustain engagement.

To navigate the challenges posed by cross-cultural dynamics, organizations must invest in cross-cultural training, cultivate linguistic competencies, and implement identity-sensitive management practices. These measures facilitate clearer communication and mitigate motivational barriers across culturally diverse teams (Fiedler et al. 2021, 1037-1038; Söderberg & Romani 2017, 273). The establishment of norms of reciprocity and shared values further contributes to a culture of openness, reinforcing individuals' intrinsic motivations to contribute to collective knowledge assets (van Dijk et al. 2016, 327).

Trust is not only important at the interpersonal level but also at the institutional level, especially in politically diverse or sensitive regions. As (Charpin et al. 2024, 3-4) argue, fostering trust through stakeholder engagement, including interactions with local governments and communities, enhances the legitimacy of multinational firms and reduces perceived risks. This, in turn, encourages knowledge sharing and diminishes fears of opportunism. Strategic alignment with host country interests is often deployed as a trust-building mechanism to facilitate smoother knowledge transfer processes (Charpin et al. 2024, 4).

The role of interpersonal relationships-anchored in trust and mutual respect-is particularly salient in the transfer of sensitive or tacit knowledge, which requires relational depth and mutual understanding to be effectively shared. Informal interactions and the development of social capital, including shared goals and cultural adaptation, underpin successful knowledge transfer across borders (Scuotto et al. 2020, 8; Hung et al. 2021, 608). Boundary spanners-individuals who bridge cultural, organizational, or functional divides-are indispensable in facilitating this process, as they help translate contextual knowledge and foster cross-unit cohesion (Liu & Meyer 2020, 10).

Furthermore, socialization and networking activities-whether formal or informal-cultivate trust and provide the relational scaffolding necessary for effective collaboration. Mechanisms such as training, joint projects, and staff exchanges are instrumental in enhancing mutual understanding and building awareness of partners' corporate cultures and operational systems (Ervits 2024, 2578; Nthenya 2023, 24). In the KLM-Kenya Airways (KQ) partnership, for instance, trust was deliberately nurtured through Alliance Committee meetings and the deployment of experienced staff to facilitate local capacity development (Nthenya 2023, 23-24). These initiatives promoted bi-directional knowledge exchange and supported the institutionalization of best practices.

Ultimately, the development of strong trust-based relationships is vital in overcoming the inherent complexity and uncertainty of cross-border knowledge transfer. As (Charpin et al. 2024, 4) highlight, trust plays a critical role in mitigating concerns related to opportunism and ensures a more open, collaborative knowledge-sharing environment, thereby enhancing the overall effectiveness of knowledge transfer initiatives in multinational companies.

4.2.4 Absorption and Integration of Transferred Knowledge

A pivotal phase in the knowledge transfer process involves not merely the dissemination of knowledge but its absorption and integration into the operational and cultural frameworks of the receiving units. This phase is particularly complex when dealing with tacit knowledge, which is deeply embedded in individual experiences and local practices that making it difficult to codify and transmit (Faems et al. 2020, 417-418). Effective integration necessitates contextual adaptation, continuous feedback loops, and alignment with overarching organizational objectives (Conroy et al. 2023, 4; Söderberg & Romani 2017, 272).

To facilitate transferability, tacit knowledge must be transformed into explicit forms such as manuals, guidelines, and reports. This codification process makes the knowledge more accessible across cultural and regional boundaries, aiding in its broader dissemination and application (Chatterjee et al. 2021, 304). In multinational corporations like Huawei, this conversion is systematically implemented through the use of documentation and invention disclosures, which formally convert specialized knowledge into organizational assets (Liefner et al. 2019, 9).

The act of knowledge sharing is central to the knowledge transfer process and is accomplished via a spectrum of mechanisms. Formal channels include structured meetings, workshops, and written reports, while informal channels comprise peer-to-peer interactions, casual conversations, and digital exchanges (van Lamoen et al. 2023, 11968; Aghmiuni et al. 2020, 5). Despite their importance, cross-

border knowledge transfer efforts are often hindered by challenges such as language barriers, cultural differences, and divergent work norms. These barriers necessitate the cultivation of trust and the development of shared norms and cultural awareness, which are critical for fostering open communication (Pratono 2020, 150; Bhatnagar et al. 2023, 2214; Scuotto et al. 2020, 2).

Knowledge sharing additionally involves a variety of tangible mechanisms, including structured meetings, joint projects, job rotations, document exchanges, and technology transfers (Hung et al. 2021, 608; Nguyen et al. 2024, 222). Communication-whether synchronous like virtual meetings or asynchronous like emails and enterprise social networks- is fundamental to ensuring that knowledge flows effectively throughout the organization (Scuotto et al. 2020, 12; Chatterjee et al. 2023, 84).

Following dissemination, the success of knowledge transfer is highly dependent on the absorptive capacity of the receiving units-their ability to recognize, assimilate, and apply new knowledge within their local context (Melnychuk et al. 2021, 3; Aghmiuni et al. 2020, 4). This often entails contextual adaptation, where knowledge is tailored to fit the operational and cultural requirements of specific environments. Integration is further enhanced by robust coordination and communication mechanisms that streamline collaborative processes and clarify roles across functional and geographic boundaries (van Lamoen et al. 2023, 11968).

As emphasized by (Hung et al. 2021, 606), absorptive capacity represents a core determinant of effective knowledge transfer. Teams possessing high cognitive proximity and shared experience are generally better equipped to internalize and operationalize transferred knowledge. This capacity is fostered not only by individual competencies but also by supportive organizational structures and learning-oriented cultures.

Once the knowledge reaches the headquarters or parent firm, it must be incorporated into internal systems, particularly those related to innovation and product development. However, this process may be constrained by differences in strategic priorities and organizational structures between subsidiaries and headquarters (Melnychuk et al. 2021, 2). When successful, the integration of transferred knowledge facilitates the development of new products and the refinement of existing processes, ensuring strategic alignment across the multinational companies (Melnychuk et al. 2021, 3; Hänle et al. 2023, 1554).

Additionally, knowledge integration is reinforced through collaborative task definition and joint execution, particularly within software development environments and multi-phase project

initiatives. These collective activities promote shared understanding and foster organizational commitment to knowledge utilization (Zahedi et al. 2016, 1013). Furthermore, the establishment of communities of practice (CoPs) enhances cross-border collaboration by creating platforms for professionals with shared interests to exchange insights and maintain collective learning, regardless of geographical dispersion (Gurkov & Saidov 2017, 897).

In summary, the effective absorption and integration of knowledge is a multifaceted process that depends on the codification of tacit knowledge, the deployment of diverse sharing mechanisms, and the development of absorptive capacity at both individual and organizational levels. These components together ensure that knowledge-once transferred-is fully embedded into the operational fabric of the firm and leveraged for sustained innovation and competitive advantage.

4.2.5 The Role of Intermediaries, Leadership and Localization

Effective cross-border knowledge transfer is deeply influenced by the presence of intermediaries and informal leaders who act as connectors between geographically and culturally dispersed organizational units. Boundary spanners-such as Dual Cultural Bridgers and International Network Enhancers-serve a critical function by mediating between disparate organizational settings and reconciling institutional and cultural divergences. These actors, often embedded within the organizational fabric, possess the cultural fluency and relational capacity to enable smoother transmission of knowledge (Corsi et al. 2021, 2-4). Additionally, informal leadership structures that emerge organically through peer networks can exert considerable influence over knowledge flows, often surpassing the impact of formal hierarchies (Mabey & Nicholds 2015, 44-45).

Localization of transferred knowledge is a central step in ensuring its utility and relevance within subsidiary environments. Knowledge that is merely transplanted without contextual sensitivity risks being perceived as misaligned or impractical. As such, adaptation to local market dynamics, operational norms, and socio-cultural frameworks is essential for meaningful application (Osabutey et al. 2024, 2074; Hung et al. 2021, 606). Contextual adaptation thus transforms generalized insights into actionable knowledge that is both accepted and effective at the local level.

Leadership within multinational companies plays a catalytic role in shaping the knowledge transfer environment. Beyond setting strategic direction, leaders foster cultures of openness, model collaborative behaviours, and provide incentives that reinforce knowledge-sharing practices (Chatterjee et al. 2023, 84). When top management demonstrates a clear commitment to knowledge

transfer, it signals to employees that knowledge exchange is not merely encouraged but is a normative expectation embedded in organizational culture.

Intermediaries such as the British Government Technology Agency (BGTA) also contribute significantly to knowledge transfer by operating as knowledge brokers. These organizations bridge the cultural and institutional gaps between firms from different national contexts, support the orchestration of collaborative innovation projects, and foster the development of shared platforms for experimentation and exchange (Barrell & Hsu 2019, 75). Their role is particularly crucial in facilitating co-funded research programs, pilot initiatives, and participation in innovation networks, all of which serve as practical mechanisms for demonstrating and disseminating knowledge and technology.

Capacity-building initiatives further underpin successful knowledge transfer by strengthening absorptive capacity among participating stakeholders. Training modules, workshops, and staff secondments enable experiential learning and the development of competencies necessary for the integration and application of new knowledge (Barrell & Hsu 2019, 75; O'Dwyer et al. 2015, 300). These hands-on activities not only improve individual expertise but also institutionalize best practices within recipient organizations.

In sum, the integration of boundary-spanning roles, leadership commitment, localized knowledge adaptation, and intermediary facilitation forms a synergistic framework that underlies successful knowledge transfer in international settings. Together, these elements create the structural and relational scaffolding necessary for sustained knowledge exchange across borders.

4.2.6 Collaborative Structure and Feedback Mechanism

The establishment of robust collaborative networks among employees and managers is essential for sustaining effective knowledge transfer within multinational companies. These networks promote continuous dialogue, facilitate trust-building, and align knowledge-sharing activities with broader strategic objectives (Fiedler et al. 2021, 1038; Benito et al. 2022, 426). By fostering relational and strategic cohesion, such networks lay the groundwork for enduring knowledge transfer practices. Feedback loops within these networks are instrumental in refining knowledge transfer approaches, enabling organizations to learn from both successes and failures, and to adapt over time (van Dijk et al. 2016, 328; Søderberg & Romani 2017, 273).

