REVERSE KNOWLEDGE TRANSFER IN KNOWLEDGE-INTENSIVE BUSINESS SERVICES (KIBS) IN MALAYSIA AND THE EFFECTS ON FOREIGN SUBSIDIARY PERFORMANCE

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FACULTY OF BUSINESS AND ECONOMICS
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THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

**FACULTY OF BUSINESS AND ECONOMICS
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ORIGINAL LITERARY WORK DECLARATION

Name of Candidate: **Md Khaled Shukran**
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ABSTRACT

Recent contributions have emphasized the significance of international knowledge transfer in providing a critical source of competitive advantage for multinational corporations. However, because parent organizations have long been thought to be the primary source of knowledge, most research has concentrated on knowledge transfer between headquarters and subsidiaries. Subsidiaries' roles within MNEs have altered considerably over time; many subsidiaries have formed a critical part by creating new resources based on their operational location's comparative advantage and contributing to the MNE's competence development via reverse knowledge transfer process. Based on the available literature, this research identifies substantial gaps in our understanding of the drivers affecting subsidiary knowledge development and reverse knowledge transfer (RKT) in the service industry. Additionally, the discovered difference in the effect of RKT on subsidiary performance is significant. This study aims to determine the impact of RKT on subsidiary performance in Knowledge-Intensive Business Services (KIBS). This study discovered that various factors, including external embeddedness, subsidiary autonomy, and internal socialization mechanisms, contribute to developing subsidiary knowledge through association with external network partners (e.g., suppliers, consumers, and competitors) and internal socialization mechanisms. The current research indicates significant gaps in our understanding of the factors influencing subsidiary knowledge development, RKT, and performance in Malaysian foreign subsidiaries. The KIBS industry allows MNEs to integrate their intangible assets, such as know-how, technology, and expanded product development. These intangible assets may become critical to management or product development success. Nonetheless, this research provided a framework for external and internal linkages based on RBV and business network theory.

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Structural Equation Modeling (SEM) examines data from an original survey (e.g., online and face-to-face meetings) with a sample of 234. The survey gathered responses from Malaysian General Managers (GM) and Senior Subsidiary Managers. Theoretical and practical evidence indicate that the consequences and ramifications will vary according to the subsidiaries' ability to develop new knowledge, outperform competitors, and contribute to the MNE's knowledge base. The findings highlighted the critical nature of continuously examining various relationship forms. It investigates how subsidiaries are embedded on external and internal frontiers and the factors influencing strategic development, providing new insight into the study's significant future directions.

The crucial contributions identify external and internal relationship characteristics as the fundamental facilitators of RKT and subsidiarity performance. The data indicate that while internal socialization mechanism significantly affects subsidiary headquarters' embeddedness, it does not affect RKT. Similarly, embedded subsidiaries in their parent company assist in developing subsidiary knowledge but have no impact on RKT.

Furthermore, this research makes two contributions: first, it studies RKT and development processes in the KIBS sector. Second, despite the favorable conclusion of future research studying these parameters, the combined influence of RKT on subsidiary performance would need to be explored to see how the headquarters-level response differs from the subsidiary-level response.

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PEMINDAHAN ILMU SECARA TERBALIK DALAM INTENSIF PENGETAHUAN PERNIAGAAN PERKHIDMATAN (KIBS) DI MALAYSIA DAN KESAN TERHADAP PRESTASI SYARIKAT SUBSIDIARI ASING

ABSTRAK

Di masa ini, sumbangan pemindahan sumber ilmu pengetahuan peringkat antarabangsa sangat penting dan kritikal dalam menyediakan syarikat mutlinasional yang lebih berdaya saing. Organisasi induk telah lama dianggap sebagai sumber utama dalam memberi ilmu pengetahuan kepada anak syarikat. Ini adalah kerana kebanyakan penyelidikan tertumpu di ibu pejabat. Namun begitu peranan anak syarikat dalam MNE telah banyak berubah dari semasa ke semasa. Terdapat banyak anak syarikat telah menyumbang bahagian penting dalam mencipta sumber baharu berdasarkan perbezaan lokasi operasi industri. Ini memberikan sumbangan kepada peningkatan kecekapan MNE melalui proses pemindahan pengetahuan secara terbalik dari anak syarikat kepada syarikat induk. Berdasarkan kajian lepas, penyelidikan ini bertujuan mengenal pasti jurang dalam pemahaman tentang pemacu yang mempengaruhi pembangunan subsidiari dan pemindahan pengetahuan secara terbalik (RKT) dalam industri perkhidmatan. Dapatan kajian lepas menunjukkan perbezaan yang ditemui kesan RKT ke atas prestasi anak syarikat adalah ketara. Kajian ini bertujuan untuk menentukan kesan RKT terhadap prestasi anak syarikat dalam Intensif Pengetahuan Permiagaan Perkhidmatan (KIBS). Kajian ini mendapati bahawa pelbagai faktor, termasuk keterikatan luaran, autonomi subsidiari dan mekanisme sosialisasi dalaman telah menyumbang kepada pembangunan pengetahuan subsidiari. Ini adalah kesan dari pergaulan dengan rakan kongsi rangkaian luaran (contohnya; pembekal, pengguna dan pesaing) dan mekanisme sosialisasi dalaman. Kajian ini menunjukkan terdapat jurang yang ketara dalam pemahaman tentang faktor-faktor yang mempengaruhi pembangunan pengetahuan subsidiari, RKT, dan prestasi anak syarikat asing yang berada di Malaysia. Industri KIBS membolehkan MNE menyatukan aset tidak ketara mereka, seperti pengetahuan, teknologi dan

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pembangunan produk yang telah diperluaskan. Aset tidak ketara ini mungkin menjadi kritikal kepada pengurusan atau kejayaan pembangunan produk. Walau bagaimanapun, penyelidikan ini menyediakan rangka kerja untuk hubungan luaran dan dalaman berdasarkan RBV dan teori rangkaian perniagaan. Pemodelan Persamaan Struktur (SEM) digunakan dalam analisa data tinjauan dalam talian dan pertemuan bersemuka dengan jumlah responden sebanyak 234. Tinjauan bertujuan mengumpul maklum balas daripada Pengurus Besar Malaysia (GM) dan Pengurus Kanan Subsidiari. Bukti teori dan praktikal menunjukkan akibat dan kesan yang berbeza-beza mengikut keupayaan anak syarikat untuk membangunkan pengetahuan baharu bagi mengatasi prestasi pesaing dan menyumbang kepada sumber ilmu pengetahuan. Dapatan kajian menunjukkan terdapat sifat kritikal untuk terus mengkaji pelbagai bentuk perhubungan dalam kalangan anak syarikat. Anak syarikat mengetahui keadaan dalaman dan luaran serta faktor-faktor yang mempengaruhi pembangunan strategi dan dapat memberikan pandangan baharu tentang hala tuju masa depan industri perkhidmatan. Pengetahuan mengenai perhubungan dalaman dan luaran merupakan sumbangan yang penting sebagai fasilitator prestasi RKT dan anak syarikat. Hasil dapatan menunjukkan walaupun sosialisasi dalaman memberi kesan ketara kepada ibu pejabat namun ia tidak menjejaskan RKT. Selain daripada itu, anak syarikat dapat juga membantu syarikat induk dalam memyumbangkan ilmu pengetahuan tanpa memberi kesan kepada RKT. Selanjutnya, kajian ini memberikan dua sumbangan: pertama, iaitu mengkaji RKT dan proses pembangunan di sektor KIBS. Kedua, penyelidikan masa depan mengenai pengaruh gabungan RKT terhadap prestasi anak syarikat dan bagaimana tindak balas ibu pejabat berbeza dengan anak syarikat atau syarikat subsidari.

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LIST OF SYMBOLS AND ABBREVIATIONS

AGFI	:	Adjusted Goodness of Fit Index
AIC	:	Akaike Information Criterion
ASV	:	Average Shared Variance
AVE	:	Average Variance Extracted
CARMA	:	Consortium for the Advancement of Research Methods &Analysis
CEO	:	Chief Executive Officer
CFA	:	Confirmatory Factor Analysis
CFI	:	Confirmatory Fit Index
CKO	:	Chief Knowledge Officer
CMB	:	Common Method Bias
CMV	:	Common Method Variance
CR	:	Composite Reliability
DF	:	Degree of Freedom
DFTZ	:	Digital Free Trade Zone
EE	:	External Embeddedness
EFA	:	Exploratory Factor Analysis
EM	:	Expected Maximization
EMNE	:	Emerging Multinationals
EPU	:	Economic Planning Unit
GDP	:	Gross Domestic Product
GF	:	Degree of Freedom
GFI	:	Goodness of Fit Index
GM	:	General Manager
IB	:	International Business

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IBM	:	International Business Machine
IFI	:	Incremental Fit Index
ISM	:	Internal Socialization Mechanism
IT	:	Information Technology
KBV	:	Knowledge-Based View
KF	:	Knowledge Flow
KIBS	:	Knowledge-Intensive Business Services
K-S	:	Kolmogorov-Smirnov and Shapiro-Wilk
LFS	:	Labour Force Survey
MD	:	Managing Director
MDEC	:	Malaysian Digital Economy Corporation
MIDA	:	Malaysia Investment Development Authority
MITI	:	Ministry of Trade and Industry
ML	:	Maximum Likelihood
MNE	:	Multinational Enterprise
MPB	:	Malaysian Productivity Blueprint
MSV	:	Maximum Shared Variance
NACE	:	Nomenclature des Activities Economicques dans la Communaute Europeenne (European Industry Standard Classification)
NFI	:	(Non) normed Fit Index
BNT	:	Business Network Theory
OECD	:	Organization for Economic Cooperation and Development
OIC	:	Organization of Islamic Cooperation
P	:	Probability Value
PCA	:	Principal Component Analysis
PNFI	:	Parsimony Normed Fit Index

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QQ	:	Quantile-Quantile
R&D	:	Research & Development
RBV	:	Resource-Based View
RKT	:	Reverse Knowledge Transfer
RMSEA	:	Root Mean Square Error of Approximation
SA	:	Subsidiary Autonomy
SEM	:	Structural Equation Modelling
SHE	:	Subsidiary-Headquarters Embeddedness
SKD	:	Subsidiary Knowledge Development
SME	:	Small and Medium Enterprise
SPSS	:	Statistical Package for the Social Sciences
TLI	:	Tucker-Lewis Index
U.K.	:	United Kingdom
U.S.	:	United States of America
UN	:	United Nations
VIF	:	Variance Inflation Factor
WTO	:	World Trade Organization

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CHAPTER 1: JUSTIFICATION OF THE THESIS

1.1 Introduction

This study is interlinked with the firm's resource-based view (RBV), network view, or business network theory (BNT). The RBV is a vital component of the strategic management field and international business in providing practical solutions. Consequently, knowledge is also considered a valuable resource and source of competitive advantages. Barney (1991) stated that the resource is essential, unique, difficult to replicate, hard to substitute, and knowledge suits the situation. The latter theory goes beyond the fact that knowledge is critical for firms. A modern theory postulates that knowledge has become valuable (Heraty & Morley, 2008; Nonaka & Takeuchi, 1995; Kogut & Zander, 1992).

Moreover, RBV theory implies that businesses can utilize growth opportunities to mobilize the required resources. Therefore, firms' ability to seek sustainable growth opportunities depends on changing their resource base. Internal embeddedness (i.e., sub-headquarters embeddedness), external alliance partners, and strategic knowledge acquisition are rendered by network partners where firms can add, redistribute, and recombine resources (Karim & Capron, 2016). On the other, the networks, which are based on social capital theory, are considered constitutive of a significant social phenomenon in which individuals correspond to unique ties with an externally embedded partner and associate with knowledge exchange or transfer (Dogbe Courage Simon et al., 2020; Ferraris et al., 2017a). The network also strengthens the accessibility of the firm's new knowledge, external resources, new markets, and innovation performance. Likewise, this study contributes to ongoing efforts to elucidate the development of knowledge and competitiveness through RBV and strong network alliances.

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This study highlighted KIBS's contribution to knowledge sharing and the level of customization services developed through its network partnerships (Lisa & Miles, 2019). As a result, subsidiaries pursuing competitiveness and success must recognize that they are connected to networks that integrate strategic resources, knowledge, and ideas.

It includes global engagement, the development of subsidiary knowledge, and RKT with a global perspective. It is imperative to analyze the knowledge transfer process through management roles, whether from headquarters to subsidiaries or vice versa. RKT is difficult to define because it depends on the direction of the knowledge transfer process. Typically, the concept of RKT is conveyed from the subsidiary to headquarters. Knowledge transfer refers to the direction change from headquarters to subsidiaries. Even direction from a subsidiary to a sister subsidiary could be considered RKT for sister subsidiaries. To clarify the concept of RKT in this research, subsidiaries operate as a hub and acquire or absorb knowledge from external (i.e., externally embedded players) and internal (i.e., internally embedded players) sources. The conceptual model has been designed as a knowledge development process from external and internal players in this research context. For the subsidiaries context, the knowledge development process is defined as reverse because subsidiaries develop knowledge internally (i.e., sub-headquarters network relationship through a subsidiary- headquarters managers) and externally (i.e., embedded relations with customers, competitors, suppliers, and universities). Despite being relatively new, this study focuses on the subsidiary-level influences on RKT's performance. Transferring a subsidiary's technological, product, process, market, consumer, government, supplier, and competitor knowledge may necessitate changes to the headquarters' products, procedures, and technology. It is a crucial component in the cross-border transfer of knowledge research in multinational enterprises (MNE) (Borini et al., 2021; Nair et al., 2018; Ambos, 2015).

Although knowledge transfer in reverse (e.g., subsidiaries to MNEs of headquarters) has become a significant issue in international business and management (Kong et al., 2018; Kogut & Mello, 2018; Ambos, 2015), several works investigate the determinants, effectiveness capacity, and excellence pivotal in various functional areas at the multinational firm (Ambos, 2015). However, additional studies are needed to comprehend the effects of knowledge transfer (Michailova & Mustaffa, 2012). Because the transfer of knowledge across multinational enterprises (MNEs) has increased significantly over the past decade, it has become more susceptible to varying definitions and measurements of the same concepts, resulting in frequently inconsistent and deceptive results. Second, while the literature acknowledges the necessity to investigate the connection between the subsidiary and foreign firms in the host nation, it predominantly focuses on knowledge transfer within the MNE. Despite the subsidiary being both a knowledge seeker and a knowledge holder, no comprehensive research has been undertaken on the impact of RKT (Forsgren et al., 2007). According to the definition of subsidiaries comprising fifty percent of MNE shareholders, initiative and decision-making regarding introducing and launching new products, the purpose of research and development projects, sales and marketing strategy, and other pertinent decision-making practices are of the utmost significance. To present academics with an overview of significant discoveries, literature gaps, the topic's evolution, and future research directions, although the subject is expanding and scholars have obtained valuable insights into the function of RKT in the success or failure of parent organizations. This study employs RKT in two situations (i) identifying the direction of the transfer and, second, its impact. RKT is considered favourable to MNEs as innovation drivers (Jiménez et al., 2019); nevertheless, due to the diverse structure of subsidiaries, RKT is also advantageous to subsidiaries. For instance, subsidiaries are knowledge seekers and holders (Forsgren et al., 2007). In the case of international corporations, however, subsidiaries serve as senders

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of knowledge and headquarters as receivers (Nair et al., 2018; Mudambi et al., 2014a). Even though knowledge, knowledge seeker, knowledge holder, and knowledge sender are covered in this study, only subsidiary performance is examined. Following the research environment, this study identified various contributors to RKT through subsidiary knowledge development, including the relationship between subsidiaries and headquarters. External network partners with solid relationships with subsidiaries are more likely to serve as sources of knowledge development and RKT in the KIBS-based service industries.

Therefore, the significance of KIBS research is highlighted, as is the widespread growth of KIBS, the research topic, the research purpose, the research issues, their relevance, the proposed methodologies, and the operationalization of the definition.

1.2 Background of the Study

The phenomenal growth of KIBS in corporate structures, activities, and goals has been substantially broader since the 1970s. These contribute to driving technology, manufacturing, and other developments, commonly regarded as part of professional growth, and correlated with managed services industry or professional services (Marshall et al., 1988). In the early 1990s, Ian Miles emphasized that knowledge-intensive manufacturing service companies are mainly distinct from the service industry. Since then, these service companies have powered the modern economy and knowledge-intensive sectors. The KIBS research has gained widespread recognition from renowned scholars in various fields.

Recent empirical research indicates that innovation, which includes developing new knowledge and growing subsidiary-level strategic knowledge, is becoming a growing concern in the KIBS research space (Chichkanov et al., 2019; Najafi-Tavani et al., 2015b). KIBS is considered an essential factor in innovation processes. They also serve

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as intermediaries between client companies by facilitating and initiating new concepts, new knowledge, innovative strategies within sectors, and even co-producing progress with their customers (Hertog, 2000). The impact of the "KIBS" has increased the global economy's competitiveness significantly. Accordingly, KIBS positively affects the economy because it helps foster economic progress. Other factors leading to long-term growth are also important (Wood, 2020; Sargon & Katircioğlu, 2019).

Consequently, innovation is crucial for many developed and emerging countries facing tremendously tricky challenges global multinational companies face (Kuchukova et al., 2016). In such counties, which are now transitioning into knowledge-based industries, these countries are granted access to knowledge through emerging KIBS that allows product development in several other sectors by acquiring knowledge, sharing, and exchanging (Miles, 2005). Shearmur and Doloreux (2019) recently established a conceptualization perspective that compares the conventional ‘intermediary’ view of KIBS with innovation or competitiveness alone. The intermediary functions are depicted as KIBS functions between customers and sources of knowledge, information, markets, and regulations. However, researchers have studied the effect of KIBS on product development in several cases, yet considerably less examined how KIBS affects or performs, or introduces a new technology or new product development across borders (Kong et al., 2018). The prevalent argument is that the KIBS in the service sector is innovation lagging, and technology and knowledge are only growing in manufacturing (Shearmur & Doloreux, 2019; Doloreux & Shearmur, 2010).

The view argues that manufacturing may transform labour efficiency and productivity instead of service. While the emphasis has been on the progress of energy and manufacturing industries, such sectors' success is also contingent on other economic resources. The OECD report (2016) and (2020) indicate that the KIBS share of value-

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added is growing, and job creation remains increasing in developing countries like Malaysia. The KIBS in the service sector is projected to grow by 6.8% each year, contributing 56.5% of the GPD by 2020, generating 9.3 million jobs (MIDA, 2020). Malaysia has launched an innovation and growth development program, transforming the economy through knowledge-based (EPU 2015). The productivity level remains weak, is still affected, and relies on accumulating non-ICT capital, particularly in the construction and manufacturing sectors. Therefore, Malaysia's productivity level is lagging with many other developed counties.