The dynamics of subsidiary communication further shape knowledge transfer outcomes. Subsidiaries often operate within an interplay of cooperative and competitive interactions, both of which influence

knowledge flows. Cooperative engagement facilitates mutual learning and the dissemination of best practices across units. Conversely, internal competition, while sometimes a driver of performance that can hinder openness and restrict knowledge sharing (Gurkov & Saidov 2017, 896). Thus, balancing competitive tension with collaborative intent is vital for preserving productive knowledge exchanges.

Collaborative governance structures such as alliances, joint ventures, and inter-regional collaborations (IRCs) serve as institutional frameworks for knowledge transfer. These arrangements enable formalized and recurrent knowledge exchanges through scheduled communication, coordination of efforts, and collaborative problem-solving (Tlemsani et al. 2023, 292; Charpin et al. 2024, 3). A critical prerequisite for these partnerships is the evaluation of strategic, political, and cultural alignment between parties to ensure synergy and minimize friction (Charpin et al. 2024, 3). Practical tools embedded in these structures, such as alliance committees, joint workshops, and inter-organizational meetings that help institutionalize and operationalize knowledge sharing (Nthenya 2023, 23).

Sustaining knowledge transfer effectiveness also demands the implementation of structured feedback mechanisms. These systems allow organizations to continuously monitor and evaluate the efficacy of knowledge transfer activities, identify emerging challenges, and modify practices to enhance future performance (Pratono, 2020, 161; Audretsch et al. 2023, 9). Feedback loops support iterative learning, particularly when organizations adopt trial-and-error approaches that view failure not as a setback but as a valuable source of innovation and learning (van Lamoen et al. 2023, 11968).

Furthermore, knowledge flows do not end at the subsidiary level. Once absorbed locally, knowledge often moves upstream to the parent organization. This reverse transfer includes not just data or results but also the contextualized interpretation of insights, which enhances their utility for research and development (Melnychuk et al. 2021, 3). For this process to be successful, parent firms must possess sufficient absorptive capacity to recognize, assimilate, and integrate the externally sourced knowledge into core innovation activities (Melnychuk et al. 2021, 2).

Feedback mechanisms, whether through digital analytics, direct communication, or outcome-based evaluations, further contribute to knowledge transfer effectiveness (Nguyen et al. 2024, 221; Chatterjee et al. 2023, 84). These mechanisms serve not only as diagnostic tools but also as enablers of strategic refinement. Knowledge retention systems, integrated with feedback loops, ensure that knowledge remains accessible and usable over time, safeguarding long-term knowledge transfer outcomes (Spekman 2016, 57; Nair et al. 2015, 280; O'Dwyer et al. 2015, 301).

Finally, organizations must adopt continuous evaluation strategies to assess knowledge transfer applications and refine approaches based on results. These evaluations foster reciprocal learning and enable iterative improvements in knowledge transfer systems (Hänle et al. 2023, 1553; Tlemsani et al. 2023, 296; Fassehi et al. 2024, 602). In doing so, firms reinforce a dynamic learning culture that is responsive to internal developments and external environmental shifts, thereby supporting the sustainability and adaptability of cross-border knowledge transfer.

4.2.7 Institutionalization and Strategic Alignment

Institutional mechanisms such as transnational works councils, board-level representation, and adaptive governance structures support not only the flow of knowledge but also the representation of employee interests, creating an inclusive environment conducive to sustained knowledge transfer (Fiedler et al. 2021, 1037-1038; Mabey & Nicholds 2015, 50). In this context, headquarters play a pivotal role in promoting the external diffusion of knowledge and addressing motivational asymmetries across diverse subsidiaries (Faems et al. 2020, 417-418).

To contribute meaningfully to long-term organizational success, knowledge transfer must be embedded within the organization's formal knowledge management infrastructure through sustained training programs, institutionalized repositories, and governance mechanisms that ensure the preservation and dissemination of knowledge over time and across locations (Pratono, 2020, 152; Bhatnagar et al. 2023, 2206). Furthermore, the establishment of legal frameworks and formal agreements is particularly significant in cross-border operations, as these define roles, responsibilities, and safeguards for knowledge stewardship (Bhatnagar et al. 2023, 2206).

Institutionalization also entails the codification of experiential and tacit knowledge into accessible formats such as standard operating procedures, manuals, databases, and training modules, these codified resources serve as organizational memory, preserving critical knowledge assets and making them available for future use (Chatterjee et al. 2021, 304; Conroy et al. 2023, 4). Through effective KM systems, organizations can support informed decision-making and innovation by leveraging previously acquired knowledge (Osabutey et al. 2024, 2075).

Given the globalized and multicultural environment in which multinational companies (MNCs) operate, cross-lingual and cross-cultural translation strategies are indispensable for effective knowledge transfer. These include not only linguistic translation but also the contextual adaptation of abstract and culturally bound concepts to align with local operational and cognitive schemas (Korbi & Chouki 2017, 1274). Dialogical exchanges-both formal and informal-are vital in this regard, as

they foster mutual understanding, clarify ambiguities, and reduce the likelihood of misinterpretation (Korbi & Chouki 2017, 1286).

An additional institutional mechanism for enhancing knowledge transfer is the development of transactive memory systems, which rely on accurate directories of team members' knowledge and expertise. These systems enable teams to identify and access the appropriate knowledge holders efficiently, thereby reducing duplication and enhancing the precision of knowledge utilization (Zahedi et al. 2016, 1013).

Finally, the institutionalization phase necessitates systematic monitoring and evaluation of knowledge transfer activities to ensure alignment with the firm's strategic objectives. This process includes assessing the effectiveness of knowledge-sharing methods, evaluating their impact on operational performance, and determining how newly acquired insights align with long-term organizational goals (Hänle et al. 2023, 1536). To sustain the relevance and utility of knowledge transfer systems, MNEs must remain agile and responsive to evolving geopolitical conditions and market dynamics, revising their knowledge transfer strategies accordingly (Charpin et al. 2024, 12; Tlemsani et al. 2023, 307). Through these institutional mechanisms and strategic alignment processes, knowledge transfer is transformed from an isolated activity into a sustainable and adaptive organizational capability, deeply embedded in the operational and cultural fabric of the multinational firm.

4.2.8 Digital Platforms and Technological Infrastructure

In global knowledge transfer, robust digital platforms and technological infrastructure are essential enablers of seamless, real-time collaboration and dynamic information exchange across geographically dispersed branches (Chatterjee et al. 2023, 2-3). These systems enhance both operational efficiency and strategic agility by allowing instantaneous sharing of documents, ideas, and expertise across time zones and locations. A key element of sustained knowledge transfer effectiveness lies in the development of intellectual capital, which encompasses employee skills, accumulated experience, and the digital systems that support them. These components collectively contribute to enhanced organizational performance and innovation capacity (Chatterjee et al. 2023, 7). To this end, collaborative platforms and integrated knowledge management systems play a pivotal role in mitigating temporal and geographical barriers to knowledge transfer. By facilitating asynchronous and synchronous communication, these tools enable real-time knowledge exchange and long-term knowledge storage (Ingršt & Záborský 2021, 963).

Digital platforms function not only as communication tools but also as technological artefacts that shape the nature of interaction and learning in cross-border contexts. They provide transparent and decentralized access to information, supporting peer-to-peer awareness, lateral learning, and asynchronous perspective-taking—particularly valuable when face-to-face interaction is not feasible (Stendahl et al. 2022, 2, 7, 11). Moreover, tailoring these digital platforms to the specific contextual and cultural needs of local subsidiaries improves both usability and integration into everyday work processes (Nguyen et al. 2024, 225).

In addition to general collaborative tools, intermediary bodies such as technology transfer offices serve a specialized role in connecting firms with external research institutions and partners. These entities enhance the flow of external knowledge and support the absorption of innovative insights into the organization's internal systems (Bhatnagar et al. 2023, 2206). The combination of such intermediaries with robust digital tools ensures the efficient internalization of external knowledge sources.

A broad range of digital communication tools—including video conferencing, instant messaging, document sharing systems, and wikis—facilitates timely interaction and knowledge dissemination among geographically distributed teams. These technologies support proactive engagement, allow for immediate feedback loops, and enhance responsiveness, which is particularly important in dynamic project environments (Zahedi et al. 2016, 1013). Additionally, rich communication channels such as company-wide conferences, digital forums, and informal peer exchanges aid in the transfer of tacit and context-specific knowledge that might otherwise be difficult to codify (Gurkov & Saidov 2017, 895).

Digital systems also help overcome the barriers imposed by geographic and temporal distance. Real-time data sharing, structured digital dialogues, and virtual meeting platforms allow for continuous interaction and facilitate the alignment of dispersed team efforts (Ervits 2024, 2578; Meyer et al. 2023, 58). However, the effectiveness of such systems may still be constrained by unequal access to enterprise resource platforms like SAP. Even so, increased technological integration has been shown to enhance transparency and accelerate information flows (Meyer et al. 2023, 58).

Importantly, information and communication technologies (ICTs) not only enable current knowledge flows but also support long-term organizational memory. These systems offer structured methods for knowledge representation and retrieval, reducing redundancy and preserving valuable intellectual assets over time (Geifman-Broder & Zaidman 2021, 310-311). Through the strategic deployment of

digital platforms, organizations can strengthen the robustness and resilience of their knowledge transfer processes while remaining adaptive to changing global conditions.

4.2.9 External Networks, Cultural Adaptation and Multidirectional Knowledge Transfer

Social capital serves as a foundational enabler of knowledge transfer across borders. Elements such as trust, shared goals, frequent interaction, and mutual respect among collaborators help to mitigate fears of opportunism, particularly in contexts involving the exchange of tacit or experiential knowledge (Garcia Martinez et al. 2019, 15). Cultural adaptation further enhances this process. Effective knowledge transfer across culturally diverse environments necessitates sensitivity to differing communication styles, expectations regarding collaboration, and the informal norms that shape work practices across regions (Pratono 2020, 150; Aghmiuni et al. 2020, 3). Such adaptation not only eases the transmission of knowledge but also encourages deeper mutual understanding and respect, which are vital to long-term collaboration.