Accordingly, it is essential to emphasize the importance of KIBS: a unique sector in Malaysia, including IT consultancy, outsourced integration, technology solutions, systems engineering, automotive, civil, and mechanical engineering, medical facilities, as well as accounting services, which could propel the economy (EPU 2009, 2015). As a result, KIBS will be the first area of investigation in the service sector. Considering the importance of the study's central research question, quantify the RKT that significantly affects KIBS in Malaysia's service industries in foreign subsidiaries.

Gupta and Govindarajan (1991) define the various subsidiary roles in MNEs; however, failed or did not examine the knowledge flow or transfer/exchange between the subsidiary and its local environment, which is interconnected with clients and competitors. Consequently, increasing interest in RKT research has shown that successful cross-border knowledge transfer is complex and occurs from multiple sources and directions (Gaur et al., 2019). Additionally, Lee et al. (2020) examine how different subsidiary positions impact dual knowledge flows between a focal subsidiary and the headquarters of a multinational company. The flow of knowledge between subsidiaries and peer subsidiaries or headquarters, or vice versa, includes process and product technology, management skills, and intangible capital. The primary areas of RKT effects are

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innovation, technological growth, and overall success (Crespo et al., 2020; Nair et al., 2018; Holm & Sharma, 2006; Yamin & Otto, 2004).

Although RKT plays a crucial role in developing knowledge and accelerating global strategic advantages for multinational companies (MNEs) (Cheong et al., 2019; Gupta & Govindarajan, 2000), however, in the context of KIBS, less than it had been anticipated and has been discovered (Jiménez et al., 2019; Doloreux & Frigon, 2019; Najafi-Tavani et al., 2018), a recent academic study proves that emerging multinationals have the potential to rise to become global players (Kogut & Mello, 2018). That is why MNEs of developing countries' subsidiaries are being formed to expand more rapidly than their developed counterparts (Wang et al., 2019; Meyer & Estrin, 2014; Aghina et al., 2014).

The primary goal of the subsidiary's performance is to innovate by creating new products and services. The atmosphere in which a subsidiary operates in the competitive and dynamic business setting is more likely to gain knowledge rooted in its local and host country climate. Thus, the local environment is pivotal in subsidiary knowledge development (Silveira et al., 2017). The main factor that makes it possible for the MNE to use foreign subsidiaries' knowledge is different internal and external network functionality (Schotter et al., 2017; Andersson et al., 2015c, 2002). Consequently, knowledge activities such as knowledge creation and the RKT play a crucial part in developing new products, new technologies, new skills, new process designs, new technical capabilities, and expertise in the subsidiary (Raziq et al., 2020). With the internationalization of knowledge, MNEs can leverage their knowledge resources from their foreign subsidiaries and develop knowledge across the global frontier.

Nevertheless, to optimize potential gain, knowledge transfer techniques are usually introduced from subsidiaries to improve the headquarters' benefits. Therefore, new

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knowledge can only be effectively attained if the existing social context is compatible and if that knowledge is further refined and supported by the organizational and social contexts in which it is being created and replicated (Ho et al., 2019; Gustavo & Wilson, 2005). It indicates that implementing cross-border alliances involves synthesizing structural and relational aspects when resolving perceived obstacles to knowledge acquisition. The reasoning behind the strong ties is that accessing and improving internal and external knowledge, analyzing, exchanging, and establishing the foundation for the future availability of strategic resources lead to competitive advantages over competitors (Chen et al., 2016). Moreover, subsidiaries acquire knowledge from external sources and integrate it into the entire corporate network through internal socialization mechanisms, including headquarters and subsidiary managers sharing unique or non-duplicable knowledge to increase new product development or innovation in general (Mudambi & Navarra, 2015).

In addition, subsidiaries need a certain degree of decision-making power and effort to strengthen MNEs to enhance internal and external linkage with subsidiaries and develop unique knowledge (Andersson et al., 2015b; Birkinshaw, 2014). Headquarters managers may not foresee possible sources of opportunity and initiatives through a distributed MNE network (Birkinshaw & Hood, 1997). Thus, headquarters may be granted autonomy to subsidiaries (Beugelsdijk & Jindra, 2018; Rugman & Verbeke, 2003). Although earlier researchers have highlighted the RKT research, several deficiencies in the literature include subsidiary knowledge development and RKT and subsidiary performance prevails. Although previous researchers have focused on RKT research, the literature covers a wide spectrum of topics, including the development of subsidiary knowledge, the dominance of RKT, and subsidiary performance. Deficiencies in independent power practices of subsidiaries, factors influencing knowledge development through external embeddedness, and the effects of socialization mechanisms

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that could reduce conflict between subsidiaries and headquarters are a few examples of how these issues can be addressed. For instance, Najafi-Tavani et al. (2012a) and Kundu and Lahiri (2015) noted that it is difficult to determine the extent to which the corporate headquarters and other MNE network units can be relied upon to adequately support the subsidiary through consistent performance drivers such as internal competence exchanges or transfers and external network strength for knowledge development. Later, the development of subsidiary knowledge improves subsidiary performance and is utilized by headquarters, as headquarters is the decision-maker in most cases. The competitive business environment constantly changes, necessitating greater strategic and market knowledge to adapt. The acquisition of such strategic knowledge is aided by subsidiaries with independent practices and embedded relationships.

Based on the above, this research identified the factors associated with subsidiary knowledge development, RKT, and foreign subsidiary performance. This evolution looks at factors relevant to developing subsidiary knowledge, which is underdeveloped in KIBS based service industry. Najafi-Tavani et al. (2014) illustrate knowledge development through network interaction, stressing the importance of willingness and socialization in determining subsidiary knowledge flow or RKT, implying a close relationship between the socialization mechanism and network members' strategic alliances. On the other hand, Jianyu et al. (2018) proposed four distinct resource allocation methods (random, relationship-based, cooperative, and information-based), enabling knowledge to flow freely across complex business relationships, such as dynamic collaboration in network partnerships and knowledge management and strategic innovation. This research extends the degree to which external (e.g., customers, competitors, suppliers) and internal network participants (e.g., subsidiary- headquarters) define the KIBS industry's subsidiary advantages. In addition to Gölgeci et al. (2019) show how subsidiaries incorporate different organizational learning processes and offer insight into how a multinational enterprise's knowledge improves its subsidiaries' efficiency. The research revealed the impact of organizational learning on knowledge adapted from internal embeddedness (i.e., between subsidiary and headquarters). Subsidiaries associated with external network partners with an overseas location are generally better placed to access external market knowledge (Ferraris et al., 2018). Therefore, executing the network's strength is critical between making the required connection to internal capabilities and the external network (Monteiro & Birkinshaw, 2017). This research aims to identify the effect of internal embeddedness (i.e., subsidiaries and headquarters) and external embeddedness on RKT and, later, how it impacts foreign subsidiary performance. Unlike the previous few studies in cross-border knowledge transfer, this research is part of an earlier approach to typology designating the knowledge transfer between the subsidiary organization and headquarters, particularly emphasizing subsidiary effectiveness.

1.2.1 The Global Context: The Importance of Knowledge Development (SKD) and Knowledge Transfer

MNEs of subsidiaries are the center of various international business (IB) challenges due to their complex global business climate (Meyer et al., 2020; Shujahat et al., 2020; Scott-Kennel & Saittakari, 2020; Kostova et al., 2018; Birkinshaw, 2016). Therefore, subsidiary development constitutes a significant management challenge and a basis for MNE's growth. Several studies stress subsidiary research, mainly in international coordination, control in an international location, and initial entry or exit at the headquarters (Kostova et al., 2018; Mata & Freitas, 2012; Dunning, 2009). Nevertheless, some studies also highlighted the subsidiary roles and strategies (Cristina et al., 2019; Bartlett & Ghoshal, 1989) and subsidiaries' network relationships and resource capability (Raziq et al., 2020; Ambos et al., 2020; Phene & Tallman, 2018; Ambos & Birkinshaw,

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2010). However, these studies lack the critical strength that the subsidiary can provide rich insights into global outcomes and subsidiary growth.

Thus, the growth of subsidiaries in recent years has been a crucial trend. The evolution of MNEs across the border shows foreign subsidiaries' effectiveness in more extensive areas (Birkinshaw, 2016). The subsidiary's knowledge creation and growth are the most significant international dissemination of value-adding to the headquarters. This contributes to other subsidiary growth phenomena, including the subsidiary manager's incentive and opportunities to access knowledge from external environments, contributing to MNEs' success (Castro et al., 2021; Ambos et al., 2020; Birkinshaw, 2014). The evolution of subsidiaries over time is thus an emerging area of research and is expected to significantly affect the growth of MNEs.

Consequently, MNE aims to bridge geographical borders and explore foreign subsidiaries' knowledge to gain strategic advantages (Birkinshaw et al., 2017). Over time, subsidiaries can develop distinctive capabilities and challenges, integrating cross-border activities (Phene & Tallman, 2018). In this way, it is assumed that MNEs can use subsidiaries' abilities and minimize the knowledge gap between performing better than their competitors. Therefore, subsidiaries may practice and use development teams to pursue collaborations with competitors, customers, suppliers, and universities to obtain knowledge.

It is argued that there are some drivers for subsidiary growth (subsidiary development drivers) through which subsidiaries are developing resources and capabilities (resource and capability enhancement drivers), as well as the interdependence on resources (resource and capability interdependence drivers) (Raziq et al., 2020; Mudambi et al., 2014a). The development of subsidiary knowledge to the extent to which the subsidiary can produce superior knowledge through external network players (e.g., rivals) and

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internal actors (e.g., headquarters, sister subsidiaries) (Najafi-Tavani et al., 2015a; Andersson et al., 2005). In addition to being integrated with external networks, relationships between groups within the organization are reinforced through subsidiaries' internal networks (Asimakopoulos et al., 2020; Monteiro & Birkinshaw, 2017; Birkinshaw et al., 1998). The external network offers strategic tools to ensure that subsidiaries can access the necessary resources (Achcaoucaou et al., 2014). It was due to the widespread interaction of subsidiaries with external players, including clients, competitors, and suppliers. External engagement allows subsidiaries to connect with multiple new information sources that add to their knowledge base (Nair et al., 2018; Cantwell & R Mudambi, 2005). Therefore, MNEs can integrate knowledge within their subsidiary network to compete in the market (Harzing et al., 2016; Inkpen & Tsang, 2016; Mudambi et al., 2014a). Additionally, this research would require autonomy for the development of subsidiary knowledge. Subsidiary autonomy may be defined as discretion or degree of freedom by which a subsidiary is endorsed by corporate headquarters (Raziq et al., 2014), which means that autonomy and MNE's decision decentralization in operations are synonymous. Regarding subsidiary autonomy, it is considered the decision-making power in the functional and operational areas.

Furthermore, subsidiary autonomy allows for developing new knowledge and facilitating new concepts or ideas. Due to the complexity and change enabled in a subsidiary debate, subsidiary autonomy can generate new knowledge (Najafi-Tavani et al., 2015b; Narula, 2014). The subsidiary considerably creates potential economically essential products and services sources as part of a diverse network. Besides, the subsidiary can establish an atmosphere that allows so-called "decision-making processes" and "autonomous practices" (Conroy et al., 2019; Rugman & Verbeke, 2003; Birkinshaw et al., 1998). Therefore, MNE offers a crucial mechanism for developing its corporate

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network through subsidiaries' knowledge development (Isaac et al., 2019; Birkinshaw, 1997).

Mudambi et al. (2018) asserted that innovation primarily concerns the technologies and knowledge produced by cross-border interaction. As a result, the subsidiary significance of knowledge creation and challenges confronting managers in identifying the process of RKT, those results in various types of the subsidiary network, need to be examined.

Consequently, the subsidiary relevance of knowledge development and the difficulties managers face in identifying the RKT process, which results in various subsidiary networks, must be investigated. This is because the subsidiary manager may expect to supervise future strategies and capitalize on the unique role of knowledge development in geographically dispersed units. While subsidiary managers comprehend the intricate network structure, accessing external and internal knowledge will be more straightforward.

On the other hand, the subsidiary manager's strategic efforts transform the advantages of the subsidiary's entrepreneurial mindset into plan accomplishment. The subsidiary must be engaged because subsidiary managers are tasked with organizing the subsidiary to access the organization's tacit knowledge, ideas, and opportunities. Therefore, the network links with MNEs and the activities of other subsidiaries strengthen our understanding of how to unleash the benefits of entrepreneurship for attaining objectives (O'Brien et al., 2019; Andersson et al., 2015b).

MNE, which is an acronym for multinational enterprises, has a global network that includes all accountable units that they have selected to be part of the network and a global network that covers geographically distributed units that have a defined strategy/responsibilities to contribute to internal and external knowledge flows (Nair et al., 2015; Scott-Kennel & Giroud, 2015). It has been found that cross-border MNEs are rising, requiring adequate and valuable knowledge across geographical and cultural boundaries. Within this study environment, it is necessary to characterize the fundamental phenomena of cross-border knowledge transfer more effectively and how it occurs.

1.2.2 Determining the Efficacy and Effectiveness of Knowledge Transfer Across-Border

The significance of knowledge is central to the organization's objective in international business (IB) literature and strategic management since it has become increasingly recognized as a critical organizational resource for building skills and competitive advantages (Zahra et al., 2020; Barley et al., 2018; Grant, 1996). In addition to efficiently utilizing internal knowledge and resources, MNEs seek to develop strategies to access and integrate relevant knowledge across relations with external sources (Khedhaouria & Jamal, 2015). Despite the efforts of numerous researchers, the fundamental mechanisms of how organizations develop cross-border knowledge pathways between local and global remain limited, and little attention has been paid. As can be seen in Monteiro and Birkinshaw (2017), one of the issues researchers often find in the literature is that it has been described multiple times that considering how to access and exploit external knowledge is insufficiently understood in the existing research. Therefore, studying the cross-border flow of knowledge is indispensable for further investigation. At the same time, it has been widely demonstrated that RKT positively affects organizational outcomes, such as competency-based human resource development and joint venture performance. Studies found that multinational corporations continued to benefit from RKT or transfer during product development (Brandao & Castro, 2019; Minbaeva et al., 2018). Previous research has shown that cross-border knowledge transfer can happen

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through knowledge-sharing and boundary-spanning processes (Liu & Meyer, 2020; Schotter et al., 2017; Hong et al., 2006).

Accordingly, MNEs' cross-border knowledge selection is relevant irrespective of the country of origin. Research has also indicated that MNEs in emerging countries frequently employ acquisition to quickly learn from the international connection to be key global players (Junni et al., 2019; Lynch & Jin, 2016). To successfully achieve the potential benefits, knowledge generated in an MNE unit is not easy. Therefore, MNEs should be an integrated process across borders. If not integrated, the major obstacle to acceptance is the high geographical and cultural disparity between the foreign subsidiaries and their headquarters (Szulanski & Lee, 2020; Khan et al., 2015). Besides, knowledge creation is often linked to the degree to which knowledge acquisition leads to tacit knowledge that can decide productivity and organizational development (Zahra et al., 2020). However, the source and acquisition of tacit knowledge remain challenging in cross-border knowledge transfer (Guo et al., 2018; Garg & Zhao, 2018). It is assumed that the external embeddedness of tacit knowledge makes it necessary to research MNEs of subsidiary performance. Therefore, cross-border knowledge transfer in the MNE context is essential.

In addition, cross-border knowledge transfer within the corporate community is the social network that includes social capital (Wang & Zatzick, 2019; Gölgeci et al., 2019; Inkpen & Tsang, 2016). Thus, social capital is ingrained and profoundly rooted in the relationship network and social interaction between people. In MNE, subsidiary and headquarters managers may be involved in socially shared knowledge necessary for subsidiary success. The previous study illustrated how subsidiary knowledge development enact in the form of socially exchanged knowledge (Najafi-Tavani et al., 2015a). Furthermore, the social network may contribute to or hinder the relationships

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between buyers and suppliers (Villena et al., 2011). Although several studies have highlighted the transfer of knowledge across the border in numerous contexts, such as innovation (Jandhyala & Phene, 2015), technology related, research and development (R&D) (Achcaoucaou et al., 2017; Athreye et al., 2016), and marketing-related knowledge that support the initial and sustained success can be found around the world, (i.e., competitive advantage) (Liu, 2019; Schlegelmilch & Chini, 2003). Even with this understanding, there is still a compelling need to explore ways to transfer specialized knowledge, resources, skills, and various mechanisms related to knowledge transfer, particularly in KIBS in the service industry. Thus, this research highlights the network's strength between subsidiaries and headquarters by accessing external and internal information or new knowledge superior to competitors. Moreover, this network strength is crucial for the success of subsidiaries. In the service industry, KIBS expects to develop an effective cross-border knowledge transfer mechanism, which is the focus of this study, through which subsidiaries can produce and distribute new products or services in order to improve or change their methods of product/service development (Milbratz et al., 2020; Chen et al., 2016).

1.2.3 Importance of the Research in KIBS in the Service Industry

The service sector is one of the most dynamic industries globally but is not generally recognized. In addition to having a strong economic presence in many countries, the service sector is also a significant contributor to most nations' economies worldwide with its large economic influence. In many developed and other developing countries, services are the central area of employment and contribute to global economic development. The service sector is indispensable to competitive and sophisticated developed economies, generating approximately two-thirds of economic production (over 60%). Besides, this sector attracts about two-thirds of foreign direct investment (FDI) to more developed

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places, creating approximately two-thirds of jobs in developing countries and four-fifth in advanced ones based on the World Trade Organization (WTO, 2019).

Change rapidly occurs in the service sector, concurrently increasing trade with other countries. Analysts predict the service industry will overtake manufacturing as the primary trade research connection. Furthermore, business strategy analysts have determined that global commerce will eventually constitute the heart of the entire transaction marketplace and that cross-border businesses will become the primary center of changes in the global economy due to these developments (WTO, 2019). The value of exporting goods stagnated over the first half of 2010; however, beginning in 2011, exporting services increased by 1 percent per year. Since 2012, the value of exporting services has also increased by 3 percent per year. The global service sector has expanded from 9% of the world's total output in 1970 to around 20% of the total production by 2019. According to the report, the service sector will perform one-third of the world's trade by 2040 (WTO, 2019). The service industry is an essential part of the global economy because it reflects the competitive dimension of international trade.

Although the service sector represents the fastest-growing sector of the global economy and is expanding in importance, little emphasis has been placed on comprehending its knowledge transfer operations and barriers (Doloreux & Frigon, 2019; Kundu & Merchant, 2008). Innovation in the service sector occurs as a blend of substantial and minor improvements or modifying appropriate existing services or includes a mixture of various forms of innovation or new product development (Rodríguez et al., 2018; Valtakoski & Järvi, 2016; Amara et al., 2009; Hertog, 2000). In addition to introducing and offering cost-effective ways to implement new or existing services, new or existing services may offer cost-saving ways of developing competitive advantages (Salunke et al., 2019; Cui & Wu, 2016; Durst et al., 2015; Chen et al., 2009).

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It can be defined as integrating new knowledge that adds value to customers and services. It may offer unique services that uniquely connect to customers' needs and address requirements (Carmona & Gomes, 2021). In response to adapting to complex business environments, knowledge-intensive-based service firms (KIBS) can search for new knowledge from various MNEs units that are closely connected. Therefore, KIBS firms can integrate new knowledge and skills and address emerging customer needs. However, efficient solutions are embedded in the company's ability to leverage various types of knowledge obtained across various networks (Valtakoski, 2017; Chae, 2012). Therefore, KIBS, or knowledge-intensive business services, are those industries that, due to their role in promoting innovation globally, receive significant academic attention (Miles et al., 2018; Muller & Zenker, 2001).

On the other hand, Miles (2005) argues that demand for KIBS business services and control over the core (such as knowledge-intensive) operations are growing substantially. However, it is possible to outsource non-core functions to specialist suppliers at the general level. KIBS's rapid growth is noteworthy as it suggests that potential external knowledge demands will likely increase (Miles et al., 2018). KIBS firms also assist market processes in other sectors for knowledge exchange and transfer (Chichkanov et al., 2019; Miles, 2005). Besides other firms' requirements, KIBS offers highly customized non-material, intangible services and ensures knowledge transfer between firms and the exchange of best practices (Doloreux & Gomez, 2017; Carmona-Lavado et al., 2013). Thus, it is believed that the level of interaction and mutual knowledge between KIBS and its customers can lead to service customization, and subsidiaries can effectively exchange and communicate resources or knowledge between companies.

1.2.4 Categories of Knowledge-Intensive Business Services

KIBS firms "are enterprises whose primary value-added activities consist of accumulating, creating, or disseminating knowledge to develop a customized service or product solution to satisfy the client's needs" (Bettencourt et al., 2002, pp. 100-101). Depending on the company's activities, there are two groups of KIBS-(a) traditional professional service-based KIBS and (b) technology-based KIBS. A table summarizes the categories and subcategories for the two classes.

Table 1.1: Two Fundamental Types of KIBS

KIBS I ***Traditional professional services, liable to be intensive users of new technology***	*Marketing/advertising* *Training (other than in new technologies)* *Design (other than that involving new technologies)* *Some financial services (e.g., securities and stock market-related activities* *Office services (other than those involving new office equipment and excluding "physical" services like cleaning)* *Building services (e.g., Architecture; surveying; construction engineering, but excluding services involving new IT equipment such as Building Energy Management systems)* *Management consultancy (other than involving new technology)* *Accounting and bookkeeping* *Legal services* *Environmental services (not involving new technology, e.g., environmental law; and not based on technology, e.g., elementary waste disposal services)*
KIBS II New technology-based KIBS	*Computer networks/telematics (e.g., VNs, online database)* *Some telecommunications (especially new business services) Software* *Other computer-related services (e.g., facilitate management)* *Training in new technologies* *Design involves new technologies* *Office services involving new office equipment* *Building services (centrally involving new IT equipment such as building energy management system)* *Management consultancy involving new technology* *Technical engineering* *Environmental services involving new technology (e.g., remediation, monitoring, scientific/laboratory*

Source: (Miles et al., 1995)

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The group KIBS-I argues that emerging technology customers who seldom construct new services are prevalent. This group is considered the users of new technology, rarely establishing or creating new services. On the one hand, KIBS-II aims to develop unique services for innovations. Besides, it also aims to deliver knowledge about emerging technical developments (Miles et al., 2018). The KIBS-II companies' offerings include emerging innovations that seem more creative (e.g., ICT, computer networks, and R&D services).

This study conjectured that the typical connection between KIBS-I and KIBS-II involved knowledge development, as knowledge is central to their activities. In addition to the disparity in the creative capacity and creativity approach (e.g., R&D activities), the two types of KIBS are likely to be linked through the knowledge gained from external sources that offer new services and innovative procedures. However, to stay competitive, KIBS firms aim to continually establish and grow positive relationships with their clients (Doloreux et al., 2019a; Murray et al., 2009).

1.2.5 Knowledge-Intensive Business Services Growth in Malaysia

Malaysia's economy has been experiencing progressive change since the 1990s. The transformation has been made from the dominantly agricultural and primary commodity-dependent to manufacturing-based, export lead economy-driven high-tech and capital-intensive industries (Rasiah et al., 2015; Ramasamy et al., 2004). The progress of the information age, where knowledge replaces physical and natural resources as the main component of economic development, has given the power to move toward sustainable economic growth and global competitiveness (Tham, 2017). To be competitive internationally, the government has built a "New Economic Model" system that focuses primarily on sources of innovation, creativity, and a knowledge economy (MIDA, 2020). Malaysia aims to strengthen its efforts to target and attract industries that can help create

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new growth opportunities and improve the service sector's profitability and resilience. This initiative will also increase workforce migration to these high-value and knowledge-intensive sectors (MIDA, 2020). As Malaysia progresses to become a developed country, the service sector is given more attention as a growth engine grounded on a knowledge-based economy. GDP is assumed to grow in equally advanced countries as a service sector by adopting knowledge-intensive business services (KIBS) (MIDA, 2020). Under the "New Economic Model," the service sector listed below shows that Malaysia’s economy is expected to improve. The following are:

Table 1.2: Listed Sector of the New Economic Model

1	*Education and training services*
2	*Healthcare travel (health tourism)*
3	*High-value tourism activities such as eco-tourism*
5	*Green technology, including renewable energy and energy conservation/efficiency*
6	*Financial services (integrated Islamic finance)*
7	*Creative industries*
8	*ICT, such as telecommunication and mobile services*
9	*Waste management (e.g., recycling)*
10	*R&D and design activities*
11	*Regional operations such as Principal Hub (PH), Representative Office (RE), and Regional Office (RO)*

Source: Malaysian Investment Development Authority (MIDA)

These sectors expect to strengthen economic growth through increased productivity, competitiveness, and high-value-added activities with knowledge-intensive activities. Therefore, the service sector's shift can be driven by increased demand, the productivity gap between the industry, and increased international competitiveness (Tham, 2017). On the other hand, economic advancement may be impossible until a more sophisticated method of involvement is established. Connectivity between networks and the regulatory institution's effectiveness must be innovative and knowledge-intensive. Meanwhile, knowledge and services are integral to global production, delivering vital benefits across distribution networks (Sawada et al., 2020). Thus, the KIBS industry helps modernize the

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country's knowledge base by using intangible knowledge, which becomes a critical factor for value-creation and improved performance (Figueiredo & Ferreira, 2019). Hence, this field is highly regarded for conducting research.

Furthermore, in the Malaysian context, KIBS is the fastest growing and contributes to economic productivity and competitiveness, with a growth of 5.9%, while projected to reach 6.3%, with 8.4 million workers representing 60.9% of total employment in 2016-2020. Below the graph, the economic growth from 2016 to 2020 reveals GDP.

GDP by Economic Sector, 2016-2020

Growth at Constant 2010 Prices, % p.a.

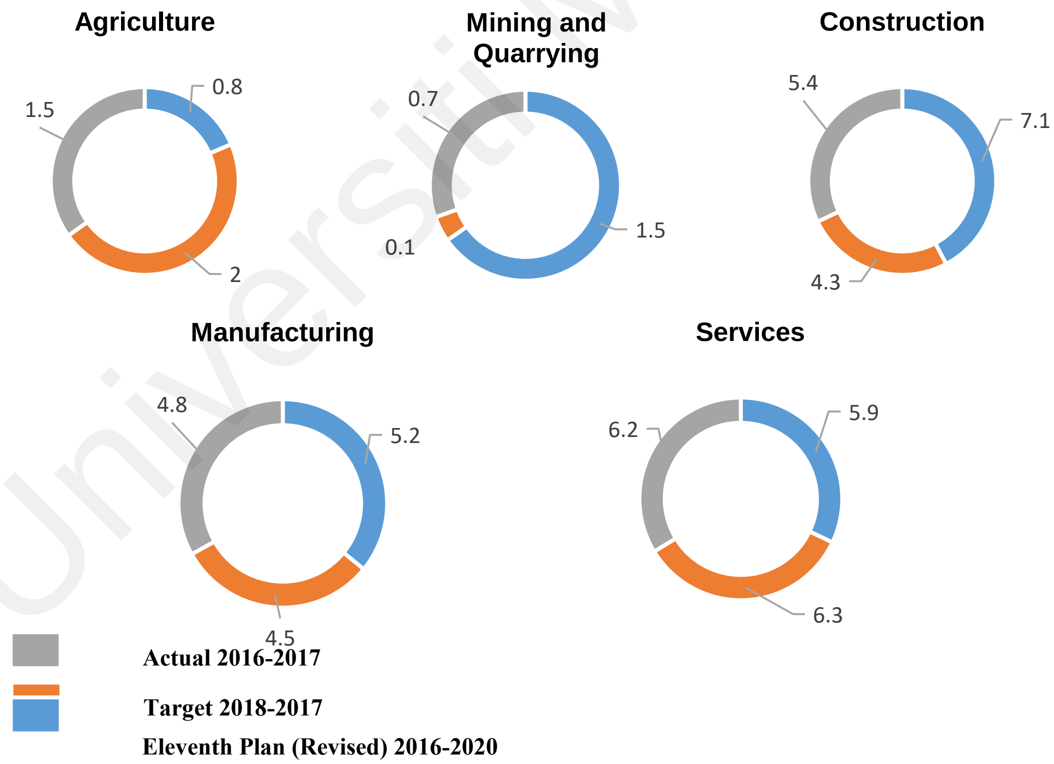

Figure 1.1: Malaysian Economy Blueprint (Continued)

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GDP by kind of economic activity

At constant 2010 prices, % to GDP

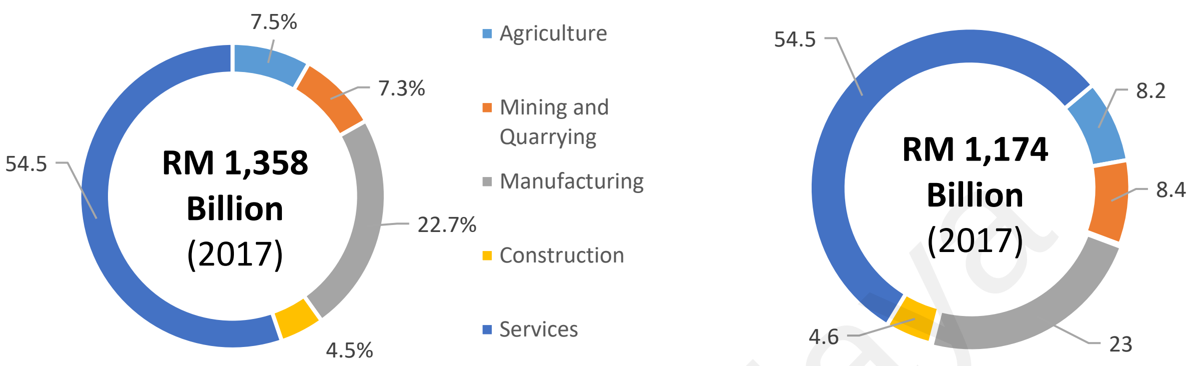

Figure 1.2: Malaysian Economy Blueprint

Likewise, the service sector aimed to maintain the growth momentum by raising the average rate of 6.3 percent, initiated by supporting the Digital Free Trade Zone (DFTZ) and putting emphasis on consumer-related services (e.g., retail, accommodation-related services, food and beverages, and higher household income along with tourism services). However, by 2020, the service sector's contribution to rapid economic growth might be increased by including private education, ICT services, and healthcare subsectors (Ministry of Economic Affairs, 2018, p. 196).

1.2.6 KIBS Development in Malaysia

It is well-established that the service sector's essence has changed considerably since the 1980s due to its proximity to consumers and suppliers. It was viewed as a non-tradable sector as well as labour-intensive consumer services. However, emerging technology has changed the service industries' landscape by minimizing physical presence and increasing service accessibility. These new services are knowledge-based and technology-intensive transitional services that offer a competitive economic edge in the globalized information age. Like this, the service sector starts in Malaysia, focusing on vibrant business services, which produce a massive multiplier effect that inevitably creates employment and overall productivity (MITI, 2019).

The services sector accounts for 53% of the GDP and grows at a 6.3 percent annual rate. Its objective is to establish fast-growing, high-value Malaysian multinational services sectors inherent in the Eleventh Malaysia Plan (2015). This sector remained the primary employment source, with 8.4 million jobs accounting for 60.9% of total employment. On the other hand, the service sector benefits by increasing household income, higher tourist arrivals, rapid telecommunications growth, and a booming financial market. The higher productivity growth in the subsector of ICT has increased by 14.3% percent, followed by 8.2% in finances, 4.5% in insurance, and 4.3% in transport storage (Economic Planning and Statistics Department of Malaysia). The Communication and International Division Department of Statistics (2019) recorded in the most recent analysis that compared to RM 964.7 billion in 2015, which reflects a growth rate of 7.4 percent, the service sector grossed RM1 111.8 billion in 2017.

The government's target for service sector growth is the primary driver of economic growth for the next five years. According to the economic planning unit (EPU) (2015), knowledge-intensive industries such as wholesale and retail, financial services, information technology, and eco-tourism will emphasize economic growth in this sector. Furthermore, the service sector roadmap launched in 2015 enables the business sector to grow. This strategy explores the sector's ability to contribute to knowledge-intensive and innovation emphasis (MIDA, 2020).

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Apart from the primary aim of getting things done efficiently, the service sector additionally takes into account the following:

a) From RM55,574 in 2013 to RM74,101 in 2020, the value-added per worker is projected to increase;

(b) To raise the share of knowledge-intensive industries in GDP from 36% to 40% by 2020; and

(c) Planning to raise their share of value-added exports from 12% in 2010 to 19% by 2020.

In the following approach, the Mid-Term Review of the Eleventh Malaysia Plan (2018-2020) identifies six essential pillars to fostering balanced, sustainable growth and development. The sixth pillar establishes the basis for service and other economic development-based industries (Ministry of Economic Affairs, 2018). Although policies and initiatives already in place allow a wide range of options, there is a need for even more to address ongoing issues. Additionally, multiple approaches to productivity growth exist, along with policy and strategy recommendations, as well as a review of three significant areas of productivity growth, including agricultural production, manufacturing, and service sectors (e.g., professional business services, tourism, information, and communication technology services, machinery appliances, and equipment; and private healthcare) (Ministry of Economic Affairs, 2018, p. 63).

Although in fast-growing counties like Malaysia, knowledge-intensive business services (KIBS) focus on determining the transition into a knowledge-based economy and adapting KIBS for economic growth (MIDA, 2020), the transition from manufacturing to service innovation faces numerous obstacles. Malaysia's service sectors are focused on labour-intensive segments, and knowledge-intensive services associated with export competitiveness are yet to be developed (Tham, 2017). Exporting still relies on manufacturing and commodities. While many challenges lie in the growth challenge,

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knowledge-intensive employment may result in export competitiveness. This industry can create knowledge-intensive jobs and increase the share of services export value-added.

Nonetheless, the importance of the KIBS sector should be developed and discussed in many developing countries. Emerging countries support business processes in other industries by providing, sharing, and transferring knowledge. Malaysia's history is such that the knowledge-intensive sector has become the most critical. In contrast, the knowledge-based industry is anticipated to lead; the growth prospects for Malaysia's economy are solid in this region. Minimal research work was undertaken in this field despite the few exceptions in the manufacturing industry (Cheong et al., 2019; Oki, 2018). Moreover, KIBS in the services industry can contribute to Malaysian economic growth by implementing creative approaches and knowledge sources and improving the competitiveness of MNEs of subsidiaries.

1.3 Problem Statement

This study's key research issue is the large knowledge networks surrounding the foreign-based subsidiary. After thoroughly reviewing the literature, it is clear that the current research focuses primarily on knowledge relationships with external and internal network partners. Additionally, Due to the impact of the MNE's strategy path on foreign subsidiary units, each foreign subsidiary should have its own goal-oriented strategy formulation process that prioritizes the internal and external environments. The performance of overseas subsidiaries depends on both returns on investment and resource utilization strategy. However, the resource allocation technique entirely relies on network partners' propensity to interact (i.e., external and internal). Thus, the relationship and environment of the subsidiary are critical to its performance in an MNE: internal vs. external control (Forsgren et al., 2015). Therefore, it is crucial to create knowledge at the subsidiary level and exchange it with its headquarters.

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According to the literature on foreign subsidiaries, the MNE's headquarters assigns a distinct role to each foreign company based on its capabilities and the host country's strategic importance to the MNE (Bartlett & Ghoshal, 1986). Most studies either concentrate on the transfer of knowledge between headquarters and subsidiaries or between subsidiaries and headquarters, omitting any discussion of resource utilization (i.e., know-how) across the external and internal network. Meaning that subsidiaries' knowledge resources are derived from external network partners (i.e., customers, competitors, suppliers, and institutions), and internal knowledge resources are derived from internally embedded relations (i.e., subsidiary-headquarters embeddedness). From this vantage point, the subsidiary genuinely acquires knowledge through internal embeddedness. Based on existing research, the direction of transfer either from subsidiaries to headquarters or headquarters to subsidiaries in which either subsidiaries or headquarters benefited and the transfer process may be halted or exhibiting less interest as only one party benefits from the transfer process. However, if both subsidiaries and headquarters benefit from the transfer, it will be more robust and resilient in the long term. Therefore, subsidiaries and headquarters require both external and internal network knowledge. However, this study limits the scope to subsidiary performance through external and internal knowledge transfer. While knowledge appears to emanate from the internal network due to the interaction between subsidiaries and headquarters managers, it derives from headquarters via interaction.

On the other hand, subsidiaries acquire knowledge from external network players. Subsidiaries are the recipient in both instances, and this study emphasizes this context. Nevertheless, foreign subsidiaries and the parent headquarters may collaborate and communicate strategically if knowledge development occurs. Moreover, it is essential to guide headquarters in developing a strategy for strategic cooperation but not to compel foreign subsidiaries.