The long-term effectiveness of knowledge transfer activities relies on systematic evaluation, codification of knowledge, and mechanisms for retention and reuse. Organizations must regularly assess the outcomes of their knowledge transfer efforts-learning from both successful outcomes and failures-to inform the development of best practices. These practices are often institutionalized through documentation, training manuals, and databases, ensuring that valuable knowledge remains accessible for future use (Conroy et al. 2023, 4). This process underpins continuous learning, innovation, and competitive advantage in the global context. Effective knowledge transfer in cross-border collaborations extends beyond internal organizational mechanisms and hinges significantly on the strategic engagement with external networks, interpersonal relationships, and cultural adaptation. multinational companies (MNCs) increasingly leverage partnerships with local universities, research institutions, and broader innovation ecosystems to support both competence-exploiting strategies-where home-country knowledge is adapted to suit local markets-and competence-creating strategies, which foster new capabilities through collaborative innovation (Lundan & Cantwell 2020). These collaborations function as dynamic conduits for network learning, allowing firms to access diverse sources of expertise and facilitating the transfer of tacit knowledge embedded in practice and experience (Odei & Stejskal 2020, 862; Garcia Martinez et al. 2019, 15).

Crucially, knowledge transfer is not a simple top-down process; it is multi-directional and iterative. Knowledge flows occur laterally across teams, upward from subsidiaries to the parent firm, and downward from the headquarters. Feedback loops embedded within these flows are essential to refining future knowledge transfer strategies and fostering broader organizational learning (Demeter

& Losonci, 2019, 222). To ensure applicability, knowledge must be adapted to fit local organizational and cultural contexts, which enhances the relevance and value of transferred insights (Barrell & Hsu 2019, 75).

The creation of learning communities-based on trust, shared objectives, and sustained social interaction-supports the evolution of knowledge transfer practices and encourages reciprocal learning across distributed teams (O'Dwyer et al. 2015, 300, 304). These communities help to bridge understanding gaps, particularly when supported by structured communication mechanisms such as knowledge transfer sessions, feedback systems, and periodic updates (Zahedi et al. 2016, 1008). Regular interactions, such as quarterly meetings, further support alignment and trust development (O'Dwyer et al. 2015, 300).

Strategic engagement with external entities-particularly universities and research institutions, is also central to knowledge transfer. These partnerships involve selecting suitable collaborators, formalizing engagement through agreements, conducting joint research projects, and systematically capturing outcomes for internal use (Liefner et al. 2019, 3-11; Osabutey et al. 2024, 2074). Such external knowledge inflows fill organizational knowledge gaps and foster long-term innovation.

Where feasible, temporary physical collocation of cross-border teams enables enriched interpersonal engagement, fostering deeper trust and more effective knowledge transfer. Face-to-face interactions provide richer communication cues, improving the clarity of project goals and the fluidity of tacit knowledge exchange (Zahedi et al. 2016, 1013). These interactions are complemented by feedback mechanisms and coordinated knowledge transfer sessions that foster transparency and alignment of expectations across dispersed teams (Zahedi et al. 2016, 1008).

At the structural level, "home bases" within MNEs play a pivotal role in knowledge transfer by coordinating knowledge flows among subsidiaries, evaluating new insights, and promoting cooperative behavior through their established relationships and accumulated expertise (Oki 2015, 256). These nodes also exert competitive pressure among subsidiaries, aligning knowledge outcomes with corporate goals.

Reverse knowledge transfer (RKT) is another essential dimension of cross-border knowledge transfer, especially in the context of emerging market multinational companies. This process enables knowledge developed in subsidiaries to flow back to the parent company. The effectiveness of RKT depends on the complexity of the knowledge involved, the competence of the subsidiary, and the

strength of interpersonal relationships. Joint projects, frequent communication, and social interactions contribute to reducing resistance and fostering mutual understanding (Nair et al. 2015, 279, 283–284).

Overall, the knowledge transfer process in MNEs is embedded within a complex web of social, cultural, organizational, and external relationships. Its success depends on strategic partner engagement, mutual trust, cultural intelligence, and the continual refinement of systems and practices through feedback and iterative learning. These factors collectively shape a robust, adaptive, and innovation-oriented knowledge transfer ecosystem.

4.3 The Outcomes Resulting from Knowledge Transfer

The table below outlines the key outcomes-both positive and negative, that result from knowledge transfer within multinational companies. These outcomes belong to crucial organizational aspects like as operational stability, innovation, efficiency, and strategic alignment, highlighting knowledge transfer's dual capacity to boost or weaken global collaboration depending on how it is managed.

Table 5. Summary of Outcomes for Knowledge Transfer in Cross-border Collaboration within Multinational Companies

Dimension	Successful Knowledge Transfer	Failed Knowledge Transfer	References
Operational Continuity and Strategic Stability	<ul style="list-style-type: none"> - Preserves institutional memory during closures - Enables smooth process relocation - Supports global adaptation and resilience - Facilitates strategic decision-making and risk mitigation 	<ul style="list-style-type: none"> - Loss of critical knowledge - Operational disruptions - Reduced responsiveness - Low morale and cultural fragmentation 	Reilly et al. 2023, 998; Hänle et al. 2023, 1555; Meyer et al. 2023, 57; Barrell & Hsu 2019, 75; Nair et al. 2015, 277; Audretsch et al. 2023, 9; Tang & Popp 2016, 202; Garcia Martinez et al. 2019, 15; Yu et al. 2022, 2775
Innovation and Competitive Advantage	<ul style="list-style-type: none"> - Integrates diverse expertise for innovation - Supports patent productivity and creative thinking - Promotes knowledge recombination across subsidiaries - Sustains differentiation in global markets 	<ul style="list-style-type: none"> - Knowledge silos and missed synergies - Stagnation and outdated practices - Weakened competitiveness and market relevance 	Fiedler et al. 2021, 1052; Hurtado-Torres et al. 2018, 4-5; Ingršt & Zámorský 2021, 961; Odei & Stejskal 2020, 860-861; Caputo et al. 2021; Audretsch et al. 2023, 9; Chatterjee et al. 2021, 303-305; Tlemsani et al. 2023, 307; Yu et al. 2022, 2779
Efficiency and Cost Optimization	<ul style="list-style-type: none"> - Spreads best practices and reduces redundancies - Improves workflow efficiency and asset utilization - Enhances project performance (e.g., renewable energy) 	<ul style="list-style-type: none"> - Duplicated efforts and resource waste - Delayed cost savings - Inconsistent processes and prolonged learning curves 	Søderberg & Romani 2017, 269; Hurtado-Torres et al. 2018, 4-5; Odei & Stejskal 2020, 838; Audretsch et al. 2023, 9; Tlemsani et al. 2023, 307; Tang & Popp 2016, 215-216; Conroy et al. 2023, 1, 9; Yu et al., 2022, 2776

	- Supports economies of scale		
Organizational Adaptability and Market Responsiveness	<ul style="list-style-type: none"> - Enables rapid response to market shifts - Facilitates innovation rollouts and localization - Enhances long-term learning and strategic agility - Promotes global-local balance 	<ul style="list-style-type: none"> - Strategic misalignment - Slow innovation and missed market opportunities - Weak local responsiveness and global inconsistency 	<p>Audretsch et al. 2023, 9; Nguyen et al. 2024, 225; Zhu et al. 2019, 28-29; Hänle et al. 2023, 1555; Barrell & Hsu 2019, 75; Nair et al. 2015, 277; Bengoa & Kaufmann 2016, 240; Søderberg & Romani 2017, 252; Meyer et al. 2023, 61; Tlemsani et al. 2023, 294</p>
Talent Development and Employee Engagement	<ul style="list-style-type: none"> - Builds individual and organizational capabilities - Encourages collaboration and continuous learning - Boosts morale, retention, and productivity - Supports internal cohesion 	<ul style="list-style-type: none"> - Disengagement and turnover - Limited skill growth - Reduced collaboration and organizational trust 	<p>Zhu et al. 2019, 28–29; Søderberg & Romani 2017, 252; Tlemsani et al. 2023, 292; Chatterjee et al. 2021, 2; Ervits 2024, 2588; Breunig, 2016, 259; Chatterjee et al. 2021, 303-305; Meyer et al. 2023, 58; Bengoa & Kaufmann 2016, 246</p>
Organizational Cohesion and Cross-Border Collaboration	<ul style="list-style-type: none"> - Strengthens trust and alignment across units - Fosters cultural synergy and relational capital - Enables partnerships with external stakeholders - Enhances internal and external innovation 	<ul style="list-style-type: none"> - Silos and fragmented communication - Cultural friction and distrust - Weak R&D outcomes and broken alliances 	<p>Hurtado-Torres et al. 2018, 4-5; Zhu et al. 2019, 28-29; Hänle et al. 2023, 1547; Bengoa & Kaufmann 2016, 241; Barrell & Hsu 2019, 75; Nair et al. 2015, 283; Chatterjee et al. 2021, 2; Tlemsani et al. 2023, 307; Nguyen et al. 2024, 225; Odei & Stejskal 2020, 838-839</p>
Strategic Impact and Capability Development	<ul style="list-style-type: none"> - Improves strategic planning and execution - Supports opportunity recognition and risk management - Enhances global competitiveness via Reverse KT - Promotes sustainability and customer value 	<ul style="list-style-type: none"> - Poor decisions and misaligned strategies - Missed innovation and capability gaps - Ethical risks and reputational damage 	<p>Breunig 2016, 257; Spekman 2016, 50-51; Nair et al. 2018, 439-440; Nair et al. 2015, 277; Hänle et al. 2023, 1555; Meyer et al. 2023, 57; Bengoa & Kaufmann 2016, 247</p>

The analysis reveals essential interdependencies that enhance knowledge transfer results across organisational dimensions. An essential efficiency-innovation link arises, in which operational efficiency benefits from successful knowledge transfer, provide resource capacity and organisational stability, hence enabling innovation initiatives. (Søderberg & Romani 2017, 269; Audretsch et al. 2023, 9; Caputo et al. 2021). A reinforcing talent-cohesion cycle shows how employee engagement and organisational cohesion boost each other through knowledge transfer mechanisms (Zhu et al. 2019, 28-29; Chatterjee et al. 2021, 303-305; Tlemsani et al. 2023, 292). An adaptive responsiveness-strategic competence highlights how market responsiveness and strategic development generate increasing advantages (Nguyen et al. 2024, 225; Hänle et al. 2023, 1555; Bengoa & Kaufmann 2016, 240). However, the destabilising failure amplification pattern depicts how a failure to transfer

knowledge can have negative impact in several different areas (Reilly et al. 2023, 998; Breunig 2016, 259; Meyer et al. 2023, 61). Each of the intended outcomes is discussed in greater detail in the following subsections, with a focus on the enabling conditions for success and risk factors associated with failed or misaligned knowledge transfer procedures across border settings.

4.3.1 Operational Continuity and Strategic Stability

Effective Knowledge transfer during subsidiary closures is a strategic necessity for multinational companies (MNCs) seeking to maintain operational continuity and retain competitive advantage. When key processes and domain expertise are successfully relocated to other organizational units, firms are better equipped to avoid operational disruptions and adapt to dynamic global environments (Reilly et al. 2023, 998). This reallocation of knowledge resources safeguards institutional memory, enabling smoother transitions and minimizing the risk of business discontinuity.

Conversely, inadequate knowledge transfer in such scenarios can lead to the loss of critical operational know-how, with far-reaching consequences for organizational effectiveness. The inability to preserve and recontextualize knowledge impairs informed decision-making, weakens strategic responsiveness, and reduces functional efficiency. Moreover, the psychological effects of poor knowledge transfer such as decreased employee morale and diminished trust-can erode the willingness of personnel to engage in future knowledge-sharing activities. This cultural deterioration can further hinder collaboration, disrupt workflows, and damage organizational cohesion (Reilly et al. 2023, 998).

Beyond the context of closures, knowledge transfer contributes significantly to operational streamlining across multinational structures. It facilitates the dissemination of best practices, the reduction of redundancies, and the optimization of workflows between units (Hänle et al. 2023, 1555; Meyer et al. 2023, 57). This operational alignment not only promotes cost-efficiency but also improves service and product quality through shared learning and process integration (Barrell & Hsu 2019, 75; Nair et al. 2015, 277). By institutionalizing successful practices across borders, MNCs can improve consistency and performance at a global scale.

knowledge transfer also serves as a mechanism for risk mitigation by allowing firms to internalize and apply lessons from prior experiences. Access to shared knowledge enhances organizational foresight, reducing the risk of repeating past mistakes and enabling more effective strategic planning. This is particularly vital during market entry or innovation initiatives, where historical insights inform risk assessment and decision-making (Audretsch et al. 2023, 9; Tang & Popp 2016, 202).

However, when knowledge transfer is poorly executed, it can lead to duplicated efforts, fragmented operations, and inefficient use of resources. Such outcomes elevate operational costs and compromise productivity, limiting organizational agility (Hänle et al. 2023, 1555; Meyer et al. 2023, 58; Bengoa & Kaufmann 2016, 247). The absence of structured learning processes diminishes return on investment and increases exposure to project failure risks due to unshared or inaccessible knowledge (Tang & Popp 2016, 202; Garcia Martinez et al. 2019, 15). These inefficiencies may also result in inconsistent performance across subsidiaries, potentially damaging the MNC's global reputation and reducing stakeholder confidence (Yu et al. 2022, 2775).

4.3.2 Innovation and Competitive Advantage

Effective knowledge transfer underpins innovation in multinational corporations by integrating diverse perspectives across geographies, fostering the development of improved products, services, and processes, and securing sustained competitive advantage in global and local markets (Fiedler et al. 2021, 1052; Hurtado-Torres et al. 2018, 4-5). Through such exchanges, MNCs not only leverage their internal capabilities but also stimulate radical innovation at the subsidiary level, ultimately enhancing the innovative capacity of the entire organization (Ingršt & Zámorský 2021, 961; Odei & Stejskal 2020, 860-861).

A robust knowledge transfer framework enables systematic cross-border and cross-functional knowledge sharing, fostering internal innovation ecosystems and allowing multinational corporations to develop differentiated offerings that are difficult for competitors to replicate (Audretsch et al. 2023, 9; Caputo et al. 2021). Moreover, knowledge transfer supports increased innovation outputs and patent productivity by enabling firms to utilize both internal and external knowledge sources (Caputo et al. 2021). The ability to synthesize diverse knowledge pools enhances problem-solving capabilities and fosters creative thinking, especially when facilitated through cross-border collaboration (Chatterjee et al. 2021, 303-305; Tlemsani et al. 2023, 307; Yu et al. 2022, 2779).

In this context, knowledge transfer acts as a mechanism for combining complementary knowledge bases from different subsidiaries, enabling the emergence of innovative ideas and the transformation of these into tangible outcomes (Hänle et al. 2023, 1555). The transfer of experiential and contextual knowledge from varied international environments equips firms with the capacity to innovate in product design, service delivery, and business model formulation (Barrell & Hsu 2019, 75; Nair et al. 2015, 284). This dynamic capability is vital for sustaining differentiation in increasingly competitive and rapidly evolving global markets (Bengoa & Kaufmann 2016, 241).

In contrast, the failure to implement effective knowledge transfer mechanisms can severely hinder a firm's innovative potential. When knowledge remains isolated within individual subsidiaries, opportunities for synergy, learning, and creative development are lost, leading to stagnation and a lack of responsiveness to emerging trends or technological shifts (Søderberg & Romani 2017, 269; Prato 2020, 157). Such fragmentation results in missed innovation opportunities, thereby weakening a firm's growth trajectory and overall competitiveness (Garcia Martinez et al. 2019, 15; Yu et al. 2022, 2773; Caputo et al. 2021). Furthermore, firms that fail to adapt knowledge across units may struggle with outdated practices and inefficiencies, ultimately eroding their market relevance and technological edge (Ervits 2024, 2588; Tlemsani et al. 2023, 294).

4.3.3 Efficiency and Cost Optimization

An effectively implemented knowledge transfer process plays a vital role in enhancing operational efficiency across multinational companies by facilitating the dissemination of best practices, minimizing redundancies, and optimizing resource allocation, thereby significantly improving workflow efficiency and contributing to overall profitability (Søderberg & Romani, 2017, 269; Hurtado-Torres et al. 2018, 4-5). This streamlining effect enables organizations to harmonize operations across diverse subsidiaries, aligning processes to enhance productivity. Furthermore, knowledge transfer allows firms to leverage global expertise and insights, contributing to lower operational costs and more efficient utilization of organizational assets (Odei & Stejskal 2020, 838).

Knowledge transfer facilitates the widespread adoption of streamlined processes and best practices across multinational networks, enabling firms to enhance operational coherence, avoid inefficiencies, and capitalize on economies of scale through shared experience and lessons learned (Audretsch et al. 2023, 9; Tlemsani et al. 2023, 307). For example, in the renewable energy sector, knowledge sharing between local developers and foreign partners has led to joint learning that resulted in reduced unit production costs and enhanced capacity factors in wind energy projects (Tang & Popp 2016, 215-216). These outcomes illustrate how knowledge transfer can directly impact project execution, foster technological adoption, and enhance productivity (Tang & Popp 2016, 204).

Conversely, the absence of effective knowledge transfer mechanisms gives rise to substantial inefficiencies. When knowledge remains siloed within business units, organizations often engage in duplicated efforts and rely on outdated or inconsistent processes, leading to resource wastage and diminished profitability (Conroy et al. 2023, 1, 9; Odei & Stejskal 2020, 859). These inefficiencies become especially pronounced in complex, knowledge-intensive environments where coordination across departments and borders is crucial. Ineffective knowledge transfer can hinder the diffusion of

key insights, thus limiting organizational learning and delaying the achievement of anticipated cost reductions (Tang & Popp 2016, 202; Yu et al. 2022, 2776).

Moreover, the absence of systematic knowledge transfer processes fosters siloed operations and strategic misalignment across subsidiaries, leading to prolonged learning curves for new initiatives and hindering both performance outcomes and the scalability of successful solutions (Bhatnagar et al. 2023, 2236; Garcia Martinez et al. 2019, 15). In such contexts, operational inefficiencies not only affect cost structures but also compromise a firm's ability to adapt, compete, and thrive in dynamic global markets.

4.3.4 Organizational Adaptability and Market Responsiveness

Effective knowledge transfer significantly strengthens organizational adaptability within multinational companies by enhancing their capacity to respond rapidly to evolving market dynamics. Through the sharing and integration of knowledge across borders, MNCs gain access to diverse market insights and experiences, enabling more informed decision-making and improved strategic agility (Audretsch et al. 2023, 9; Nguyen et al. 2024, 225). This responsiveness is particularly valuable in identifying emerging customer needs and adapting to industry trends, allowing firms to sustain competitiveness and market relevance (Hurtado-Torres et al. 2018, 4-5; Søderberg & Romani 2017, 252; Zhu et al. 2019, 28-29).

Moreover, the ability to disseminate and absorb knowledge across subsidiaries allows firms to effectively localize global technologies and accelerate innovation implementation, thereby fostering strategic adaptability, facilitating market entry, and strengthening their positions in both global and local markets (Hänle et al. 2023, 1555; Barrell & Hsu 2019, 75; Nair et al. 2015, 277; Bengoa & Kaufmann 2016, 240). Successful knowledge transfer enables faster rollout of new products or services, thereby providing a first-mover advantage and reinforcing competitive positioning.

In addition, knowledge transfer supports long-term organizational learning by systematically accumulating and disseminating strategic knowledge across the firm, thereby enhancing resilience and the ability to navigate diverse and disruptive market environments (Nair et al. 2015, 294; Hänle et al. 2023, 1555). Access to cross-border insights not only bolsters local responsiveness but also reinforces global consistency in strategic execution, thereby improving both operational and strategic outcomes (Yu et al. 2022, 2775; Tlemsani et al. 2023, 294).

Conversely, ineffective knowledge transfer undermines organizational agility and leads to delayed responses to market shifts. When critical knowledge is not adequately transferred or absorbed, MNCs

may experience strategic misalignment, slower innovation cycles, and diminished competitiveness (Meyer et al. 2023, 61; Barrell & Hsu 2019, 75; Nair et al. 2015, 280). Such failures result in missed market opportunities and slower adaptation to environmental changes, ultimately impairing the firm's ability to sustain growth (Nair et al. 2015, 277; Barrell & Hsu 2019, 75).

Additionally, fragmented knowledge transfer practices contribute to inconsistencies across subsidiaries, which in turn disrupt cohesive strategic direction and operational execution (Garcia Martinez et al. 2019, 15). This fragmentation weakens the ability of the MNE to harness global innovations or capitalize on localized market knowledge effectively (Chatterjee et al. 2021, 11; Yu et al. 2022, 2774). As a result, poor knowledge transfer not only hampers responsiveness but also erodes organizational coherence and long-term competitiveness.