The functions of foreign subsidiaries within their MNE organization evolved as they tried to strengthen their strategic position within the MNE organization (Gupta & Govindarajan, 1994; Bartlett & Ghoshal, 1986). Besides, Birkinshaw et al. (1998) emphasize several factors that influence the foreign subsidiary's role in which subsidiaries define their roles through self-determination or processes; and local environmental determinism; subsidiaries' roles are determined by the opportunities and constraints imposed by the host country environment.

In general, organizational distance (i.e., cross-border) is seen as a barrier to the transfer of knowledge between two organizational units (Nair et al., 2018; Juasrikul et al., 2018; Yang et al., 2008; Gupta & Govindarajan, 2000). As Najafi-Tavani et al. (2012a) explain, cross-border knowledge transfer is more challenging due to language and cultural barriers than knowledge transfer between two enterprises in the same country. This paper suggests that subsidiaries with various practices, systems, and subsidiary-headquarters embeddedness can be a significant source of potential knowledge for the receiving organization to act as a driver of innovation or success for both the subsidiary and the headquarters. In contrast, most empirical research on RKT has been undertaken from the knowledge transmitter's (i.e., a subsidiary of the parent company) perspective (Nair et al., 2018; Mudambi et al., 2014a; Rabbiosi, 2011). This is one side of the knowledge sender perspective, and based on the theoretical reasons, the headquarters operate as a receiver. At the same time, the subsidiary serves as a knowledge seeker and keeper and later as a knowledge sender to the headquarters or sister subsidiaries. In the context of subsidiaries that have access to new, unique sources of knowledge and ideas that may arise from the local market, which might be utilized for both subsidiaries and cross-border transfer, which is essential for the success of MNEs (Bartlett & Sumantra Ghoshal, 1989).

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Moreover, even though internal and external linkages are the primary source of subsidiaries' competitiveness (Ferraris et al., 2017b; Najafi-Tavani et al., 2012a; Frost & Zhou, 2005), most studies focus on only one of these networks, thereby underestimating the effect of the other especially effect of reverse knowledge transfer. This study examines the interdependencies between the properties of this network, RKT, and the impact on subsidiaries.

Recent research demonstrates a significant correlation between RKT and innovation at the headquarters. These results are consistent with the scant scholarly research on the benefits of RKT in the setting of MNEs (Nair et al., 2018; Driffield et al., 2016). These findings lend credence to the basic theory of contemporary research on the internationalization of enterprises, namely that RKT is a key factor in forming the MNE's strategic advantage (Mudambi et al., 2014a; Najafi-Tavani et al., 2012a). Although Jiménez et al. (2019) research emphasizes the importance of RKT, tacit knowledge is essential for enhancing MNEs' competitive advantage while engaging in innovation and requires additional explanation. Besides, Jiménez et al. (2019), like Najafi-Tavani et al. (2012a), underlined the significance of RKT to the innovative capabilities of MNEs. As long as MNEs are nested with subsidiaries and subsidiaries can make independent decisions, including product pricing, revising, launching, and introducing a new product in the local market, RKT's impact on strengthening subsidiaries' position within MNEs and impact on subsidiary performance remains relatively unexplored and require further study.

In addition, this research highlights two crucial mediators in the setting of RKT: subsidiary knowledge development and subsidiary headquarters embeddedness. This research suggests that subsidiary knowledge development mediates the linkages between subsidiary autonomy and external embeddedness with RKT. On the other hand, the

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subsidiary headquarters' embeddedness serves as a mediator between the internal socialization mechanism and the RKT. Significantly, these ties have never been tested, which is crucial for minimizing conflict between subsidiaries and headquarters (Forsgren et al., 2015).

Thus, the network relationships, both external and internal, are essential for subsidiaries and headquarter. Therefore, this research addresses the subsidiary-headquarters relationships dichotomy and subsidiaries with external relations simultaneously for better alignment with external and internal knowledge sources and better subsidiary performance.

In addition to achieving foreign subsidiary performance in the KIBS industry, this study identified several research problems that need to be addressed from an academic perspective and practical consideration.

1.3.1 Issues Related to the Cross-Border Knowledge Transfer

Over the past decade, the significant change in the MNEs demonstrated and highlighted superior competitive advantages over competitors (Kawai & Chung, 2019; Gaur et al., 2019). However, this research typically focuses on capital as the primary source of “firm competitiveness.” Over time, ideas have shifted from capital to "superior capability" by which a firm performs better (Zahra et al., 2020; Berry, 2015).

In addition, the inter-organizational transfer of knowledge is considered one of the most substantial, dynamic, and vital strategic issues of knowledge transfer or flow of knowledge (Marchiori & Franco, 2019; Kalra et al., 2019; Bresman et al., 2010). Cross-border knowledge transfer (i.e., involves more experience, skills, and planning) is more complex than knowledge exchange between two organizations in the same country

(Harzing et al., 2016; Bresman et al., 2010). Because of this, "knowledge is produced and possessed by a certain way of thinking," not by individuals alone (Kostova, 1999). Thus, international trade knowledge is essential for firms operating in different countries than those operating in the same region. Fostering continuous knowledge transfer between subsidiaries and headquarters involves effective communication techniques between subsidiaries and headquarters managers, addressing ongoing issues.

Researchers from various points of view have carried out cross-border knowledge transfer. A research stream focused knowledge transfer on the receiver's characteristics (e.g., the focus on absorptive capacity) (Patel, 2019; Apriliyanti & Alon, 2017). Another research stream investigated sender and receiver characteristics features that illustrated that communication plays a significant role in knowledge transfer (Su & Kong, 2020; Decreton et al., 2019; Bresman et al., 2010; Gupta & Govindarajan, 2000). In line with the research stream, scholars highlight that the sender's motivation is essential to sharing knowledge (Dasi et al., 2017; Simonin, 1999). Gupta and Govindarajan (2000) address how knowledge transfer differs from existing knowledge and the corporation's knowledge resource. Recent studies have concentrated on the cross-border flow of knowledge between countries and the degree to which they cooperate on knowledge transfer (Gölgeci et al., 2019; Berry, 2015; Bresman et al., 2010; Martin & Salomon, 2003).

Furthermore, Perri et al. (2017) consider foreign subsidiaries an essential source of strategic knowledge for headquarters and are better suited for transferring knowledge to headquarters through subsidiaries. On the other hand, the same study addresses that innovative networking in emerging markets has been identified as one of those countries where global actors play a significant role in knowledge transfer. Therefore, sharing knowledge from a subsidiary's external network partners is a triumph if they have acquired a reasonable amount of strategic knowledge. In this case, the more strategic the

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subsidiary's knowledge gained from external partners, its RKT will be more successful. The research will leverage a theoretical model of subsidiary performance to conceptualize a strategy for accelerating external and internal knowledge flows through external network connections and internal processes for subsidiary-headquarter relationships. It demonstrates the approach through empirical studies, showing how integrated, rich, and contextualized knowledge management and its application can trigger knowledge transfer across organizational and geographic boundaries.

1.3.2 Research on MNE in Subsidiary

Traditionally, it is assumed that potential knowledge developed in the parent firm and subsidiary utilizes it for its operation (Ciabuschi et al., 2017a; Ambos & Birkinshaw, 2010). Furthermore, parent firm knowledge provides competitive advantages in international markets (Dellestrand et al., 2020; Nell et al., 2017; Martin & Salomon, 2003). In this respect, the headquarters' strategic position is resource allocation and value creation for subsidiaries. Thus, the conventional assumption of the literature assumes that headquarters firms create value and distribute capital while possessing superior skills their subsidiaries can only use and implement the parent company (Almeida & Phene, 2004). Similarly, Dellestrand et al. (2020) demonstrate that the headquarters' capacity to produce value through resource allocation is contingent upon the resource allocation strategy compatible with resource receivers' dominant behaviour. The perspective could be due to the provider's focus instead of the receiving phenomenon. However, this view changed as recent studies have shown that subsidiaries are also the source of knowledge because of their extensive involvement with local network partners (Asimakopoulos et al., 2020; Andersson et al., 2015b).

Subsidiaries in foreign countries may access new and rare knowledge resources from the local market, which the parent company can use via cross-border knowledge transfer

(Liu, 2019; Najafi-Tavani et al., 2015a; Ghoshal & Nohria, 1989). As a result, cross-border knowledge transfer is vital to help MNEs innovate and grow. So far, the studies examined are all incomparable; however, they all suffer from the fact that there is so little empirical evidence-based transfer of knowledge across the border (Juasrikul et al., 2018). To date, minimal research has been done on how knowledge transfer occurs between headquarters and subsidiaries, so much more research needs to be done on this aspect from the perspective of subsidiaries' knowledge management in MNEs.

While scholars have focused more on RKT, the knowledge transfer mechanism remains ambiguous regarding whether it is facilitated or impaired by factors (Harzing et al., 2016). Some aspects may hinder the knowledge transfer process, including a lack of trust and cultural differences (Ghoshal & Bartlett, 1988). The study shows that motivational willingness to share knowledge influenced by trust and understanding of cultural features may minimize practical knowledge transfer barriers (Ahammad et al., 2016; Sarala & Vaara, 2010). Besides, studies have shown that proximity between organizational units can negatively affect individual trust (Castellano et al., 2017; Haas & Cummings, 2015). It implies that the geographical unit may severely jeopardize the subsidiary's growth if the communication channel is not used correctly. Therefore, appropriate organizational socialization mechanisms (such as the shared corporate culture, joint training programs individual socialization processes) through rotation culture may minimize the gap between subsidiaries and headquarters (Schotter et al., 2017; Smale et al., 2015; Noorderhaven & Harzing, 2009). It is believed that the socialization mechanisms at the organizational level promote the creation and sharing of the concept across the organization. Having the subsidiary and headquarters managers communicate is critical in allowing both sides to succeed.

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The associated relationships between subsidiaries provide the knowledge transfer of the parent companies with a growing amount of knowledge and additional opportunities for their subsidiaries to enter into new technologies (Jeong et al., 2017; Blomkvist et al., 2010). The literature indicates that the parent firm would benefit from the subsidiaries' knowledge resources. However, prior literature has identified the importance of leveraging subsidiaries' knowledge resources (Frost & Zhou, 2005; Bartlett & Ghoshal, 2002). The current study trend involves exposing subsidiaries to more significant innovation in cross-border interaction. However, it does not explore how subsidiaries engage with knowledge transfer in MNEs, nor why this occurs among subsidiaries' networks across borders (Jiménez et al., 2019; Mudambi et al., 2014b). One interesting finding of Gupta and Govindarajan's (1994) research regarding foreign subsidiaries' innovative contributions shows that they will arise from the foreign subsidiaries' autonomous initiatives more frequently than from corporate headquarters' directives. Another paper by Gupta and Govindarajan (2000) shows that the flow of knowledge likelihood also depends on the subsidiary's knowledge, the knowledge network to the headquarters, and how the subsidiary is involved in knowledge exchange.

Recently, research by Najafi-Tavani et al. (2015b) sheds new light on the effect of "embeddedness" on the interaction involving reverse knowledge transfer (RKT) (also refer as subsidiary knowledge flow) and subsidiary power. The empirical study examined how knowledge is transferred from subsidiary to headquarters without assessing success at either the subsidiary or headquarters level. They suggest an integrated subsidiary power model with several power types, but only when combined with reverse knowledge transfer. However, as mentioned above, the study fails to address the effect of external and internal embeddedness (e.g., subsidiary-headquarters embeddedness) on the subsidiary level, which is considered the source of knowledge. For internal networks, internal socialization mechanisms act significantly. It is regarded as a practical knowledge channel from subsidiaries to headquarters and motivates them to transfer knowledge. This study focuses on the external embeddedness and subsidiary autonomy that considerably develop subsidiaries' ability to create new knowledge. In addition to the internal socialization mechanism, the knowledge transfer process increases a close connection. It reduces the gap between subsidiaries and headquarters. This research looks into how subsidiary knowledge development increases RKT, enabling subsidiaries to improve performance better than competitors and assisting in new parent company technologies, which is significantly less addressed in previous studies. Therefore, this research argues that the subsidiaries eventually consider this aspect to maintain a robust network and resource availability. To this extent, this research establishes a relationship between RKT and subsidiary performance. The study combined resource-based view (RBV) and business network theory (BNT) with external and internal network strength, allowing reverse knowledge transfer to achieve better performance for subsidiaries in the competitive market and contribute to MNE's knowledge base.

1.3.3 Significant focus on the Manufacturing Sector over KIBS in the Service Industry

Another weakness of the existing RKT literature is the manufacturing sector's emphasis (Wyrwich, 2019; Noorderhaven & Harzing, 2009; Gupta & Govindarajan, 2000) and subsequent exclusion of the service sector. Service firms are considered "innovation laggards" compared to manufacturing because technology and knowledge can only be developed in the manufacturing industry (Cainelli et al., 2020; Agarwal et al., 2015; Windrum & Tomlinson, 1999). Given that the evolution has long been the case, and that many different views of innovation or new product development have been presented, and because new product development is more generally represented by tangible resources (i.e., manufacturing-based, product-driven resources) (Doloreux & Frigon, 2019; Noorderhaven & Harzing, 2009; Gupta & Govindarajan, 2000). The

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tangible resources that are called the predominant source of competitiveness for companies are the general perception of the tangible resources that are called the primary sources of competitiveness for companies (Chichkanov et al., 2019; Ejermo & Bergman, 2014; Tether & Hipp, 2002). The reasons behind the ignorance are:

- The common understanding of that technical innovation is only possible in manufacturing (Figueroa-Armijos, 2019; Ejermo & Bergman, 2014; Becker & Dietz, 2004).
- The traditional perception of services is that innovation is a laggard, and technology and knowledge only develop in the manufacturing sector (Marzi et al., 2017; Doloreux & Shearmur, 2010; Corrocher et al., 2009).

Although the manufacturing sector has taken on an important role, the service sector is vital in the modern economy. Therefore, it is essential to undergo structural changes, which provide new growth sources (e.g., manufacturing to services changes) (Tham, 2017). Among OECD member countries, services significantly contribute to job creation, generate economic growth, enhance public well-being, and lower economic inequality. Several countries plan to introduce more services into their economies, so they must address productivity and effectiveness (Economic Co-operation & Development, 2018). KIBS is a business service that takes a long period to offer. KIBS provides several advantages for developing countries, such as long-term job opportunities, a more challenging environment, and lower operating expenses (Janger et al., 2017).

The services sector is composed of two distinct subsectors. The first group comprises the services involved in the physical task, like repairs and maintenance. The second group is knowledge-intensive, like business services (e.g., consultancies, computer services). The case second kind is most often referred to as KIBS. Despite this, KIBS is defined as "services that involve economic activities intended to result in the creation, accumulation, or dissemination of knowledge" (Miles et al., 1995, p. 18). To remain in the competition and stay in operation, the organization aims to establish fruitful and effective strategic partnerships with customers (Miles et al., 2018; Murray et al., 2009), indicating an industry with a significant external level embeddedness phenomenon. Notwithstanding some research in KIBS, the earlier contribution is not generalizable across the service sector (Najafi-Tavani et al., 2015b). This study illustrated that the knowledge transfer are demonstrated to have several advantages in KIBS based subsidiaries.

A subsidiary's reliance on local knowledge is more likely to be more critical than its dependence on internal knowledge. It considers multinational companies and subsidiaries, further expanding their enterprises by knowing related businesses. With this in mind, subsidiaries representing their parent overseas can apply their philosophies and equate them to being highly experienced in international economies (Miles et al., 2017; Aarikka-Stenroos & Jaakkola, 2012; Moore & Birkinshaw, 1998).

Besides the fact that service-based firms are more closely linked to the external business alliance and have close exposure to knowledge and skills received from the external players, subsidiaries are likely to transfer this acquired know-how to the headquarters. According to experts, this is somewhat verified in recent literature. There is a lack of knowledge regarding the issue in service-based subsidiaries, and this study intends to fill that gap.

1.4 Research Scope

Over the last 15 years, research on knowledge transfer within multinational companies has accelerated significantly (Michailova & Mustaffa, 2012). On the other hand, Ciabuschi et al. (2015) assert that innovation or performance is critical for multinational enterprises (MNEs) to develop and maintain a competitive edge. The study's objective was to ascertain the effect of subsidiary internal embeddedness on headquarters

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involvement in the development process. Based on the study, headquarters involvement is critical for subsidiaries' knowledge flow or RKT as its participation increases the flow of knowledge. Similarly, external network actors play a significant role in knowledge accumulation and development at the subsidiary stage, and local actors substantially impact a firm's competitiveness (Ambos & Birkinshaw, 2010). As part of the enterprise's overall strategy, maintaining network relationships with local actors allows subsidiaries to generate and design new knowledge (Schotter et al., 2017; Andersson et al., 2002). Headquarters can incorporate gained knowledge from subsidiaries and transfer it through corporations (Gaur et al., 2019; Monteiro & Birkinshaw, 2017; Kogut & Zander, 1993). Thus, both network strength and accountability are needed for RKT, which relates to the organization's success. Therefore, the proposed model is precious to a firm's management. It offers concrete insights into the profile of strategic investments in knowledge transfer required to succeed in a specific industry (e.g., KIBS in the service industry). According to the knowledge development and RKT model, competitive advantage is contingent upon continuously accumulating relevant knowledge from external and internal sources and subsidiaries' autonomy.

This study concentrates on the KIBS in the service industry, a highly prioritized sector in the world MNEs. Despite the service sector's economic importance, relatively few studies focused on KIBS (Pina & Tether, 2016; Najafi-Tavani et al., 2012b). Some kinds of research in the service sector are likely to focus on tangible products. A clear example is Grosse's service sector report (1996), specifically concerned with products that are the business's sole property, such as manufacturing products. KIBS researchers highlight soft technologies or strategies in which managers, distributors, and advertisers are essential. Thus cumulative learning derives from the interaction between a corporation's suppliers and customers. Research in this industry (i.e. KIBS in the service) has not focused on determining the effectiveness of such yet (Pina & Tether, 2016). This is one of the primary reasons for investigating the primary capabilities in this subject to create a solid foundation for further research.

This study is constructed on service-based foreign subsidiaries in Malaysia and their activities, mainly in knowledge-intensive nature. As such, this study tries to identify factors that influence RKT and, consequently, the subsidiaries' performance. In Malaysia, the service sector helps advance its economic and industrial growth by raising productivity, expanding its competitive advantage over other countries, and building up complex value-added activities marked by a concentration of knowledge-intensive industries.