4.3.5 Talent Development and Employee Engagement

Effective knowledge transfer enhances human capital by fostering employee skill development, promoting professional growth, and strengthening both individual expertise and organizational capabilities (Zhu et al. 2019, 28-29). Access to reliable and varied information also enhances decision-making quality and fosters a culture of collaboration and mutual trust among transnational teams (Søderberg & Romani 2017, 252).

Successful knowledge transfer further promotes a culture of continuous learning, enabling the ongoing accumulation, application, and dissemination of knowledge across geographic boundaries (Tlemsani et al. 2023, 292). This ongoing learning process strengthens organizational resilience and generates unique capabilities that provide a long-term strategic advantage (Tang & Popp 2016, 202; Chatterjee et al. 2021, 2; Ervits 2024, 2588). When knowledge flows effectively throughout the organization, employees are more likely to feel empowered and appreciated, leading to increased engagement and motivation (Chatterjee et al. 2021, 303-305).

Cross-border collaboration enabled by effective knowledge transfer not only supports higher levels of productivity but also facilitates professional development and internal cohesion (Tlemsani et al. 2023, 292). These dynamics help to build a supportive organizational climate where continuous knowledge enrichment contributes to sustained employee satisfaction (Hänle et al. 2023, 1555; Meyer et al. 2023, 58; Breunig, 2016, 259). The resulting gains in morale and professional development are critical for reducing turnover and ensuring the retention of valuable talent (Bengoa & Kaufmann 2016, 246).

In contrast, the absence or failure of knowledge transfer mechanisms can have detrimental effects on employee engagement and organizational cohesion. When employees lack access to knowledge-sharing channels or opportunities for development, they may become disengaged, frustrated, and disillusioned (Søderberg & Romani 2017, 244, 269). Such disconnection often results in increased attrition and higher recruitment and training costs. Employees who feel undervalued or unable to contribute meaningfully to organizational knowledge are more likely to report job dissatisfaction and exit the organization (Breunig, 2016, 259; Barrell & Hsu 2019, 75).

Moreover, failure to recognize and reward employee efforts in knowledge transfer activities can exacerbate dissatisfaction, further impeding knowledge-sharing behaviors and weakening organizational morale (Chatterjee et al. 2021, 11; Tlemsani et al. 2023, 292). Ultimately, ineffective knowledge transfer not only restricts individual development but also undermines the long-term human capital sustainability of the firm.

4.3.6 Organizational Cohesion and Cross-Border Collaboration

Knowledge transfer promotes cohesion within multinational corporations by fostering trust, cooperation, and alignment among geographically dispersed teams, enabling collaboration across units and subsidiaries while cultivating a dynamic, learning-oriented organizational culture (Hurtado-Torres et al. 2018, 4-5; Zhu et al. 2019, 28-29). This knowledge-sharing environment enhances communication, reduces internal barriers, and strengthens relationships between headquarters and subsidiaries (Hänle et al. 2023, 1547; Bengoa & Kaufmann 2016, 241).

Effective knowledge transfer thus contributes to improved teamwork across cultural and geographic boundaries, enabling firms to develop operational synergies and long-term partnerships that support global integration (Barrell & Hsu 2019, 75; Nair et al. 2015, 283). Trust-based collaboration, facilitated by consistent knowledge transfer practices, reinforces the organization's ability to function as a unified and agile global entity (Chatterjee et al. 2021, 2; Tlemsani et al. 2023, 307). These dynamics are crucial in building relational capital and sustaining a competitive advantage through joint initiatives and cultural synergy (Nguyen et al. 2024, 225; Chatterjee et al. 2021, 303-305).

Moreover, knowledge transfer extends beyond internal cohesion by fostering beneficial relationships with external stakeholders, such as suppliers, research institutions, and universities. By engaging in collaborative knowledge transfer with external partners, firms gain access to cutting-edge technologies and specialized expertise, thereby enhancing innovative capacity and responsiveness to foreign market demands (Odei & Stejskal 2020, 838-839).

In contrast, the failure to transfer knowledge effectively often leads to fragmentation and the entrenchment of silos, which impede coordination and hinder collective progress (Conroy et al. 2023, 3; Prato 2020, 161). Cultural frictions may be exacerbated, weakening interpersonal trust and reducing the willingness to collaborate both within and across organizational boundaries (Hänle et al. 2023, 1547; Bengoa & Kaufmann 2016, 247). Poor knowledge transfer also undermines R&D efforts when external knowledge is not adequately absorbed or utilized, leading to stagnation in innovation and diminished organizational performance (Odei & Stejskal 2020, 839, 859).

Furthermore, weak knowledge transfer can damage relationships with both internal and external collaborators, eroding trust and reducing the likelihood of future partnerships or joint ventures (Tang & Popp 2016, 202-204; Tlemsani et al. 2023, 307; Yu et al. 2022, 2775). This erosion of trust limits the firm's ability to capitalize on synergies and shared value creation, ultimately weakening its cohesion and competitive standing.

4.3.7 Strategic Impact and Capability Development

Effective knowledge transfer significantly enhances the quality of strategic decision-making by providing access to diverse insights and reliable analytical data, which collectively support more informed and accurate decisions (Breunig 2016, 257). It also fosters integrated planning across organizational units, facilitating coherent strategy formulation and execution (Spekman 2016, 50–51). Through the sharing of critical information and expertise, knowledge transfer enables firms to align strategic objectives and respond more effectively to competitive and environmental pressures.

In contrast, the absence of adequate knowledge access often results in suboptimal strategic choices, as firms are unable to leverage crucial insights for opportunity recognition and risk mitigation (Hänle et al. 2023, 1536; Nair et al. 2015, 280). The lack of integration across units can hinder organizational agility, limiting responsiveness to dynamic market conditions and weakening long-term performance.

Reverse knowledge transfer (RKT), particularly from foreign subsidiaries, plays a strategic role in strengthening emerging market multinational enterprises (EMNEs). Successful RKT contributes to capability development by closing gaps in technology and expertise, fostering learning, and enhancing global competitiveness (Nair et al. 2018, 439-440). However, ineffective Reverse knowledge transfer (RKT) especially when involving tacit or culturally embedded knowledge-often fails to deliver expected benefits due to institutional and cultural barriers, thereby impeding firm performance and skill acquisition (Nair et al. 2018, 439-440). Beyond strategic formulation, knowledge transfer supports broader corporate objectives-such as environmental sustainability and

corporate responsibility by diffusing eco-friendly practices and clean technologies across MNC networks, thereby enhancing sustainability efforts and stakeholder engagement (Hänle et al. 2023, 1555). Furthermore, knowledge transfer contributes to the development of higher-quality products and services, which in turn boosts customer satisfaction and strengthens brand reputation (Meyer et al. 2023, 57).

Conversely, poor knowledge transfer practices can lead to low-quality outcomes, undermining customer confidence and resulting in reputational harm. In extreme cases, knowledge transfer failure may contribute to regulatory non-compliance, corruption, or ethical misconduct, all of which pose serious risks to corporate integrity and market performance (Hänle et al. 2023, 1555; Meyer et al. 2023, 57; Bengoa & Kaufmann 2016, 247).

Ultimately, effective knowledge transfer is integral to sustained innovation, long-term growth, and organizational success across global markets (Spekman 2016, 50-51; Nair et al. 2015, 277). It facilitates value creation by aligning internal knowledge flows with strategic objectives and enabling responsiveness to both market and technological shifts. In contrast, persistent knowledge transfer failure not only hinders performance and innovation but also erodes the confidence of internal and external stakeholders, leading to strategic inertia, reduced profitability, and competitive decline (Meyer et al. 2023, 61; Barrell & Hsu 2019, 75).

The study reveals interrelated issues like institutional, cultural, and communication barriers influence knowledge transfer within multinational companies and sometimes impede efficient sharing. Their success is mostly dependent on softer factors like trust, leadership, and cultural adaptation, even though technology and codification can be helpful. This study highlights the necessity of balanced tactics that combine formal frameworks with informal factors like trust-based approaches. Companies that develop interpersonal assets through intercultural competency demonstrate adaptability. Achieving successful knowledge transfer results requires navigating interrelated problems through complete processes, highlighting the importance of social, cultural, and strategic aspects in addition to structural or technological solutions.

Now, Chapter 5 extends on these findings by examining them considering current theories, providing a more thorough understanding of the connections between these themes and their implications for further study and application.

5 Discussion

This chapter critically discusses the key findings derived from a systematic analysis of 72 peer-reviewed articles that examine knowledge transfer in cross-border collaboration within multinational companies (MNCs). The discussion is organized thematically around the three central research questions: (1) the principal challenges that hinder knowledge transfer across borders, (2) the mechanisms and processes that facilitate knowledge transfer, and (3) the outcomes resulting from successful or failed knowledge transfer. The thematic analysis not only provides empirical insights but also connects the patterns found in the literature with broader theoretical perspectives on international business, organizational learning, and innovation management.

5.1 Challenges to Knowledge Transfer in Cross-border Collaboration

The analysis confirms that knowledge transfer in cross-border MNC environments is encumbered by a wide array of structural, cultural, technological, and psychological obstacles. A consistent theme throughout the literature is that cultural and linguistic diversity remains a primary barrier (Fiedler et al. 2021, 1037-1038; Mabey & Zhao 2017, 4). Misaligned cultural norms, high power-distance hierarchies, and differing communication styles diminish mutual understanding and obstruct the transfer of tacit knowledge-particularly where trust and informal engagement are required (Tenzer & Pudelko 2016, 449; Yu et al. 2022, 2775). This finding aligns with Hofstede's cultural dimensions theory, although recent research suggests that cultural distance can also function as a stimulator for development when dealt with effectively (Fong Boh et al. 2013).

Additionally, institutional and operational differences-including regulatory frameworks, governance models, and informal norms-create significant friction between headquarters and subsidiaries (Raziq et al. 2021, 2; Lundan & Cantwell 2020). These institutional gaps impede both the customization and absorption of knowledge. From a neo-institutional theory perspective, these findings emphasise the conflict between achieving legitimacy in local contexts and maintaining global coordination (Chizema & Buck 2006).