Although Malaysia's income disparity is relatively high for other East Asian Countries, it gradually declines. Significant productivity growth over 25 years is below that of many regional and global competitors (World Bank 2018). Therefore, the service sector can increase knowledge-intensive business because it could support ongoing development and compete with high-income economies. Besides the above reasons, this study is essential to investigate the factors associated with subsidiary knowledge development and RKT that lead to subsidiary performance, theoretical scopes, and data availability.

The database is sourced from Malaysian listed subsidiaries from MITI and OneSource (now known as Dun &Bradstreet), helping compile international subsidiaries in Malaysia. However, most of the data sources are used the OneSource database. At the highest levels, responders included top managers and mid-level managers. The study used the organizational level as the unit of analysis.

Barney (1991) views the firm as being managed concerning a network of resources. Besides, Laumann et al. (1978) propose that the nature of its relations can determine a

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firm's success. RBV is a strategic field where knowledge is essential, and subsidiaries can offer it through network links. It is a single extensive network with the parent company and many subsidiaries. The firms' relations with their subsidiary actors (e.g., customers, suppliers, competitors) are vital and interconnected.

1.5 Research Aim

This study's primary objective is to interlink the firm's resource-based view (RBV) and network view or Business network theory (BNT) and investigate the factors that influence the development of subsidiary knowledge and reverse knowledge transfer (RKT) to benefit both the subsidiary and the headquarters. Although RKT is prominently emphasized, knowledge transfer is decided by whether it occurs from subsidiary to headquarters or from subsidiaries to sister subsidiaries. Both parties benefitted from the knowledge transfer. However, suppose subsidiaries are firmly integrated with external and internal network partners; in that case, they will be better positioned to expand with headquarters. RKT aids the headquarters in providing new knowledge, but the existing literature does not discuss how subsidiaries benefit from RKT. In addition, in the framework of this research, RKT emphasized knowledge-intensive business services (KIBS), its contribution to knowledge exchange, and the level of customization services generated through its network partnerships.

For these reasons, it is essential to emphasize that the significance of this topic is proportional to its complexity, as it involves heavily debated international topics such as human resource management, knowledge management, international business, performance management, and strategic management.

Nevertheless, considering the complexity and multidisciplinary of the research field, selecting the topic, which continues to be a pressing international issue from both a practical and theoretical standpoint, is challenging. Consequently, this study investigates

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the factors influencing subsidiary knowledge development that affect RKT and foreign subsidiary performance. RKT, which impacts both subsidiary and headquarters performance, is effectively implemented by external and internal actors within the KIBS industrial setting. Successful knowledge development does not ensure performance unless the subsidiary and headquarters successfully implement the knowledge. This ostensibly successful shift may be resisted by the disagreement between the subsidiary and the headquarters, resulting in a detrimental effect on performance. Therefore, additional research is required into associate factors and performance or innovation management factors. This study also seeks to construct an integrated model that provides a holistic perspective on why the RKT framework is successful in subsidiary performance. Given this context, the purpose of this study is to investigate further the impact of subsidiary autonomy (SA), external embeddedness (EE), internal socialization mechanism (ISM), and subsidiary knowledge development (SKD) on RKT that impacts foreign subsidiary performance. In addition, this study intends to analyze the impact of ISM that strengthens the relationship between the subsidiary and headquarters. This study also employed several mediation relationships that contributed significantly to the performance. Although this study examines external and internal factors that may influence subsidiary and headquarter performance, subsidiary and headquarter perceptions on headquarter performance have been omitted due to data collection limitations.

1.6 Research Questions

The issue in the previous statement contains several questions involving an empirical investigation. This research, therefore, will look into some of the problems. This study examines connections between external embeddedness and subsidiary autonomy and how those influence subsidiary knowledge development. While investigating the effects of the internal socialization mechanism and subsidiary-headquarters embeddedness concerning

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RKT, it is crucial to explore the associated impact. Several mediation effects include external embeddedness, subsidiary autonomy, internal socialization mechanism, and subsidiary-headquarters embeddedness concerning RKT, which need to be explored. This study investigates the impact of subsidiary knowledge development associated with RKT and, finally, RKT affects foreign subsidiaries' performance. To obtain the objective, the central research question to be studied in this thesis is:

"To what extent do subsidiary knowledge development, internal socialization mechanism, and subsidiary-headquarter embeddedness impact RKT, and how do they affect the performance of foreign subsidiaries in KIBS in Malaysia?"

However, the following sub-questions are suggested to answer the main research questions:

Sub question 1. What effect do autonomous subsidiaries have on the ability to develop knowledge?

Sub question 2. The extent to which it [external embeddedness] matters affecting the further development of subsidiary knowledge?

Sub question 3. To what extent do the development of subsidiary knowledge (SKD) and internal socialization mechanism (ISM) affect RKT?

Sub question 4. In what conditions or circumstances does subsidiary-headquarters embeddedness influence RKT?

Sub question 5. What is the positive effect of integrating the embedded subsidiary headquarters on developing subsidiary knowledge?

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Sub question 6. What factors does the internal socialization mechanism (ISM) affect the subsidiary-headquarters embeddedness?

Sub question 7. To what extent does subsidiary knowledge development (SKD) mediate the relationship between subsidiary autonomy and RKT?

Sub question 8. Are there any mediation impacts on SKD mediating the relationships between external embeddedness and RKT?

Sub question 9. Does subsidiary knowledge development (SKD) mediate the relationship between subsidiary-headquarters embeddedness and RKT?

Sub question 10. To what extent does subsidiary-headquarters embeddedness mediate the relationships between the internal socialization mechanism and RKT?

Sub question 11. To what extent does RKT affect the performance of the subsidiary?

1.7 Significance and Practical Contribution to the Study

This study combines multiple pieces of literature to resolve this research issue, including subsidiary knowledge development, RKT, knowledge-intensive business services (KIBS), resource capacity, and network relationships, as outlined in previous sections. This research explores the knowledge transfer effect with the resource-based View (RBV) and business network theory (BNT) perspective on subsidiary performance in KIBS in Malaysia. Prior study has focused on KIBS in the manufacturing industry, considered the centre for innovation. In contrast, the service industry is viewed as an innovation laggard (Corrocher et al., 2009). This study argues that rare and strategic knowledge sources are knowledge-intensive business resources because they have worked closely with external collaborators and are called "bridges of innovation" between science and the manufacturing sector (Najafi-Tavani et al., 2014). The current research

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looks at the influence of subsidiaries in knowledge-based business activities. It investigates how external knowledge can alter knowledge sharing's organizational factor through internal network relationships as a strategic resource. A lack of studies highlighting knowledge as a strategic resource that resides only within the firm's boundary, failing to understand external knowledge sources (e.g., customer, supplier, competitors), and internal knowledge sources between subsidiaries and headquarters must also be essential to acquire and use. In order to achieve a comprehensive impact, this study assimilates both external and internal knowledge resources to be applied in this study.

The current study's aim, however, is to determine the systematic investigation into the performance of subsidiaries that first connected the factors of the development of subsidiary knowledge and its results in the KIBS industry in Malaysia, most of which were involved in the use of knowledge and technology to drive business. Secondly, to explore how embeddedness (subsidiary-headquarters and external) influences RKT and enhances subsidiary skills development to determine business performance. Thirdly, this study examines the network of relationships that may affect RKT (Najafi-Tavani et al., 2012b). Fourth, identify the relevant characteristics (e.g., the embeddedness of subsidiary headquarters in the parent company, internal socialization mechanism) that influence the RKT. Lastly, this research involves several mediation impacts of subsidiary knowledge development and RKT. Nevertheless, this research also aims to conduct cross-border knowledge transfer; however, foreign network partners are a critical source of knowledge essential to the innovation network (Perri et al., 2017). Moreover, the knowledge-intensive industry in Malaysia can create numerous job opportunities and increase value-added services in the competitive world market.

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1.8 Outline of the Research

The present thesis contains five chapters structured into an integrated framework. The chapter of the research is as follows:

Chapter 1: Introduction- Background and justification of thesis- This chapter delivers a brief explanation of the topics covered for research, research problems, the research scope, study objectives and questions, operationalization of the definition, methodology, and significance of the study, and the outline of the study structure.

Chapter 2: Literature Review- This chapter offers a detailed literature review of the study's theoretical basis. RBV and BNT theories are used in the study. However, this chapter highlighted the systematically derived conceptual foundation of the factor associated with subsidiary performance. Additionally, the literature review addresses the topic of knowledge transfer across borders. This study identified the primary determinants of RKT, external and internal embeddedness, and clarified how it occurs across borders.

Moreover, this study's core area is knowledge-intensive business services (KIBS), which depend entirely on knowledge development from external network partners and internal channel transfer (between subsidiary headquarters through internal embeddedness). This sector is consistently highlighted as innovative and chosen to study in the Malaysian context. The last section summarizes the theoretical framework from extensive literature and proposes research hypotheses.

Chapter 3: Research methodology- This chapter explains the sampling method, the design of empirical research, and the appropriate research methodology. It also describes how the sample and questionnaire are designed. This section outlines the company's list of development procedures, the survey instrument, and the appropriate research

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technique. This section is especially significant because of how this study is planned and why the research design was chosen.

Chapter 4: The empirical study results and Findings- This chapter begins with a brief introduction. This segment, defined with the key analysis, involves demographic characteristics and missing data treatment. Subsequent chapters extensively finalize tests, including outlier examination, normality of the data, Mardia's multivariate normality assessment through skewness and kurtosis, etc. The last part of the subsection includes the majority of the methods for measuring and assessing whether or predicting whether changes in measurement factors (measurement and structural) are the leading causes of an increase in a phenomenon (mechanism and mediation) and the evaluation of the mechanism and control variables as well. This study also performs additional bootstrapping and the Bollen-Stine method to validate the result. This chapter presents the results of the KIBS-based empirical survey of selected samples from foreign subsidiaries in Malaysia.

Chapter 5: Research findings, discussion, and conclusion- This chapter presents the empirical analysis and discussion results on the outcome of the SEM model. However, this chapter comprises two main parts (external and internal relationship characteristics). The effects of subsidiary knowledge development determinants are discussed in this section. The following section explains RKT determinants and illustrates the internal relationships, the development of subsidiary knowledge, and the mediating effects of RKT in the following sections. The chapter also underlined RKT and its performance from an integrated perspective. In conclusion, summarizing the results, the effects and reflections of the research carried out, the impact of both the subsidiaries and the headquarters of this study on international management research, and the practices related

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to research goals in Chapter 1. Lastly, the research concludes with theoretical and managerial contributions to the study.

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CHAPTER 2: LITERATURE REVIEW-KNOWLEDGE TRANSFER FROM THEORY TO PRACTICE

2.1 Introduction

Although knowledge is essential for long-term competitive advantage, different forms of knowledge have differing effects and exhibit qualitatively distinct dynamic characteristics. This is especially relevant for implicit and explicit knowledge. Although tacit knowledge is widespread and robust, allowing for expert-level involvement in various contexts. It is typically highly positioned and travels gradually and selectively across persons, organizations, locations, and times. Alternatively, explicit knowledge is more generalizable and flows more easily and quickly than implicit knowledge but is often less concentrated and diluted. However, in knowledge-intensive services (KIBS) operations, the terms "tacit/implicit" and "explicit" knowledge are significant and crucial. This chapter seeks to critically explore and describe the theoretical underpinnings of the study's research model and several knowledge transfer concepts and frameworks used in the study. It provides empirical evidence for the strategy by analyzing how rich, situated, rare, non-duplicable strategic knowledge can be triggered to flow rapidly through organizations and distances. The words "flow," "transfer," "sharing," "exchange," or "involvement" were all used to refer to knowledge flow or knowledge transfer (Michailova & Mustaffa, 2012). There are varieties of terms for knowledge transfer that are used interchangeably in the different scholarly articles. While previous research on knowledge transfer has concentrated on one-way transfers between headquarters and subsidiaries, subsidiaries and headquarters, or even in multiple directions, this research focuses on reciprocal knowledge exchange between subsidiaries and headquarters (i.e., internal knowledge sources), as well as on the multiple determinants of RKT (i.e., external knowledge sources). This study narrowed its focus and focused on performing empirical research at the level of large foreign subsidiaries; the headquarters level was omitted due

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to data access constraints. Although the most crucial aspect of this research is identifying the impact of the subsidiary-headquarters relationships phenomena that leads to the development of subsidiary knowledge and RKT, This study limited its data collection. It concentrated on conducting empirical research on major foreign subsidiaries. In light of this, a subsidiary-headquarters embeddedness-related response has been devised to elicit from subsidiary managers. It would have a more significant effect if data were managed at the headquarters. According to the study criteria, data collection from headquarters is more complex and subject to more data access restrictions than subsidiaries; therefore, headquarters performance has been omitted from the research model.

This study examined various external and internal factors considered sources of knowledge and subsidiary success, emphasizing the flow of strategic knowledge within the subsidiary. However, to systematize the RKT process, this study focused on the literature on subsidiary knowledge that describes and addresses critical factors that influence knowledge development in the KIBS-based service industry. Following that, the service-based company may apply concepts derived from the firm's resource-driven and network perspectives to analyze the subsidiary's success in the market, which is ascertained by its capacity to deliver knowledge-intensive products and services to its customers.

This chapter contextualizes the research questions within the larger context of the study. This necessitates a reflection of the literature in many fields, including knowledge and its various forms, internationalization of knowledge across borders and global subsidiaries, knowledge management, knowledge transfer, factor affecting subsidiary knowledge development, knowledge transfer, RKT, and KIBS development in Malaysia; the resource-based view and business network theory. Due to the identified gap, this research established and planned a proposed framework. Additionally, this section

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illustrated the extent to which mediation relationships are essential. The chapter concludes with developing hypotheses based on current literature and theory.

2.2 Theoretical Underpinning of the Research

A resource-based view (RBV) and a company's network or business network theory are the theoretical underpinnings of this research. These theoretical grounds investigate which factors influence knowledge transfer between external and internal network players to subsidiaries and how they affect subsidiary performance. The fundamental assumptions of these theories are that resources are the primary factors for productivity. This theory indicates that only successful corporations have vast internal and external networks and considerable, interminable networks. Integrating knowledge gained from external sources into the organization will give firms competitive advantages (Birkinshaw et al., 2017; Harzing et al., 2016; Grant, 1996). Knowledge is an essential resource for businesses, and the best strategic advantage arises from the relationships between and within organizations and external ties with consumers, rivals, organizations, institutions, etc. These relationships promote communication and develop knowledge within and between headquarters and subsidiaries.

Applying research theories underpins the development of a framework wherein external embeddedness and subsidiary autonomy enhance subsidiary knowledge development and positively affect RKT, ultimately increasing subsidiary performance. On the other hand, the internal socialization mechanism and the embeddedness of subsidiaries-headquarters have been described as acting RKT from MNE subsidiaries and the competitiveness of the subsidiary and MNEs, respectively. Due to difficulties obtaining data from headquarters, this research focuses solely on subsidiary-level findings.

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2.2.1 Resource-based View (RBV)

A widely accepted management theory on resources, which has spread across academia and management circles, is theoretically expanding, incorporating different conceptualizations of resources. Scholars see the "Resource-Based View" approach as a fundamental approach affecting strategies and decision-making for academia, management, and policymaking (Clarke & MacDonald, 2019; Alexy et al., 2018; Verbeke & Asmussen, 2016).

In the earlier contribution to RBV, Penrose (1959) conceptualized firms as heterogeneous entities comprising various instruments. Andrews (1980) was concerned with senior leadership's tasks and obligations and used the strategy concept to help them shape the future of their businesses. Based on the concept of strategic function, it is believed that corporate-level strategy should identify the industries in which a firm would succeed and compete, preferably in a manner that focuses resources to translate certain capabilities into a competitive advantage. In the earliest research on strategy, managers were implicitly credited with the capacity to create substantial organization-wide change. Instead of a collection of product-market positions, Wernerfelt (1984) viewed the organization as a collection of resources. As established by Lippman and Rumelt (1982), uncertain and imitable resources may prevent competitors from challenging a market leader. Others have utilized the resource-based perspective to explain the emergence and growth of multi-line organizations. According to Montgomery and Hariharan (1991), a company's ability to diversify depends on its resource base. The company will establish marketing, research, and development capabilities to avoid entry restrictions in industries where these competencies are vital resource requirements.

Grant (2004) described RBV as the function of a company's abilities and resources, which serve as its strategy's fundamental foundation and a key source of economic

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optimization. The same author further distinguished the RBV from the knowledge-based perspective and dynamic capability theory.

The RBV combines the dynamic capability approach and the dynamic resource-based theory (Grant, 2004). Moreover, they propose that the RBV use both resource- and knowledge-based view. The knowledge-based view (KBV) is one of the key schools of thought that attempts to explain the existence of multinational companies (MNEs) (Najafi-Tavani et al., 2012a). The knowledge-based approach believes that a company's knowledge is a strategic resource and views it as an extension of RBV (Grant, 2004; Grant, 1996; Kogut & Zander, 1992). Moreover, knowledge-based theory often specifies the attributes of knowledge.

On the other hand, the knowledge-based perspective believes that knowledge is not just a resource but also the most valuable asset of an organization (Hörisch et al., 2015). Although this study highlighted knowledge as a resource, its features were not investigated. Therefore, RBV theory served as this study's foundation, aligning with Barney's resource-based perspective principles (1991). Barney demonstrated that a resource directly affects an organization's performance if it is valuable, scarce, non-replicable, and unique. Knowledge possesses all of these characteristics, and if it is internal to a company, it is under its control. There is evidence of organizations failing to manage their resources sustainably, resulting in a competitive advantage or, in extreme cases, the organization's decline (Grant, 2004).

Choosing a business strategy involves considering its proliferation of strategic resources, including tangible and intangible, and then turning them into tools to leverage those resources (Alexy et al., 2018; Hunt & Davis, 2012). On the other hand, these heterogeneous resources generate various business strategies over time and mobilize resource heterogeneity throughout the organization (Durand et al., 2019).

Consequently, Dierickx and Cool (1989) see firms as amassing a non-tradable, inimitable, non-substitutable resource stock critical to competitive advantages. However, Barney (1991) provided an improved structure by describing characteristics or resources with significant competitive advantages. The attributes, which contribute to these, are comprised of factors such as (a) value, (b) scarcity, (c) imperfection, and (d) non-replicability. According to Barney (1991), resources are valuable, limited supply, non-replicable, and unique when they have these properties. A firm can be effective only by competitive advantages from these scarce, irreplaceable, unique resources. Furthermore, considering the company's properties, capabilities, organizational processes, firm characteristics, details, and expertise makes for a more efficient value-creating strategy that boosts productivity and competitiveness. Companies should, in other words, outperform or mitigate their shortcomings. However, the resources through which the organization views tangible and intangible resources may be articulated are enumerated (Easterby-Smith & Prieto, 2008). Consequently, firms must liaise with external sources (i.e., suppliers, customers, and competitors), which are vital for subsidiaries.

Moreover, the unique, imperfectly inimitable, and non-replaceable resources allow subsidiaries to build knowledge resources and obtain long-term competitive advantages (Wernerfelt, 2016; Barney & Clark, 2007; Barney, 2001; Barney, 1991). Though the company can have "sustainable competitive advantages," It does so when it generates greater economic profit than any other company in its industry and when other companies cannot replicate its strategic advantages (Barney & Clark, 2007, p. 52). Since subsidiaries are intertwined with external network players, the subsidiary may be better placed to obtain valuable external strategic resources and valuable knowledge and use that to develop and enforce the strategy, thereby helping the business achieve steady growth.

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On the other hand, a strategic resource may be of various attributes depending on the interactions between the sender and the receiver. This theory encourages companies to move into KIBS-based services industries. These services provide practical solutions and opportunities for sustainable skills that allow consumers to participate highly (Ronnie et al., 2019; Little & Deokar, 2016; Almeida & Phene, 2004). This study's primary source of competitive advantages is resources residing at the subsidiary level.

Furthermore, an organization is believed to have a broad set of resources. However, knowledge is rated as the most significant (Sheng, 2019; Hansen, 1999; Grant, 1991) because competitive advantages can come from resources in the inter-firm relationship network. Thus, it is predicted to excel in an inter-organizational context related to distinct business-specific resources entirely different from those used by other organizations (Barney et al., 2011). Despite theoretical development in identifying and evaluating resources, it is typically impossible to determine which of a company's "resources" individually or collectively contribute to its success when confronted with the intricacies of an actual firm. In addition, Colbert (2004) criticized RBV for its incapacity to evaluate performance due to the difficulty or impossibility of building a homogenous sample and, thus, for its inability to make reliable predictions (Priem & Butler, 2001).

According to Tywoniak (2007), RBV is more advantageous for boosting comprehension and giving a strategy framework. Upon recognizing a company's success, the resources contributing to that accomplishment are often judged valuable. Whether the same value would be placed on the resources in a new setting is questionable. Barney and Arikan (2005) assert that RBV logic can aid managers in getting a more thorough understanding of the types of resources that contribute, analyzing the entire spectrum of resources their business may hold, and leveraging those resources with the potential to

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generate sustained strategic advantage. Similar strategies are unnecessary, contend opponents.

This theory focuses exclusively on the internal organization of a firm, ignoring exterior elements such as market demand and relationships with other network participants. Therefore, even if a company has the means and capability to create a competitive advantage, there may be minimal demand because the model does not consider alternative information sources.

According to this study, knowledge is a distinct sort of resource that, when utilized, facilitates the creation of one-of-a-kind strategic chances. Knowledge transfer and strategy are evaluated when knowledge is considered an imitable, valued internal rather than an external resource. Furthermore, they assert that in today's society, with its increasing reliance on service corporations, knowledge has an additional capacity for adaptation and extension that other resources lack, making it the most valuable resource (Lockett et al., 2009). Due to the difficulties connected with efficiently acquiring, codifying, disseminating, and utilizing knowledge, knowledge management as a distinct resource continues to face numerous impediments. Therefore, maintaining the value of knowledge requires an initial investment in training, the specific expertise, and skills of employees, the systematic development of working relationships, relations with customers, competitors, vendors, and other stakeholders, and knowledge transfer directions. Within and outside the firm boundary, subsidiaries acquire knowledge resources through the network of relationships; the direction of the knowledge appears through external sources, subsidiary autonomy, and internal embeddedness with headquarters in which sub-headquarters management exchange knowledge. In this instance, internal socialization is crucial for acquiring headquarters managers' knowledge.

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2.2.2 Business Network Theory

According to Laumann et al. (1978), a business network comprises several interwoven nodes through a business relationship with each other. Following this perspective, a multinational enterprise can be defined as a network of different nodes. A parent company, subsidiaries, and various local customers, suppliers, and rivals are vital in building business relationships. Business relationships depend on the extent of resources embedded within the network partners. Thus, relationships are also rectified in light of the social capital perspective.

Social capital directly affects the potential and existing resource base accessible via and taken from an individual's or group's networks (Nahapiet & Ghoshal, 1998). As a result, when two firms' business relationships strengthen, they are more likely to develop strategies and improve competencies. Thus, adjusting to each other's operations can minimize resource exchange costs. However, in a business relationship, two parties are typically dependent on one another. If they sustain a long-term relationship, dependency will not provide them with immediate benefits from the market. The long-term partnership provides a stable base for future growth (Mats et al., 2005). This relationship is vital for maintaining a strong link between firms because subsidiaries are more likely than individuals to seek mutual benefit through the network of relations or embeddedness (Bloom & Hinrichs, 2017; Ratajczak-Mrozek, 2017; Andersson et al., 2003; Uzzi, 1997).

Uzzi (1996) found three primary dimensions of embeddedness: trust or confidence, the perfect transfer of finely segmented knowledge, and mutual alliance that triggers cooperative ventures. Therefore, intertwined relationships such as those that are embedded within the various subsidiaries (e.g., headquarters, sister subsidiaries) and that exist outside of those subsets are present to facilitate the supply of resources (Bloom & Hinrichs, 2017; Andersson et al., 2015b; Andersson et al., 2003; Hamel, 1991).

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Additionally, a close relationship with the local environment may divert subsidiaries from the MNEs' main objective or agenda and create tension or conflict between subsidiaries and headquarters (Andersson et al., 2002). The conflict between subsidiaries and headquarters is presumed to obstruct the simultaneous pursuits of global or local demands. Subsidiary positions may reflect a sub-optimal balance and are fundamentally misaligned with headquarters. Thus, a socialization mechanism might reduce the tension between subsidiaries and headquarters (Decreton et al., 2019; Ambos et al., 2019; Smale et al., 2015; Gupta & Govindarajan, 2000). Several practical measures are needed to complete the socialization process, including extensive travel and manager transitions between headquarters and subsidiaries, joint team meetings, and task force committees for training activities. The effect of socialization is vital to establishing close relationships between subsidiaries and headquarters (subsidiaries-headquarters embeddedness) and strengthening intra-MNE knowledge transfer (Kim & Anand, 2018; Ghoshal & Bartlett, 1988). The socialization mechanism offers a clear perspective that facilitates sharing resources with headquarters and other participants. Furthermore, subsidiaries, on the other hand, are extensively linked to the local environment, making them more likely to build local knowledge as subsidiaries can decide rapidly and independently.

Moreover, subsidiary autonomy is made possible by a broader external network scope that enhances inter-and intra-organizational partnerships. This connection allows for sharing knowledge with the parent company (Cuervo-Cazurra et al., 2019; Hoenen & Kostova, 2015; Monteiro, 2008). This study effectively emphasizes knowledge transfer to its headquarters, in line with resource-based and network-based perspectives. The conceptual model developed for this study effectively incorporates subsidiary autonomy, dual embeddedness (external and sub-headquarters), and internal socialization mechanism, which significantly impact knowledge transfer and subsidiary performance.

The network gives subsidiaries access to various services, knowledge, industries, and advancements. However, various researchers highlighted that the network of relationships might have a knowledge dimension of the network that is associated with competitive advantages (Hedvall et al., 2019; Huggins & Thompson, 2013; Lee et al., 2001; Dyer & Nobeoka, 2000; Baum et al., 2000; Gupta & Govindarajan, 2000). The relationships between inter and intra-organizational networks are associated with firm performance (Gammelgaard et al., 2012). As a result, this research's primary objective is to address a theoretical void in the literature where fundamental concept networks and organizational knowledge transfer from subsidiaries to headquarters are concerned. Few studies examined how the network of relationships affects the capacity to build upon new knowledge acquired by its network members, including suppliers, customers, and competitors (Inkpen & Tsang, 2005). Accordingly, this research intends to fill the gap of theoretical strands by their relation to each other, which are interwoven to all our studies of space that are operating at the organizational standpoint (i) essential relationships between knowledge and networks, (ii) how the social context from which firms are deeply integrated in business relationships and performance (Gulati et al., 2000), (iii) social capital act as a network of social process (Lee et al., 2001), and (iv) a new source of knowledge that facilitated by social capital (Nahapiet & Ghoshal, 1998). The greater the frequency and length of social interaction or organizational actors, the better the knowledge distribution or transfer (Zahra et al., 2000; Lane & Lubatkin, 1998). Podolny and Page (1998) make an assumption from a network perspective: two primary learning styles. The first group consists of networks where knowledge is transferred between various firms, as seen by the inter-firm interaction evident in the network. For this purpose, the network functions as a gateway for sharing knowledge. It is conceivable that the second network could be the source of knowledge creation at the network level.

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The network theory of the firm is that the higher capacity to accumulate and develop network capital in an inter-organizational or intra-firm capital asset allows substantial external knowledge resources (Huggins & Thompson, 2013). Besides, the inter-organization network is defined as the intense relationship of simultaneous interaction to utilize knowledge access beyond their market relationships (Huggins & Thompson, 2013). Thus, the scope of business relationships relates to value creation regarding services. Therefore co-creations occur due to customer interactions (Grönroos & Voima, 2013). However, value co-creation entirely depends on the multiple intentions among actors in the business network (Hedvall et al., 2019). It is then understood that a business network among actors uses different perspectives depending on its need.

In addition, the type of business network is classified as a single, dyad, or network conferred on the recipient's needs (Jaakkola & Hakanen, 2013; Corsaro et al., 2012), and hence strategy posed in the broader relational approaches (Gummesson & Polese, 2009). However, there could be a direct exchange of resources between two parties at the dyadic stage, including transactions, negotiations, or reciprocity of knowledge required to build a secure connection (Kuwabara et al., 2016). Therefore the connectedness of business relationships among suppliers, customers, and competitors is enacted beyond the dyadic relationship among network members. Scholars have attempted to demonstrate the actor's perceptions of impacting the development of business relationships (e.g., between network partners) (Oinonen & Jalkala, 2015). Meanwhile, the business network involves retaining relationships between actors and the business network (Porter & Woo, 2015). According to the theory, resources are exchanged within a partnership during the initial stages of network interaction. Each network communication modifies the networker's relationship values, affecting their perceptions and decisions. Nonetheless, to improve knowledge transfer or RKT and efficiency in subsidiaries by aligning them more closely with the external and internal relationship characteristics. Based on the theories discussed

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previously, this research aims to broaden and deepen our understanding of the field of study and critically analyze what we know and do not know.

In conclusion, this study identifies two significant limitations the previous research has neglected. First, it disregards external knowledge sources and relationship qualities with external network participants. Second, incorporating a socialization mechanism can lessen the dispute between subsidiaries and headquarters. Even though it is established that subsidiaries are the source of unique and non-replicable resources that are only sent to the headquarters, this fact is the most neglected aspect of the present study. The headquarters makes most decisions about introducing new products to the market; however, external and internal network sources and subsidiary benefits are overlooked. Consequently, based on the theoretical underpinnings, the business interactions with MNEs and external network participants are suppliers, customers, universities, etc.

2.2.3 Preliminary Conceptual Framework Based on Theories

This study aims to connect RBV and the firm's network view, revealing several organizational factors influencing subsidiary performance. Additionally, the study discovered external and internal relationship characteristics, such as knowledge development at the subsidiary, the factors associated with transferring knowledge, the nature of the relationship between sender and recipient, and external characteristics, such as variables correlated with sender-specific factors.

2.2.3.1 The General Characteristics of the Sender

An RBV viewpoint is utilized to conduct this research, in which the argument is made that subsidiary resources and competencies are the primary sources of competitive advantage. These organizations' knowledge base and network of relationships have evolved, as have their connections and resources (Ciabuschi et al., 2017b; Najafi-Tavani et al., 2012b). Along with strong collaboration among internal network actors and external

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relationships with network members, they enhance and assist in developing new knowledge. Later subsidiaries can contribute to the MNE knowledge base (Wen et al., 2020; Andersson et al., 2007a). In addition, considering the sender and the recipient must be considered when describing the relationship is vital in the subsidiary context.

This research implies that the key sources of competitive advantage are at the subsidiary (i.e., sender) level based on the firm's RBV. According to the definition of RKT, however, the direction and technique of determination are essential. Resources reside at the subsidiary level until they are employed or sent back to headquarters, regardless of their significance. It is vital to capture the perspective of headquarters while measuring the innovation of headquarters. However, the current framework defines RKT as network-sourced knowledge (embeddedness with suppliers, customers, competitors, etc.). These network coalitions frequently capture the available knowledge through the subsidiaries' internal integration. (i.e., socialization and subsidiary-headquarters strong ties). Once a subsidiary is granted autonomy, it is easier to absorb knowledge and build solid relations with external network players. Therefore, based on the sender's characteristics, these resources include the subsidiary's knowledge base and network of relationships (Najafi-Tavani et al., 2012a). A close relationship exists between a subsidiary's capacity to form and maintain links with its internal and external players and its potential to develop knowledge and contribute to its subsidiary's knowledge bases and the parent firm (Andersson et al., 2015b). In the context of this research, subsidiaries accessing knowledge from external and internal network actors, where external and internal partners are the senders of knowledge to the subsidiaries, contradicts the notion of the subsidiary as the sender.

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2.2.3.2 Receiver Characteristics

There are various theories about why inter-firm knowledge transfer may be a challenge. However, the focus of RBV and network theory is on the qualities of the recipients, and they may play a considerable role in assisting or hindering the ability to distribute knowledge about those traits. The parent corporations' organizational factors can impact which types of knowledge their subsidiaries can achieve (Szulanski, 1996). Skills can enable business environments in the competitive organizational context, and effective corporate strategy can improve the subsidiary association. The RBV and network theories are formed on sender and receiver characteristics in the MNE environment. The degree of control, effective use of socialization mechanisms, organizational distance, and trust between sender and receiver are at their core. However, many of these elements relating to the sender (e.g., subsidiary) and receiver (e.g., headquarters) potentially increase the opportunity to be effective in RKT (Najafi-Tavani et al., 2012b). Although subsidiary network strength is essential to the success of an MNE, the subsidiary functions as a recipient due to its dual embeddedness characteristics (i.e., external embeddedness with outside the MNEs network partners and with internal embeddedness with headquarters and sister subsidiaries). In this research context subsidiaries also act as a receiver from external and internal network relaitonships characteristics.

2.2.3.3 Inter-firm Relationships

According to business network theory, subsidiaries form alliances with internal (like headquarters) and external (like competitors, suppliers, and customers). Relevant tasks and RKT increase the likelihood of network relationships. Consequently, network partners develop interdependence and strengthen embedded relationships.

Embedded relationships facilitate resource exchange between knowledge seekers and knowledge keepers. Following the network theory, it is identified that implicit knowledge is only meaningfully transferred across intertwined or embedded network links (Schilke & Jiang, 2019). However, internal and external embeddedness is an effective route for exchanging strategic knowledge internally and externally. This study aims to identify factors influencing subsidiary knowledge development and performance. Although the subsidiary acts as a sender of knowledge to the headquarters, this study focuses on several key factors of RKT that significantly affect foreign subsidiary performance.

On the other hand, subsidiaries' knowledge is considered a defining feature of the sender since the subsidiary makes a significant effort in knowledge accumulation. Besides, subsidiary knowledge development serves as a characteristic of the sender. Moreover, the antecedents of subsidiary knowledge development are essential to identify in this research context. Furthermore, subsidiary-headquarters embeddedness and internal socialization mechanism denote their relationship to the knowledge holder, or the degree of knowledge they have accrued indicates a connection with the knowledge seeker.

This research determines the factors associated with knowledge development at the subsidiary level, the external ties between knowledge sender and recipient, and the internal relationships' features, which are considered the key determinants of subsidiary performance. Since this research concerns data collection at the subsidiary level, it excludes the recipient's characteristics (parent company). Below, figure 2.1 illustrates the factor associated with this study's theoretical underpinning and relevant perspectives.

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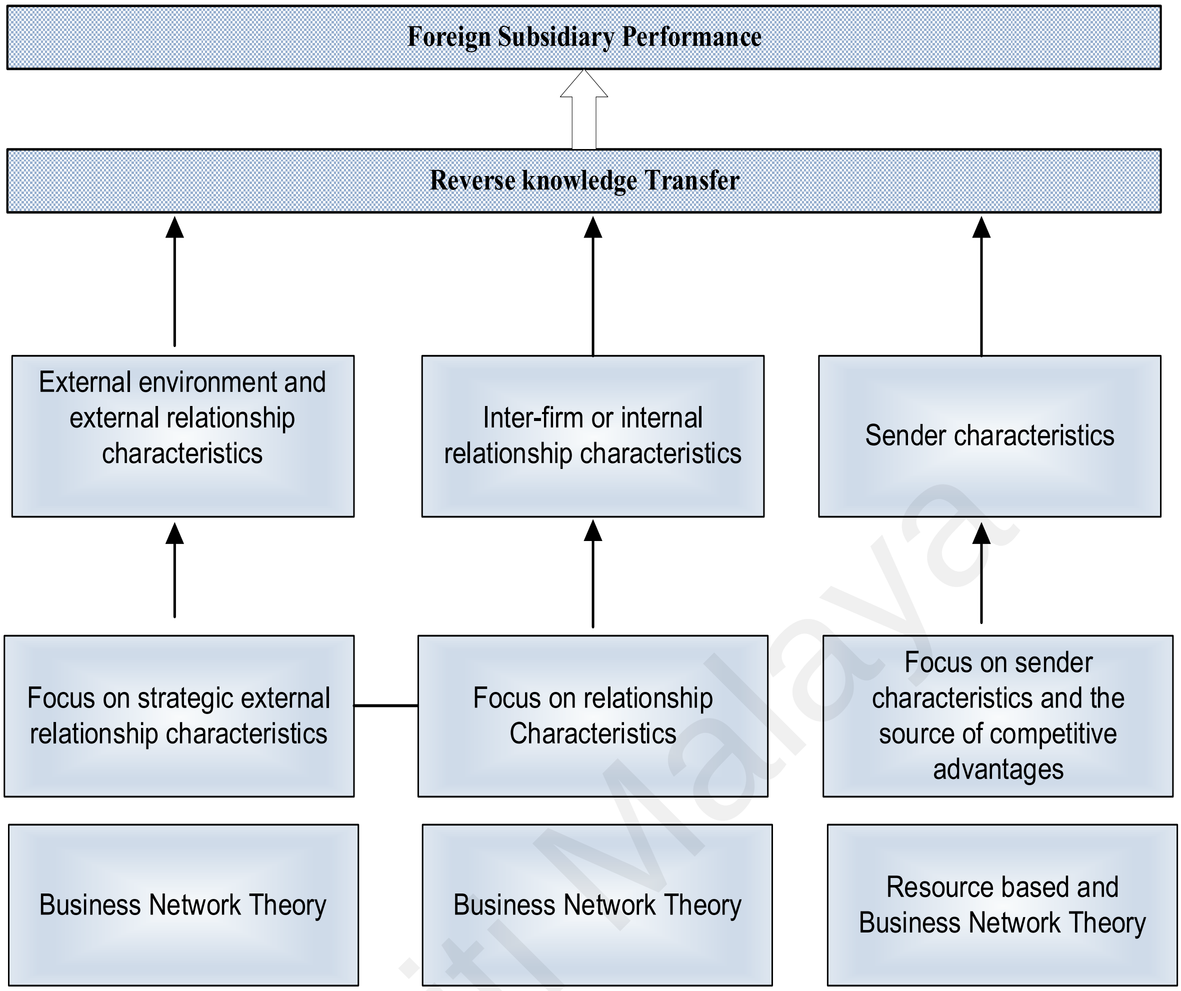

Figure: 2.1: Preliminary Theoretical Framework Developed Based on the Theories

2.2.4 Key Definitions and Operationalization

2.2.5 MNEs

MNEs (headquarters/parent) engage in international production and their affiliates (Root, 1990). MNEs comprise geographical activities with headquarters (HQ) and subsidiaries worldwide (Forsgren et al., 2007). In general, associates or divisions of MNEs manage policy and strategies directly.