Geographical and temporal dispersion adds another layer of complexity, disrupting synchronous collaboration and informal learning opportunities (Faems et al. 2020, 419; Corsi et al. 2021, 2-4). The digital divide in ICT access among subsidiaries, particularly in emerging markets, exacerbates the challenge, highlighting infrastructure as a critical enabler or constraint (Aghmiuni et al. 2020). This generates a technology stratification that reflects and deepens the existing power imbalances between headquarters and subsidiaries.

Perhaps most critically, the absence of interpersonal trust-whether stemming from past experiences, organizational hierarchy, or opportunistic behavior-emerges as a recurring inhibitor of knowledge transfer (Faems et al. 2020, 419; Vuorenmaa 2024, 1, 5). Without trust, employees are reluctant to share or adopt knowledge, particularly when it is not codified. This finding aligns with social capital theory; yet, new research uncovers a paradox where high trust might contribute to knowledge stagnation and less growth.

Other intersecting barriers include organizational complexity (Mabey & Zhao 2017, 9), low absorptive capacity in subsidiaries (Melnychuk et al. 2021, 2-3), and individual-level motivational issues such as fear of irrelevance or lack of recognition (Xiong et al. 2021, 1). These reinforce the notion that knowledge transfer is not simply a matter of logistics or technology, but a relational and context-dependent process deeply embedded in organizational dynamics.

5.2 Processes Facilitating Knowledge Transfer

Despite these challenges, the review highlights a range of effective processes and mechanisms that MNCs can employ to enhance knowledge transfer. At the strategic level, codification practices-such as the creation of knowledge repositories, manuals, and training programs-provide structured methods for capturing and disseminating explicit knowledge (Zahedi et al. 2016, 1013; Tlemsani et al. 2023, 296). Codification also assists in bridging cultural and temporal distances by ensuring consistency.

In parallel, social mechanisms-including temporary co-location, cross-cultural training, and communities of practice (CoPs)-are instrumental for transferring tacit knowledge, fostering trust, and encouraging peer learning (Gurkov & Saidov 2017, 897; O'Dwyer et al. 2015, 301). These practices emphasise the relational dimension of knowledge transfer while also aligning with contextual learning theories. However, a theoretical tension occurs here: while cultural differences are commonly viewed as barriers, some research suggests that when correctly managed, they can encourage creativity and learning (Fong Boh et al. 2013). This inconsistency emphasises the need for a more nuanced understanding of cultural distance as a challenge and an opportunity.

To address institutional and operational disparities, headquarters-subsidary integration strategies including as joint ventures, rotating assignments, and inter-unit training programs have been found to promote mutual understanding and strengthen organisational cohesiveness (Hänle et al. 2023, 1554; Nair et al. 2015). These approaches build institutional connections promoting mutual understanding and organisational coherence. According to neo-institutional theory, these activities are attempts to construct hybrid institutional spaces that strike a balance between cross-border collaboration and

local legitimacy. Similarly, the development of transactive memory systems-where members recognize who knows what-enhances the precision and speed of knowledge flows (Zahedi et al. 2016).

Digital platforms, such as enterprise social networks, collaborative wikis, and video conferencing tools, play a pivotal role in facilitating real-time knowledge exchange and asynchronous collaboration, particularly where face-to-face engagement is limited (Chatterjee et al. 2023, 2-7; Breunig 2016). However, the effectiveness of digital tools depends on user adoption, technological compatibility, and the presence of strong knowledge management systems. These technologies directly address the synchronous collaboration issues presented by physical distance and time zone differences.

Finally, feedback mechanisms-such as project reviews and continuous learning loops-are essential for building trust in knowledge transfer practices and adapting them to new contexts (Spekman 2016, 57; Nair et al. 2015, 280). However, studies reveal a basic contradiction about trust: while trust is commonly recognised as necessary for knowledge transfer, other research implies that excessive trust can lead to knowledge stagnation and decreased innovation. This contradiction indicates an ideal degree of trust that balances transparency with effective challenge.

5.3 Outcomes of Knowledge Transfer

The outcomes of knowledge transfer, as reflected in the literature, are manifold and highly consequential. Successful knowledge transfer strengthens innovation capabilities, improves operational efficiency, supports market responsiveness, and enhances strategic agility (Caputo et al. 2021; Barrell & Hsu 2019, 75). MNCs that facilitate effective knowledge transfer benefit from increased knowledge reuse, reduced redundancies, and better alignment of global and local strategies.

Moreover, knowledge transfer supports employee development and engagement, as access to diverse knowledge resources fosters professional growth, builds trust, and improves retention (Zhu et al. 2019; Chatterjee et al. 2021). Organizationally, effective knowledge transfer promotes cohesion between headquarters and subsidiaries, facilitating shared goals and a unified corporate culture (Yu et al. 2022, 2773; Tlemsani et al. 2023). However, this coherence must be interpreted in light of the legitimacy-coordination paradox, which states that too much cohesion may hinder local responsiveness while inadequate coherence can split organisational knowledge.

Conversely, failed knowledge transfer leads to siloed operations, lost opportunities, and diminished competitiveness. When knowledge is poorly managed or remains trapped in localized pockets, MNCs

experience stagnation, misaligned strategies, and reputational risks (Bengoa & Kaufmann 2016, 240; Garcia Martinez et al. 2019, 15). Knowledge hoarding, resistance to change, and inefficient technology adoption further compromise organizational learning and resilience (Meyer et al. 2023, 58).

Particularly damaging are reverse knowledge transfer (RKT) failures, where insights from subsidiaries fail to reach or be valued by headquarters. These failures often stem from cognitive distance, institutional biases, or structural asymmetries between parent and subsidiary (Nair et al. 2018, 12-13).

This thematic analysis demonstrates that knowledge transfer in cross-border collaboration within MNCs is an intricate and multifactorial process. Success depends not only on formal structures and digital infrastructure but also on relational, cultural, and psychological factors. The findings reinforce the view that knowledge transfer is both a technical and social practice that requires organizational alignment, trust-building, and continuous feedback to achieve sustainable outcomes.

The figure below provides a synthesised framework summarising major challenges, facilitating processes, and outcomes related to knowledge transfer in cross-border collaboration within multinational corporations (MNCs), as recognised from the selected literature.

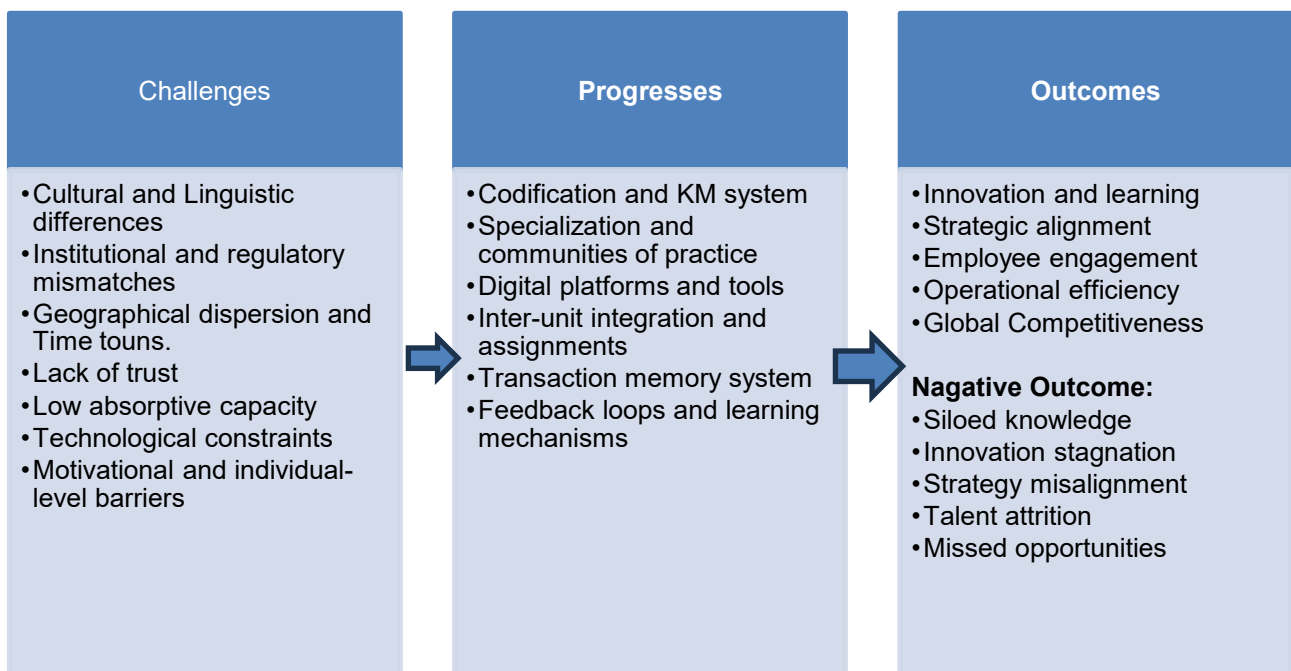


Figure 3. Thematic Framework for Knowledge Transfer in Cross-border Collaboration.

Above figure synthesizes the major themes regarding knowledge transfer in cross-border collaborations inside MNCs. The challenges column focuses on the various barriers for cultural,

institutional, geographical, and individual, that impede successful knowledge transfer. In response, the middle process column discusses major progress mechanisms, which range from formal systems like codification and digital platforms to more social mechanisms like communities of practice and feedback loops. These processes not only minimize knowledge gaps, but they also foster mutual understanding and trust. When successfully implemented, they result in positive outcomes such as increased innovation, strategic alignment, operational efficiency, and global competitiveness. However, the framework emphasizes the risks of unsuccessful transfer of knowledge, which can result in isolated knowledge, stagnation, and strategic misalignment. Thus, the picture provides a full perspective of the dynamic knowledge transfer setting, laying the framework for further research. After discussions of these interconnected themes next chapter concludes the overall study by providing theoretical and managerial contributions, future research directions, and limitations.

6 Conclusion

This study offers a comprehensive exploration of knowledge transfer within multinational corporations (MNCs), emphasizing the interconnection between the challenges, processes, and outcomes involved. Drawing on thematic analysis, the findings provide a holistic understanding of knowledge transfer dynamics, revealing not only how knowledge is exchanged but also how organizational and contextual variables mediate that exchange. This final chapter reflects on the theoretical contributions, practical implications for managers, limitations of the study, and avenues for future research.