MNEs can also be defined as firm control by production assets in over three countries (Birkinshaw, 2016). MNEs represent organizations extending heterogeneous organizational environments (Westney, 1993), a crucial challenge under national sovereignty (Servan-Schreiber, 1967). Besides, the success of MNEs is critical to MNEs and their many foreign subsidiaries (Birkinshaw, 2016). The role includes viewing the companies' products worldwide or contributing to research and development (R&D), manufacturing, or new product as a phenomenon of benefit. In this research context, MNEs are conceptualized as a network in which a strong business relationship is maintained between parent companies, subsidiaries, and local actors, such as clients, suppliers, and competitors.

2.2.6 Foreign Subsidiary

It defines a subsidiary of an MNE-controlled operating unit outside the country (Birkinshaw, 2016). A foreign subsidiary is either part of a wholly-owned corporation in another country or a larger MNE with headquarters governed under the country's laws or the state where the subsidiary is based (Meyer & Estrin, 2014). This research integrates the concept of foreign subsidiaries that owned at least 50% percent share operating from MNEs.

2.2.7 Knowledge Transfer

The transfer of knowledge in organizations has been described as the mechanism by which "one unit (e.g., group, department, or division) is affected by the experience of another" (Argote & Ingram, 2000, p. 151). The definition implies that knowledge transfer requires level, division, and evaluation of the recipients' output. Therefore, the impact of transferring knowledge may change at the organization's level. Besides, Szulanski (1996, p. 28) defined knowledge transfer as the "replication of an internal practice" performed in a superior way in some part of the organization. It is considered preferable to internal alternatives and externally-known alternatives. Internal practices would consist of the regular application of knowledge and the most effective transfer techniques within and beyond the organization. Knowledge transfer also involves two-way communication between a source and a recipient. This research aims to integrate the knowledge concept

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since the proposed framework suggests the subsidiary knowledge development from external and internal network partners that positively affect the subsidiary.

2.2.8 Reverse Knowledge Transfer

RKT through established organizational pathways (i.e., transferring knowledge between individuals, entities, locations, and times) (Nissen & Bordetsky, 2011). To comprehend how to enhance knowledge transfer, it is necessary to understand specific pathways (Anklam, 2003). In this research context, the concept of RKT attributes the technologies or processes and products, skills of management, and intangible resources. The central theme of RKT is innovation, technological growth, and overall performance (Bogers et al., 2017; Holm & Sharma, 2006; Yamin & Otto, 2004). Knowledge is considered a strategic resource and a key contributor to sustainable market advantages. The definition is adapted since knowledge is a vital resource that offers competitive benefits to subsidiaries. According to studies of multinational corporations and their subsidiaries, knowledge transfer is one of the most crucial aspects of subsidiary management. Borini et al. (2016) define the subsidiary's internal competition by demonstrating that a separate subsidiary effort may be required for each process level and competitive heterogeneity. Although very little research has been conducted on RKT, most research has focused on its effect on the competitiveness of headquarters. RKT is crucial for subsidiary innovation and MNE strength (Najafi-Tavani et al., 2015b). In addition, there is a shortage of research on how to reverse knowledge innovation affects subsidiary power and the situations under which these mechanisms occur. Moreover, it is necessary to acknowledge that RKT has evolved in several functional areas by recognizing the subsidiary's special efforts to create and transfer knowledge in new product development, operations/production practices, marketing, environmental, and organizational strategy practices (Gaur et al., 2019; Scott-Kennel & Giroud, 2015). In the context of this study, subsidiaries obtain knowledge from both external and internal network actors, with both external and internal counterparties acting as knowledge senders to subsidiaries.

2.2.9 Subsidiary Autonomy

There is speculation that the concept of autonomy is complex and challenging to understand (Ndubisi et al., 2015; Young & Tavares, 2004). Nevertheless, it also proposed decentralizing the corporate headquarters' decision-making autonomy (Nell & Andersson, 2012). This study's view of subsidiary autonomy allows strategic, functional, and operational decision-making (O'Donnell, 2000). Subsidiary autonomy can be critical to decision-making in local settings and how strategic, technical, and human capital knowledge are applied.

2.2.10 Knowledge-Intensive Business Services (KIBS)

KIBS is defined by Ian Miles et al. (1995, p. 28) as: "...services that are involved in economic activities which are intended to result in creation, accumulation or dissemination of knowledge". In some instances, services provide their customers with the vast majority of the information and knowledge they can convey (e.g., measurements, reports, training, and consulting). Besides, customers may use their knowledge and information-processing resources to serve as intermediaries for their activities (e.g., communication and computer services).

Besides, the dimension of a significant KIBS range is where knowledge is central to any activity. Although KIBS addresses its meaning and characteristics somewhat directly, Miles et al. (2018, p. 3) also provided some insight to reduce the debate about the type and clarity of what knowledge-intensive business service is or what they include:

- **Knowledge-Intensive**: "*being highly reliant on expert knowledge"- for instance, the vast majority of the workforce consists of well-educated and*

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trained professionals. In real-world examples, it is best to employ terms like "architect," "computer scientist," and "designer."

- **Business** – "*interacting with company systems, rather than with final end-users; therefore, most consumers are other organizations" Small and large corporations, charity organizations, and public sector institutions can have accountancy services provided by accountants.*"

- **Services** - refer to offering "*new services rather than producing new products." It is defined as "having a distinctive property that is provided rather than designed; as an activity or an industry that features important operational attributes instead of intrinsic to its success (Intangible artifacts like software, databases, and media content are regarded as services)."*

This research, however, covers Miles's (1995) and (2018) definitions in the sense of study, as the research criteria fall under this category.

2.2.11 Embeddedness

The definition of embeddedness refers to how the corporation and other institutional actors maintain a relationship that drives organizational performance (Gulati, 1998; Uzzi, 1996). Embeddedness is also concerned with social actions and outcomes, the dyadic relations between actors, and the network relationships' overall structure (Grabher, 1993). A dyadic relationship allows knowledge exchange and shares, social ties, and resource combination between subsidiary and parent, enabling the discussion and sharing of knowledge, social connections, and a variety of resources (Lin et al., 2019; Dellestrand, 2011). This research highlights the network of relationships that allow internal and external relations to be maintained and sustained.

2.2.12 Internal Socialization Mechanism

Internal socialization is based on information, facilitating the knowledge transfer from the subsidiary to the parent company or vice versa (Park & Vertinsky, 2016; Ambos &

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Ambos, 2009). Socialization has been argued to improve the relationships between subsidiaries and headquarters and to maintain close ties with partners by reducing business process ambiguity or insecurities (Najafi-Tavani et al., 2012b). The socialization mechanism covers a joint team, task force, and meeting, which increases knowledge exchange and network communication between subsidiaries and headquarters managers.

2.3 MNE, Knowledge, and Organizational Strategy

The management of organizational knowledge has captivated academics and practitioners worldwide over the last decade, owing to the exponential growth of MNE research. However, in the MNE context, the definition of MNE and subsidiary is perpetually ambiguous, as various researchers interpret it differently. Furthermore, grasping knowledge to comprehend and represent it accurately is vital. As a result, this section clarifies the concept of knowledge and its dimensions (e.g., implicit and explicit aspects), knowledge in organizations, MNE conceptualization, and how MNE uses knowledge in a broader context. This part is devoted to comprehending these facets and the contexts in which organizations position them in this literature review.

2.3.1 Concept of MNE

Since it is now understood that contemporary MNEs comprise knowledge that must be utilized and used to implement competitive advantages, the critical question arises: what is knowledge? In addition, what knowledge does the organization need?

In epistemology, knowledge is a point of contention, with practitioners and researchers describing it in various ways. Knowledge is a process of learning and an experience of something. It can be acquired through education or practical experiences. Plato, the founder of Western Epistemology, described knowledge as a "justified true belief." Humans hold a justified belief: "Knowledge is tasted by seeing whether it predicts our experience of that reality" (Spender, 1996, p. 45). This means "knowledge is

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objective, absolute and context-free" (Nonaka & Toyama, 2005, p.421). However, organizational knowledge is subjective, which generates new knowledge. Therefore, defining knowledge is difficult, as no single definition exists in philosophical or organizational circumstances. It is assumed that knowledge can be acquired by understanding and carrying out tasks where there is no restraint of knowing things, as different knowledge works idiosyncratically. Knowledge can be classified according to the topic of study and the sequence of acquired facts.

"Knowledge is a complex concept with multiple layers of meaning" (Nonaka, 1994p.15). It is a process of knowing things and producing efficacious outcomes. Michael Polanyi (1966) views knowledge as an "intellectual capital" to transform individuals and organizations. Competitiveness is inextricably related to employees' experience, know-how, brainpower, procedures, and ability to enhance those processes (Frederick & McIlroy, 1999). However, Quinn et al. (1999) classified knowledge as an "Intellect of Organization" and divided it into four categories: cognitive (know-what), specialized skill (know-how), system comprehension, skilled institution (know-why), and self-motivated ingenuity (care-why). The term "know-what" means knowing reality or facts closer to information. Know-why refers to systematic and technical knowledge. Besides, know-how refers to skills and the ability to do things in the scientific field of knowledge. Know-why is the knowledge about human intellect, the natural world, and culture. However, self-motivated creativity is somehow linked with innovation, which increases the firm's value.

Any organization's knowledge is regarded as a critical resource. Although generating knowledge is costly, it has a minimal cost regarding diffusion (Clarke, 2001). However, Frederick and McIlroy (1999) assert that once knowledge is discovered and made public, it is a zero marginal cost to share with others. Additionally, Fredrick and McIlroy anticipated and conceptualized this definition based on contextual environments. Knowledge is context-based comprehension of facts, representation, or ability acquired through experiences. Davenport and Prusak (1998) deliver an illustrative concept of knowledge that is:

"*...a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experience and information. Knowledge originates and is applied in the mind of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms*" *(p.5)*

The initial perception implies that knowledge resides within the person, establishes a well-designed framework within which various elements are presented, and continually provides the organization with new experiences. Additionally, organizational knowledge is incorporated into competencies, processes, capabilities, and practices, contributing to the firm's development. Subsequently, this concept implies that individuals create and consume knowledge within and outside the organization. Knowledge can appear tacit/implicit or explicit, but it occurs distinctly. On the other hand, explicit knowledge resides in archives or as a database system. Besides, in people's minds, tacit knowledge occurs in many forms: functional, phenomenal, semantic, and ontological (Misra et al., 2003).

2.3.2 Dimensions of Knowledge (*Tacit vs Explicit*)

Since the field's inception, organization and management theorists have recognized implicit knowledge and related concepts (i.e., insight, know-how, explicit knowledge) in organizational functioning (Easterby-Smith & Lyles, 2011). It is believed that Polanyi (1967) pioneered the concept of implicit or explicit knowledge. However, before Polanyi, the German philosopher Martin Heidegger made an "important distinction between formalized, propositional (i.e., explicit) knowledge and everyday contextual (i.e., tacit) knowledge, and regarded the latter as providing the foundation for the former"

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(Gueldenberg & Helting, 2007, p. 105). The two viewpoints on knowledge and the two modes of knowledge constitute the cornerstone of an ever-growing important area of literature. Most of this has been developed in the "Knowledge Management" area.

The word "explicit knowledge" refers to "easily codified, articulated, and communicated to others" knowledge (Newell et al., 2009, p. 7). It is typically impersonal and manifests in documents, journals, exhibits, and catalogues, among other things (Prusak & Davenport, 2013; Holste & Fields, 2010; Nonaka & Takeuchi, 1995). Consequently, the tacit (or "know-how") is associated with individuals' abilities through their experience in particular contexts. Therefore is endowed with an intrinsic personal attribute that complicates formalization and communication (Newell et al., 2009).

Tsoukas (2005) argued that considering the widespread acceptance of Nonaka's view of implicit and explicit knowledge in recent years, "Polanyi's explanation of tacit knowledge's essential ineffability" should be retained. Tsoukas (2005) also asserts that tacit knowledge cannot be recorded, encoded, or transformed. Rather than that, it can be displayed and manifested, and new knowledge arises because of social interaction that improves professional performance rather than implicit to explicit conversion.

Additionally, Tsoukas (2005) distinguished three dimensions of tacit knowledge. There are three types: (i) the functional, (ii) the phenomenal, and (iii) the semantic. Tsoukas (2012) added that the primary feature of the functional aspect is the from-to relationship of particulars (or subsidiaries) to the focal. "subsidiaries exist as such by bearing or the focus to which we are attending from them" (Polanyi & Prosch, 1977, pp. 37-38). However, the distinctive feature of the transition of "subsidiary experiences into a new sensory experience" is the same as the semantic aspect of subsidiaries, which is the focal point on which they bear" (Tsoukas, 2005, p. 7). Since subsidiaries exist due to their impact on the concentration that they are involved in, they cannot be disassociated from the focus and analyzed separately, as this would obliterate their purpose.

2.3.3 Conceptualizing Knowledge in the Organization

Conceptualizing knowledge within an organization is challenging and context-dependent on the form of knowledge that the organization wishes to capture. In an organization, a group unites to achieve a particular goal. Nonaka (1994) stresses that although the term "knowledge" and "information" are frequently used interchangeably, a clear distinction exists between them. Additionally, they argue that "information is a flow of message, while knowledge is created and organized by the very flow of information, anchored on the commitment and beliefs of the holder" (Nonaka, 1994, p. 15). Consequently, knowledge organization remains deduced from individuals who "possess" a cognitive viewpoint. When knowledge is interpreted structurally, it is classified according to its form; the two most prevalent types are "explicit" and "tacit" knowledge (Newell et al., 2009).

Moreover, Tsoukas's (2005) evaluation of Nonaka and Takeuchi's review of Polanyi's tacit knowledge exemplifies several critical viewpoints. The broadest sense of Polanyi's claim is that the difficulties encountered in transforming tacit to explicit knowledge are due to the unquantifiable nature of specific tacit knowledge, which cannot be recorded, interpreted, or altered and yet only manifests and shows itself through our behaviour. Tsoukas (2005) also demonstrated that "we acquire new experience not when the tacit becomes overt, but when social interaction punctuates our professional accomplishments in novel ways." As a result, these two perspectives on knowledge serve as the foundation for the rapidly emerging critical areas of knowledge management literature.

According to the above perspective, adherents to science are regarded practically (Tsoukas, 2006). Thus, knowledge is viewed as equivocal (open to multiple

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interpretations and definitions), contextual (accepted concepts can shift as actors and circumstances change), and context-dependent (arduous to comprehend) (Newell et al., 2009). Likewise to the "practice perspective," which is relevant to the social constructivist view of knowledge as a social process in which "actors engaging in specific social contexts come to negotiate worldviews," knowledge is context-sensitive and difficult to disentangle from the context in which it is created (if not impossible) (Newell et al., 2009). This perspective emphasizes the critical role of social capital and networks in knowledge work, characterizing it as "less about transforming," capturing, transmitting various types of knowledge, and establishing an 'enabling context' that brings together disparate social groups and interests. However, this view emphasizes the vital role of social capital and networks in knowledge work, characterizing it as less about transforming, capturing, and distributing diverse types of knowledge and creating an 'enabling context' that brings different social groups and interests together. Therefore, knowledge can be described in the organizational context and conceptualized as the result of individuals' or collectives' understandings (which may include knowledge stored not only in the individual's brain and body but also in organizational routines) and actual experiences with other actors in a specific knowledge work situation (Newell, 2015). Above all, it is abundantly clear that knowledge goods, intellectual property, employee relations, and success lessons can discover organizational knowledge. Finally, knowledge is classified into four categories: implicit, explicit, individual, and collective.

Notably, in strategic management, organizations have prioritized organizational knowledge. Thus, for companies to survive and achieve competitive advantages, they must obtain, incorporate, store, and share knowledge (Grant, 1996; Kogut & Zander, 1992). As a result, knowledge is essential for establishing and sustaining long-term competitive advantages (Grant, 1996; Spender, 1996). Looking at strategic and superior

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knowledge to enable effective action is crucial. Further effective action leads to superior performance, resulting in competitive advantages.

2.3.4 MNE and its Evolution

Although numerous studies have described MNE as an organization's attitude toward people in other countries, ideas, and resources at its headquarters and subsidiaries, as well as in its home country and the host environments, this description appears crucial when assessing a company's multinational status (Perlmutter, 1969). From a specific vantage point, the most fitting and suitable perspective is Perlmutter (1969), who approached MNE through three crucial lenses: (i) ethnocentric, (ii) polycentric, and (iii) geocentric. According to Perlmutter's "*ethnocentric*" or home country orientation, the organization is highly complicated within the home country but relatively straightforward within the subsidiaries. Furthermore, headquarters maintains authority and decision-making by one-way communication of commands or directives to subsidiaries.