6.1 Theoretical Contributions

This study advances knowledge transfer theory in multinational corporations by identifying key challenges, processes, and outcomes through a synthesis of 72 scholarly articles. To start with, it underscores cultural distance theory by revealing that cultural and language differences are not static challenges, but rather changing variables that determine how effectively knowledge is transmitted. While previous ideas viewed these differences as challenges, the findings from previous research reveal that they influence how individuals understand and interpret knowledge depending on the situation this emphasises the significance of utilising adaptable, culturally sensitive tactics for knowledge transfer rather than an overall strategy (Fiedler et al. 2021, 1037-1038; Mabey & Zhao 2017, 4; Vuorenmaa 2024, 16).

In addition, this study develops relational theory by demonstrating that trust is a multidimensional factor that helps in the removal of structural challenges to knowledge transfer, and that a lack of trust, often caused by past conflicts or rigid hierarchies which can impede sharing and learning, transforming trust into a dynamic process rather than a simple yes-or-no condition (Faems et al. 2020, 419; Corsi et al. 2021, 2; Vuorenmaa 2024, 5). Moreover, the study contributes to absorptive capacity theory by showing that effective knowledge transfer requires not just access to knowledge but its contextual assimilation and integration, especially when the knowledge is tacit (Faems et al. 2020, 417; Conroy et al. 2023, 4).

Another significant contribution highlights the value of knowledge codification theory, where transforming tacit knowledge into explicit formats such as manuals or reports enhances transferability across cultural and regional boundaries (Chatterjee et al. 2021, 304; Liefner et al. 2019, 9). Finally, the study illustrates advanced technology or knowledge transfer theory on how digital platforms and ICTs improve knowledge transfer by enabling real-time knowledge flows and preserving

organizational memory, thereby reinforcing the importance of technological infrastructure in knowledge transfer frameworks (Meyer et al. 2023, 58; Geifman-Broder & Zaidman 2021, 310-311).

6.2 Managerial Contributions

The findings of this study provide several actionable implications for managers operating in multinational corporations (MNCs) aiming to improve cross-border knowledge transfer outcomes. Primary and foremost, trust-building must be prioritized as a foundational element of knowledge transfer strategies. Managers should actively cultivate interpersonal and inter-organizational trust through transparent communication, conflict resolution, and equitable collaboration structures. Addressing past grievances and avoiding overly rigid hierarchies can prevent defensive behaviors and knowledge hoarding, ultimately enhancing the openness of knowledge flows (Fiedler et al. 2021, 1037-1038; Corsi et al. 2021, 2-4; Faems et al. 2020, 419; Vuorenmaa 2024, 5). In addition, managers must implement structured knowledge transfer mechanisms, including codification practices and formal feedback systems, to reduce the inefficiencies and redundancies often caused by poorly executed knowledge exchange. Failure to do so can lead to duplicated efforts, fragmented operations, and elevated operational costs, which compromise both agility and return on investment (Hänle et al. 2023, 1555; Meyer et al. 2023, 58; Tang & Popp 2016, 202; Garcia Martinez et al. 2019, 15).

Moreover, promoting a culture of continuous learning and innovation is critical. Encouraging subsidiaries to adapt and integrate transferred knowledge allows MNCs to benefit from local insights while enhancing global performance consistency. Such integration supports the development of new products, processes, and capabilities that sustain competitive advantage (Fiedler et al. 2021, 1052; Hurtado-Torres et al. 2018, 4-5; Ingršt & Záborský 2021, 961). Finally, managers should leverage digital tools and knowledge systems to institutionalize knowledge flows and preserve organizational memory. Technological infrastructure such as enterprise platforms and shared databases can facilitate real-time collaboration while mitigating knowledge silos, thereby improving responsiveness to dynamic market demands (Meyer et al. 2023, 58).

6.3 Future Research Direction

Building on the findings of this study, several promising avenues for future research can further advance the understanding of knowledge transfer in multinational companies (MNCs). Longitudinal studies are essential to capture how trust, cultural adaptation, and organizational learning evolve over

time in cross-border contexts. This would provide valuable insights into the long-term dynamics and sustainability of knowledge transfer processes.

The consequences of emerging technologies, such as artificial intelligence and machine learning, arise as a critical study direction because of the rapid digital change taking place in multinational settings, which the existing literature does not sufficiently address. The study's synthesis shows that traditional communication constraints greatly hamper knowledge transfer, yet emerging technologies provide a unique chance to overcome these barriers. Future study in this field is critical because it has the potential to profoundly change how organizations promote knowledge transfer, potentially lowering cultural and linguistic barriers while increasing organizational memory and learning capacity. Research should delve deeper into cultural diversity and team dynamics, particularly how team composition influences knowledge-sharing behaviours. A better understanding of intercultural interactions could inform strategies to foster collaboration in global teams.

The concept of psychological safety deserves more attention, as this study recognised that trust and open communication are essential for successful knowledge transfer; however, the literature lacks specific guidance on creating psychologically safe environments in culturally diverse contexts. This study direction is significant because psychological safety is a fundamental enabler of knowledge transfer, and understanding how to develop it over cultural barriers may provide effective frameworks for collaborative management. The role of leadership in Knowledge transfer, especially across cultural boundaries, remains underexplored. Future research could examine how leadership styles impact motivation to share knowledge and how leaders can create trust-based, knowledge-driven cultures. With the rise of hybrid and remote work, future studies should explore how virtual work environments affect Knowledge transfer processes.

Considering the rise of hybrid and remote work arrangements, which have fundamentally altered organisational structures since many of the evaluated studies were done, future research should look into how virtual settings affect knowledge transfer processes. This topic is critical since traditional face-to-face knowledge sharing mechanisms may be ineffective in digital environments, necessitating new tactics and tools to sustain knowledge flow quality and cultural understanding in remote collaborations. Examining the interconnection between internal and external knowledge networks, including partnerships with universities and innovation ecosystems, could provide insights into how external collaborations enhance internal knowledge flows.

Researchers should consider customized Knowledge transfer strategies tailored to specific cultural and operational contexts. Investigating the effectiveness of such approaches would contribute to a

more nuanced understanding of Knowledge transfer practices across different regions and industries. These directions highlight the evolving nature of Knowledge transfer in global business environments and underscore the need for adaptive, interdisciplinary approaches in future research.

6.4 Limitations

While this study offers valuable insights into the dynamics of knowledge transfer in cross-border collaborations within multinational companies, several limitations must be acknowledged to appropriately frame the scope and applicability of its findings. The research is based on a qualitative thematic synthesis of 72 peer-reviewed journal articles. Although this method enables in-depth, interpretive exploration, it inherently limits the generalizability of the results across different industries, organizational sizes, or geographical contexts. Given the heterogeneity of multinational companies, knowledge transfer processes can vary significantly across sectors-variations that this study may not fully capture.

Moreover, the literature reviewed was predominantly published in English, introducing potential language and cultural bias. As a result, relevant insights from non-English-speaking academic communities may have been unintentionally excluded, leading to an underrepresentation of knowledge transfer practices in non-Western or under-researched regions. Another limitation lies in the cross-sectional nature of most of the included studies, which restricts the ability to understand how knowledge transfer dynamics-such as trust-building, cultural adaptation, and experiential learning-evolve over time. Without longitudinal data, the temporal dimensions of knowledge transfer remain only partially understood.

Additionally, Manual data gathering and theme coding without software tools like NVivo adds more subjectivity and possibly errors in analysis. This constraint has an impact on both the study's replicability and the reliability of thematic categorisations, as other researchers may detect alternate patterns or emphasise different themes from the same literature base. The interpretation implications include potential researcher bias in topic identification and decreased confidence in the comprehensiveness of thematic coverage, implying that some relevant patterns may have been skipped or underemphasised.

Time constraints limited the breadth and depth of the study, notably in terms of thematic saturation and cross-sectoral analyses. This constraint implies that some themes may not have been properly developed, and nuanced variations between industries or organisational types may not have been adequately examined. The findings may be less thorough than required for applicability in extremely

diverse global contexts, perhaps missing significant sector-specific or context-dependent aspects that influence knowledge transfer efficacy.

Finally, although the study attempts to reflect diverse organizational contexts, it may not fully account for the complexities introduced by contemporary developments such as hybrid work arrangements and rapidly evolving digital technologies. These trends are actively reshaping knowledge transfer practices, and their exclusion emphasizes the need for ongoing empirical reassessment.

Overall, these limitations suggest that, while the study provides interesting theoretical insights and reveals important trends in knowledge transfer literature, practitioners and researchers should approach the findings with contextual awareness. The findings are best interpreted as foundational insights that must be validated and adapted for specific organisational contexts, cultural settings, and contemporary technological environments, rather than as universally applicable recommendations for knowledge transfer within multinational companies.

7 Summary

The study identifies cultural and linguistic diversity as the most significant impediment to efficient and effective knowledge transfer within multinational companies (MNCs), emphasizing that misaligned beliefs and communication styles can result in miscommunication and knowledge hiding. This establishes cultural competency as a fundamental criterion for cross-border knowledge management. Furthermore, the study emphasizes the need of converting tacit knowledge to explicit forms through controlled processes such as codification and purposeful dissemination. While digital platforms are important enablers for overcoming physical and temporal obstacles, their effectiveness is dependent on their integration within culturally adaptive and well-designed organizational frameworks. Finally, relational trust emerges as the primary driver of knowledge transfer, underscoring the importance of interpersonal alignment and open communication in overcoming structural and cultural barriers.

The findings contribute to knowledge management theory by giving an integrated framework that combines cultural, technological, and relational aspects of knowledge transfer. By emphasizing their connection, the study fills theoretical gaps that previously existed when they were studied separately. It argues that effective knowledge transfer in multinational companies demands a comprehensive approach in which the dynamic interaction between these elements is actively handled to achieve long-term success.

Based on the complete literature study, four strategic imperatives arise for MNC knowledge management. The first strategic imperative is to develop cultural intelligence, where organizations must systematically promote cultural competence within global teams through focused capability-building programs and adaptive communication techniques that recognize and bridge cultural barriers. Secondly, Trust-Centric collaboration architecture, here multinational companies should use deliberate trust-building strategies to reduce knowledge-hiding tendencies and promote collaborative knowledge sharing. Third strategy can be integrated knowledge infrastructure. Organizations require sophisticated sharing procedures underpinned by a strong ICT infrastructure that enables both explicit knowledge codification and implicit knowledge transfer via digital platforms. Finally, multinational companies should build systematic monitoring and evaluation frameworks to measure knowledge transfer efficacy and maintain continued alignment with their strategic goals.

This literature review offers both theoretical development and practical suggestions for improving knowledge management procedures in multinational companies. The findings show that effective

knowledge transfer in MNCs necessitates sophisticated, multidimensional techniques that integrate cultural intelligence, technology infrastructure, and relational trust-building within coherent strategic frameworks. The proposed strategic imperatives provide practitioners with building direction, while the highlighted research gaps point the way forward for future scholarly research in this vital subject of multinational company management.

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Appendices

Appendix 1 Data Extraction and Analysis Matrix

Authors	Author Full Names	Article Title	Source Title	Abstract	Publication	Relevance	Challenges	Process	Outcome	Limitation	Future direction
Reilly, M; Tippmann, E, Scott, PS	Reilly, Mary; Tippmann, Esther; Sharkey, Scott; Pansica	Subsidiary closures and relocations in the multinational enterprise: Reinstating cooperation in subsidiaries to enable knowledge transfer	JOURNAL OF INTERNATIONAL BUSINESS STUDIES	Subsidiary closures and relocations, a process whereby a multinational enterprise (MNE) closes down a subsidiary and relocates its activities, are commonplace and increasing. Yet we lack an understanding of how knowledge in such situations can be successfully transferred to prevent loss and provide for future knowledge recombination in the MNE. Compared to periods of normal operation, knowledge sharing during subsidiary relocations is likely compromised by diminished tender motivation. In a detailed case study of a subsidiary closure and relocation, we find that the announcement of a subsidiary closure can lead to a break in cooperative behavior that inhibits knowledge transfer. It is therefore critical to reinstate cooperative behavior among subsidiary employees. Reinstatement can be achieved through a set of subsidiary leadership practices that affect the emotions of employees and subsidiary identity. This finding contributes to our understanding of knowledge transfer dynamics in MNEs during subsidiary relocations and closures, extends theory on the practices of subsidiary leadership in subsidiary death and adds to our understanding of identity in MNEs.	2023	Yes		The article emphasizes the critical role of effective knowledge transfer during subsidiary relocations, highlighting the importance of both formal and informal communication mechanisms. These knowledge sharing processes are significantly influenced by the nature of the knowledge itself, with codified knowledge being more easily transferred than tacit knowledge, which is often harder to articulate and share. Additionally, the article underscores the impact of emotional dynamics on knowledge transfer. During subsidiary closures, employees may experience emotional detachment or reduced motivation, which can hinder the transfer of knowledge.	The article explains that successful knowledge transfer during a subsidiary closure helps keep business running smoothly by moving important tasks to other parts of the company. This helps the company stay competitive. On the other hand, if knowledge transfer fails, it can lead to losing important information, hurting how well the company works and makes decisions. It can also lower employee morale, making them feel disconnected and less willing to share what they know, which can harm teamwork and the company's overall culture.	The authors point out that there's a big gap in research about how knowledge is shared during the closure or move of a company branch in multinational businesses. Most studies focus on normal, stable times, not on the challenges that come with change, like employee stress and identity issues. Personal factors can really affect how well knowledge is transferred. To help fill this gap, the authors aim to create a new framework that looks at these important but often ignored parts of the process (Bailey et al. 2023).	The authors suggest several areas for future research. They recommend studying how different emotions affect knowledge sharing during branch closure. They also highlight the need to explore how leadership can support knowledge transfer in uncertain times. Managing employee identity during closures is another important area, as it helps keep cooperation strong. The authors also suggest looking at how different types of knowledge—like hands-on (tacit) vs
Fiedler, A, Casey, C, Fath, B	Fiedler, Anja; Casey, Catharina; Fath, Benjamin	Transnational employee voice and knowledge exchange in the multinational corporation: The European Company (Societas Europaea, SE) regulations include the highest mandatory provision for negotiation of transnational employee voice. What are the effects of transnational employee voice, enacted at works council and board levels, on knowledge exchange within the multinational corporation? This qualitative study of globally active SEs incorporated under the SE regulations that have 'dual-forum' transnational employee voice addresses that research gap. Our main contribution reveals that, over time, transnational employee voice facilitates multifaceted knowledge exchange, both widening the platform and strengthening relations for intra-multinational cooperation collaboration. Alongside expressing labour interests as intended, dual-forum transnational employee voice stimulates managers and employees to develop mutually beneficial competencies and trust. These aid multilateral knowledge exchange. That knowledge which includes	HUMAN RELATIONS	The European Company (Societas Europaea, SE) regulations include the highest mandatory provision for negotiation of transnational employee voice. What are the effects of transnational employee voice, enacted at works council and board levels, on knowledge exchange within the multinational corporation? This qualitative study of globally active SEs incorporated under the SE regulations that have 'dual-forum' transnational employee voice addresses that research gap. Our main contribution reveals that, over time, transnational employee voice facilitates multifaceted knowledge exchange, both widening the platform and strengthening relations for intra-multinational cooperation collaboration. Alongside expressing labour interests as intended, dual-forum transnational employee voice stimulates managers and employees to develop mutually beneficial competencies and trust. These aid multilateral knowledge exchange. That knowledge which includes	2021	Yes, d	The article identifies several key barriers to effective knowledge transfer in multinational contexts. Cultural differences often lead to miscommunication due to varying languages and norms. Institutional divergence, such as differences in economic systems and social behaviors, also creates friction in knowledge exchange. Additionally, divergent management practices across subsidiaries can obstruct knowledge sharing due to conflicting ideologies. Finally, trust issues are highlighted as a major obstacle, with mistrust limiting open communication and collaboration (Fiedler et al. 2021, 1037-1050).	The article highlights several transnational enablers of effective knowledge transfer (KT) in multinational corporations. Establishing formal structures like transnational works councils and board-level representation supports both employee rights and productive knowledge flow. Trust, built through interpersonal relationships and communication, is crucial for open knowledge exchange. Research identifies and cultural	Successful knowledge transfer enhances employee competencies and builds trust among transnational teams, fostering a dynamic learning environment and improving organizational responsiveness. In contrast, poor knowledge transfer can hinder innovation and adaptability, reducing competitiveness and	The article identifies several research gaps in the study of knowledge transfer (KT) and employee voice. It highlights the limited focus on formal transnational employee voice mechanisms in existing literature and calls for more research to understand their role in enhancing learning and adaptability. Additionally, there is a lack of	

Authors	Author Full Names	Article Title	Source Title	Abstract	Publication	Relevance	Challenges	Process	Outcome	Limitation	Future direction	
Ivanova, I, Strand, O, Leydesdorff, L	Ivanova, Inga; Strand, Oyvind; Leydesdorff, L; Lovø	What is the Effect of Synergy Provided by International Collaborations on Regional Economies?	JOURNAL OF KNOWLEDGE DEVELOPMENT AND ECONOMIC RESEARCH	In the present paper, we analyze the effect of international collaboration on regional markets. We compare two Norwegian counties with very different profiles in terms of how international or regional cooperation affects the synergy generated among the geographical, technological, and organizational distributions of firms. This synergy is much larger in the rural region with international industry than in the region with a strong knowledge infrastructure. International firms can take the role of knowledge brokers in lagging regions with weak knowledge institutions. The methodological contribution of this study is that we translate the synergy (abstractly measured in bits of information) into more familiar economic terms, such as turnover for the special case of domestic-foreign collaborations. The analysis is based on Norwegian data, as Norway is a small country with an open and export-oriented economy. Data for Norway is publicly available in great detail. The Triple-Helix synergy caused by firms with foreign ownership is a new indicator of the international contribution to the efficiency of the innovation systems in a region. The indicator can also be interpreted as a measure of the attractiveness of regional industries to international corporations, which entails the perspective of international technology transfer and the access of regional industry products to global markets.	2019	Not directly						
Appel-Muilenbroek, R; Weggeman, M; Toekkeli, M	Appel-Muilenbroek, Rianne; Weggeman, Mathieu; Toekkeli, Marko	Knowledge sharing behaviour within organisations: a diary-based study of unplanned meetings between researchers	KNOWLEDGE MANAGEMENT RESEARCH & PRACTICE	This paper analyses Knowledge Sharing (KS) behaviour of employees during unplanned, work-related face-to-face meetings with colleagues. Hypotheses were formulated from theory on how this behaviour relates to three categories of known KS antecedents (knowledge components, organisational distance, and network aspects). Data are obtained from detailed diaries on behaviour of 138 R&D employees of a research-based multinational company during their unplanned KS meetings with each other. Results show that such meetings show a lot of tacit KS and thus should not be overlooked in KS strategies. Also, the KS behaviour during these meetings relates significantly to several KS antecedents and for example, KS activities differ during meetings within and between teams. The data also suggest that a stronger emphasis on intentional unplanned meetings and a culture of shared responsibility for problems would yield more employee involvement and tacit KS, than simply steering on	2018	No						

Appendix 2 Declaration for the Use of Artificial Intelligence (AI) Tools

In line with academic transparency norms, this appendix describes the responsible and supplemental use of artificial intelligence (AI) tools throughout the research process. I acknowledge the support taken by artificial intelligence (AI) tools for improving writing, understanding language, removing conceptual difficulties, scrutinizing topic-related data analysis, and enhancing the thesis's language. I affirm that I used AI tools with attention and responsibly, which contributed to the reliability and rigour of my research.

ChatGPT (OpenAI): Used to improve the clarity, flow, and academic tone of written content, especially the language used in the literature review, methods, and discussion sections. It was not utilised to develop novel concepts, arguments, or data.

ChatPDF: Used to aid interpretation and summation of scholarly writings. The tool utilised for getting an efficient review of the article by highlighting key themes and extracting relevant content. Used to check the alignment with the research questions.

LM Notebook: Used to figure out how well selected academic publications matched the research topics. This technology made it possible to identify thematic relevance across numerous sources while also assisting with thematic coding throughout the review phase.

QuillBot: It was used selectively to paraphrase larger sections while keeping academic integrity. All paraphrased text was then examined and cross-checked against original sources to guarantee accuracy and prevent unintentional plagiarism.

Grammarly: Used as a proofreading tool to fix grammatical, punctuation, and visual errors across the manuscript. The technique improved readability without changing the meaning or structure of any original academic work.

All tools were utilised as supplements, not as substitutes for critical thinking, academic judgement, or manual analysis.