The second established attitude by Perlmutter, "*polycentrism,*" implies a "host country orientation." This structure demonstrates the subsidiaries' independence, as decision-making and control are decentralized. This approach identified the lack of communication between headquarters and subsidiaries within subsidiaries (Wang & Suh, 2009). As a result, the polycentric approach included host country nationals working in MNE subsidiaries and home country managers reporting to the MNE's headquarters (Johnston, 2005).

Polycentric management attitudes were prevalent during the "second wave" of internationalization in the 1950s-1960s. Perlmutter (1969) and Hedlund (1986) proposed that this organizational structure was beginning to imitate a more multinational-oriented organization. However, the absence of cooperation and integration with headquarters did not constitute a genuinely multinational enterprise. The failure to integrate with headquarters is that geographically distinct subsidiaries spawned a "virulent ethnocentrism among the country managers" (Perlmutter, 1969, p. 13).

Perlmutter's third orientation, "*geocentrism,*" is associated with the concept of "world orientation." According to research, the organization has become more complex and interdependent within this system. There is a distinct collaboration between headquarters and subsidiaries and the knowledge transfer (vertically) and between subsidiaries (horizontally). The geocentric method is employed by managers from every country who have amassed sufficient experience and are familiar with the organizational standards of the particular MNE (Johnston, 2005). Product know-how, capital, and knowledge transfer are increasingly complex patterns markedly different from the ethnocentric firm's structure flow. Perlmutter's analysis did provide a values-based lens through which to view the multinational. However, Bartlett and Ghoshal (1986) and later Birkinshaw and Morrison (1995) began emphasizing the changing nature of the MNE structure, implying that the MNE cannot be accurately depicted as hierarchical and thus requires additional attention. It is noted that Hedlund's heterarchy is strikingly similar to Bartlett and Ghoshal's transnational. Both were organized as networks comprised of various subsidiary nodes, each unique. It was advantageous for them to provide subsidiary management with a strategic role that would impact both the subsidiary and the global MNE.

Bartlett and Sumantra Ghoshal (1989) described the MNE as a "differentiated network," a term Nohria and Ghoshal expanded upon. However, Bartlett and Ghoshal (1989) demonstrated that the model is predicated on an acceptance of the subsidiaries' diversity, with each presenting "unique exigencies" that are "unable to be adequately addressed by a uniform organizational structure" (1989, p. 5). This model served to recast the MNE as an "inter-organizational system rather than an organization," taking resource configuration, the density of cross-national interactions, and regional groupings into account. On the other hand, Nohria and Ghosal described MNEs in terms of their internal relationships, headquarters, and relationships with other subsidiaries. They identified four factors that affect the capacity of MNEs to promote various types of creativity: (a) the configuration of organizational assets and excess resources; (b) the organizational structure of headquarters-subsidiary relationships; (c) socialization processes; and (d) communication patterns (Nohria & Ghoshal, 1997, p. 43). However, this study did not take part in precisely analyzing the effect of subsidiary-headquarters relationships.

On the other hand, researchers began investigating MNE subsidiaries as a competitive edge for the MNE (Ghoshal & Bartlett, 1990, p. 619). On the MNE, study priorities shifted dramatically from a "top-down" to a "bottom-up" viewpoint. As a result of Ghoshal and Bartlett's (1990) work, researchers began referring to MNEs as "multi-local networks" rather than singular entities (Kristensen & Lilja, 2011; Kristensen & Zeitlin, 2005).

Therefore, another piece of evidence explains the MNE structure, its entirety, and recent developments. This current research is based on Ghoshal and Bartlett's (1990) and Nohria and Ghoshal's (1997) network concepts. However, the idea is to associate the links between internal and external environments and corporate strategy and structure and create a new MNE strategy for global coordination of innovation by leveraging the entire MNE network of knowledge resources and applying a practical approach to subsidiary-headquarters relations.

2.3.5 Conceptualize Knowledge in the MNE

The multinational study's theme of knowledge was conceptualized differently from the start. An important question emerged about which knowledge constitutes a strategic resource upon which MNEs build their competitive advantages and multinational

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enterprises' strategic knowledge development position**.** The modern MNE is a complex structure comprised of interconnected networks and extensive communication channels that span the MNE's global context, and cross-border cooperation has become more prevalent (Hinds et al., 2011). However, effectiveness is contingent upon collaboration between contexts (Reiche et al., 2017; Bhagat et al., 2002). Therefore, a significant portion of knowledge in MNE units is contextual and tacit (Gupta & Govindarajan, 2000). By definition, tacit understanding necessitates communication and incorporation beyond natural language. The difficulties are inherent in transmitting and integrating tacit knowledge across borders are exacerbated by the subtle and unspoken variations in beliefs, preferences, behaviours, and norms that are themselves rooted in the culturally and socially embedded tacit knowledge necessary for the MNE's success (Sheng, 2019; Subramaniam & Venkatraman, 2001).

Spender (1998), on the other hand, argues that while knowledge exists on an individual level, it also exists on a social and collective level. However, collective knowledge is regarded as "the most valuable to organizations because it is a knowledge that other firms struggle to understand and imitate" (Spender, 1996, p. 238). A pluralistic epistemology of knowledge based on psychology, philosophy, and positivist premises- "implies a theory of the firm as a system of knowledge types and processes" (Spender, 1996, p. 63). This leads to the assumption that organizational experience is the aggregation of individual outcomes into "a body of shared knowledge and meanings that, abstracted, externalized, memorized, and made available to new members, could survive the departure of the original individuals" (Walsh & Ungson, 1991, p. 61). As a result of the initial point, this study conceptualized knowledge in the sense of MNEs as firms that possess valuable, finite, exclusive non-replaceable resources to develop and retain a competitive advantage.

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Regarding the subsidiary knowledge development background and that the cross-border unit of subsidiary managers possesses, especially knowledge referred to as host business knowledge and firm-specific knowledge are regarded as organizational tools capable of generating a competitive advantage in the host market. On the other hand, both the subsidiary and the headquarters have a network of relationships (e.g., social capital), and the process available through this relationship is a possible operational advantage that can assist a subsidiary in achieving a competitive edge within the MNE network (Nahapiet & Ghoshal, 1998). Besides, Kogut & Zander (1993, p. 625) claim that "an MNE arises not out of the market failures for the buying and selling of knowledge but out of its superior efficiency; an organizational vehicle by which knowledge is transferred across borders."

2.4 Knowledge Transfer in the Organization

This encompasses many interconnected effects on organizational units (e.g., groups, departments, divisions) like their experiences and can be defined as "the process by which a single entity (such as a group, department, or division) is influenced by other groups (e. organizations (like others) that operate (function, accomplish)" (Argote and Ingram (2000, p. 587). The definition suggests that knowledge transfer involves different levels and departments and is measured through the recipient unit's performance. However, knowledge transfer at an organizational level might change in transfer activities from one unit to another. On the other hand, Szulanski (1996, p. 28) defined knowledge transfer as the -"replication of an internal practice that is performed in a superior way in some part of the organization." Internal practice is the routine application of knowledge and is the most effective form of knowledge transmission within or outside the company. Furthermore, knowledge transfer is the bidirectional flow of organizational knowledge between a source and the unit or source that receives it (Pu & Soh, 2018; Anand, 2011; Gupta & Govindarajan, 2000).

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To put it another way, Minbaeva et al. (2003) operationalized knowledge transfer as "the key element in knowledge transfer is not the underlying the (original) knowledge, but rather the extent to which receiver acquires potentially useful knowledge and utilizes this knowledge in own operations" (p.587). This description shows that knowledge transfer occurs in steps across organizational units, beginning with information recognition and concluding with knowledge application in the receiving unit. Organizations can encourage learning through several internal policies, methods, and procedures. On the other hand, knowledge transfer can occur in an organizational or occupational group or geographical area (Juasrikul et al., 2018; Schotter et al., 2017; Tallman & Phene, 2007). An organization can be benefited when it learns from another, and organizational learning efficiency gains are essential (Argote, 2012). Knowledge transfer within or outside firms could be technological know-how (Ivus et al., 2017; Teece, 1977) or replication of organizational routine (Nelson, 2009).

Knowledge transfer is complex for companies to comprehend (Dalkir, 2017; Wang, 2013; Turner & Makhija, 2006). Sanders et al. (2009) noted that knowledge transfer involves equivocal patterns of information, which is challenging to manage and control. Therefore, the organization's need to capture knowledge is the most critical driving force for a 'firm's performance.' However, Tang et al. (2008) assume that impressive knowledge holders occupy or possess more technical knowledge, and by using knowledge, organizations will be able to minimize difficulties. Further, it helps towards efficient and faster knowledge solutions within the organization because knowledge is rooted in three essential components; members, tools, and tasks.

Effective knowledge transfer depends on the organization's relevant technology, appropriately knowledgeable and skilled workers, and a well-functioning knowledge transfer process (Argote & Ingram, 2000). Knowledge is critical to firm innovation and performance (Doloreux & Gomez, 2017; Cui & Wu, 2016). However, it is notoriously difficult to capture and implement (Nidhra et al., 2013). This study emphasizes acquiring knowledge from external sources and transferring it to headquarters to improve organizations' performance. In addition, knowledge transfer is critical in both internal operations and the broader environment. It positively affects business efficiency, creativity, and development in the industry and understands how knowledge and information flow across a network.

2.4.1 Inter-Organizational Knowledge Transfer

Several factors or mechanisms involved in the effective transfer of knowledge at the macro-level within inter-organizational arrangements are identified in the existing literature. These include the organizational routine (Salvato & Rerup, 2018; Knott, 2001), the strategic alliance phenomenon, which involves sharing, exchange, and product development by technology and services (Bresciani et al., 2018), as well as joint ventures (Birkinshaw et al., 2017). Several factors facilitate or hinder inter-organizational knowledge transfer in the MNE context, including casual ambiguity (Szulanski, 1996) and absorptive capacity (Xie et al., 2018; Cohen & Levinthal, 1990). Therefore, the relationships between units are significant in the transfer of knowledge. Moreover, knowledge transfer is essential for an organization as it strengthens systematic workflows and inter-organizational ties (e.g., mergers, acquisitions, and alliances).

Existing literature recognized the potential barrier to cultural differences and geographical distance knowledge transfer processes. Therefore, the barrier may be reduced by the interaction between global and local entities (Milagres & Burcharth, 2019; Easterby-Smith et al., 2008). An effective socialization mechanism expects to increase the interaction between network partners (Decreton et al., 2019).

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The notion of firm development depends on knowledge acquisition by the systematic and successful alliance-partner collaboration to disseminate information through the business unit (Walter et al., 2007). Moreover, Lawson and Lorenz (1999) found that sharing and integrating knowledge can improve a firm's innovative capacity. However, Kang et al. (2010) stress that knowledge transfer is vital in generating new information to increase knowledge value. Knowledge transfer, therefore, involves innovation processes (Song et al., 2018; Ndubisi et al., 2015). Studies show that knowledge acquisition and innovation underpin the firm's competitive advantages (Wang, 2013; MacKinnon et al., 2002). This study expects to improve subsidiary efficiency with knowledge development and successful network relations. Therefore, the MNEs should focus on different mechanisms for working inter-organizational collaborations, such as joint ventures and funding agreements, values, and resources such as shared, to help exploit or promote a product or service for different subsidiary and collective value growth. Thus, inter-organizational knowledge transfer's key purpose is to increase organizational participation to address the volatile and equivocal business conditions to meet market demand. Developing skills can allow the direction of business environments to be met, suggesting internal organizational strategy changes required in a dynamic organizational or inter-organizational context.

2.4.2 Challenges of Knowledge Transfer

Several issues in the effective knowledge transfer mechanism between senders and receiver units have been identified in the earlier research. However, it may not be successful due to the stickiness of knowledge. The term "stickiness of knowledge" refers to the difficulties or barriers in knowledge transfer. Several factors have been identified as knowledge transfer barriers, including language and cultural barriers (Vlajcic et al., 2019; Braun & Hadwiger, 2011), lack of trust, and the functional structure of knowledge transfer processes (Grunert et al., 2008). Nonetheless, a "lack of leadership and

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managerial direction" regarding knowledge sharing and transfer is another impediment or obstacle to knowledge transfer (Minbaeva et al., 2018; Szulanski et al., 2016; Formentini & Romano, 2011).

Consequently, the stickiness of knowledge derives from Von Hippel's (1994) "sticky information," introduced in 1994, which is somehow problematic and challenging to transfer (Szulanski et al., 2016; Li & Hsieh, 2009; Szulanski & Winter, 2006). Stickiness may appear in different levels or perspectives (e.g., stakeholder, organizational) (Szulanski et al., 2016), scientific (Blackman & Benson, 2012), knowledge transfer (Sukoco et al., 2018; Li, 2012; Kang et al., 2010), and service design consulting perspective (Xue & Field, 2008). However, Szulanski (2002), on the other hand, describes several sticky factors that obstruct the knowledge transfer process. The following are some of them: (i) unproven knowledge, (ii) source lacks incentive, (iii) receiver lacks absorptive capacity, (iv) recipient appears to lack absorbent capacity, (v) barren organizational background, and (vi) complex sender-recipient relationships. They all lead to knowledge transfer challenges or obstacles. It is evident that either in inter-organizational knowledge or in transferring cross-border knowledge, these factors cause serious problems.

Besides, Kostova and Roth (2002) also focus on organizational practices, including organizational routines, hiring practices, software development, and manufacturing production lines relevant to knowledge transfer stickiness. On the other hand, Szulanski (1996) investigated difficulties that may cause the transfer process to fail (Gou et al., 2019; Gupta & Govindarajan, 2000). Additionally, Szulanski and Jensen (2004) identified stickiness as a transfer barrier that makes it hard for a company to exploit its knowledge with partners. Later in the latest paper, Szulanski et al. (2016) argue that stickiness is not a problem for knowledge transfer activities due to the electronically

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mediated channel. Nevertheless, Szulanski and Jensen (2004) found that while cross-border organizational practice provides MNE competitive advantages, stickiness delays or hinders the transfer process. Therefore, identify the factors affecting the process and increasing or decreasing knowledge transfer. They also tries to measure stickiness, and identify specific problems by evaluating transfer channels as sender and recipient to overcome barriers. Their study investigates the effect of stickiness on transferring. Stickiness may also occur during MNE's know-how (knowledge) transfer of communication difficulties or related issues.

Unlike Szulanski (2000), Von Hippel (1994) argues that stickiness is related to performance management metrics as it helps solve business challenges by defining particular issues. Conversely, Li and Hsieh (2009) show that high stickiness can impede knowledge transfer from MNEs to their subsidiaries, limiting innovation. This study supports earlier (Huan et al., 2017; Szulanski et al., 2016; Gupta & Govindarajan, 2000). Several studies indicate that a greater level of stickiness in manufacturing positively affects productivity. Stimulating the relationship between the sender and its partner also aids in expanding their capability, manufacturing process, and the quality of their suppliers (Sukoco et al., 2018; Parmigiani, 2007; Modi & Mabert, 2007).

Li and Hsieh (2009) explored that stickiness positively influences knowledge implementation, internalization, and implementation, enhancing innovation and effective knowledge transfer within the boundary. On the other hand, stickiness may create a barrier if it is not identified or beyond the control of headquarter to subsidiaries of the knowledge transfer process. Nonetheless, Li (2012) focuses on knowledge stickiness capabilities rather than its positive or negative impact on two parties. This research's social embeddedness and learning capacity were significant characteristics, whereas consistency was equally important. As social embeddedness acts as a moderating

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variable, the difference between the sender's and the senders' target audiences diminishes. However, in addition to this, it has been found that social embeddedness lowers both internal and external transfer barriers (Hampl, 2019; Li, 2012; Cheng et al., 2008). Another benefit is the rise in strategic learning; enhancing the firm's capacity and helping businesses realize their true potential.

2.5 Knowledge Transfer Heterogeneity, Subsidiary Strategic Roles, RKT, and Knowledge Flow

There is a significant variance in how knowledge is transferred. However, two dominant influences are the knowledge's direction and whether it is transferred in one path or several directions. Szulanski (1996) defined knowledge transfer as a two-way exchange of knowledge between a source and a recipient or a process by which one organizational unit learns from another's experiences (Argote & Ingram, 2000). This indicates that to raise corporate innovation, know-how, experiences, and best practices must be extensively disseminated to employees, who will raise that level of innovation (Nakauchi et al., 2017; Mudambi et al., 2014b). Thus, a combination of know-how, experiences, and best practices must be shared inside an organization to facilitate higher levels of creativity (Spraggon & Bodolica, 2018). Indeed, as long as the company remains focused on transferring knowledge internally, it can be successful. However, several complications arise when implementing knowledge transfer (Nidhra et al., 2013). Over time, new learning and retaining knowledge techniques have evolved, resulting in a fundamental change in the business landscape. As more interest has arisen in transferring expertise from subsidiaries to headquarters, these have increased (Rabbiosi & Santangelo, 2013; Frost & Zhou, 2005; Håkanson & Nobel, 2001). A core reason for the growth in investment is that the subsidiaries are in better positions to both develop knowledge sources and utilize local network partners, and so, their research is not being accounted for in the early research stream.

2.5.1 Reverse Knowledge Transfer (RKT)

More recently, there has been increased interest in knowledge transfer from subsidiaries to headquarters (Rabbiosi & Santangelo, 2013; Frost & Zhou, 2005; Håkanson & Nobel, 2001). Additionally, following up on these initial contributions, subsequent contributions focused on stock-taking of a more comprehensive array of subsidiary roles, encompassing subsidiary knowledge flow (e.g., reverse knowledge transfer), established various factors such as subsidiary role and performance (Mudambi & Navarra, 2015; Rabbiosi, 2011), subsidiary research and development behaviour (Cantwell & Mudambi, 2005), subsidiary autonomy (Geleilate et al., 2019; Rabbiosi, 2011; Noorderhaven & Harzing, 2009), reverse transfer mechanism (Kogut & Mello, 2017; Ambos et al., 2006), inter-organizational knowledge transfer and innovation performance (Jiménez et al., 2019; Mudambi et al., 2014b; Phene & Almeida, 2008; Yamin & Otto, 2004) have emerged over time. Other autonomous power was given to subsidiary organizations. This has various effects: the regional coordination and control centers were built to maximize regional potential and resources, and subsidiary organizations were assigned to manage these resources (Kostova et al., 2016). However, some other issues have also been addressed in MNE research, such as capacity development (Figueiredo et al., 2020; Clancy et al., 2018; Phene & Almeida, 2008), the role of knowledge transfer between headquarters and subsidiary (Duvivier et al., 2019; Pudelko et al., 2015), cross-border teams and expatriates/repatriate influence social capital and knowledge sharing (Sukoco et al., 2018). Among these factors, the strategic position within MNEs can be considered critical regarding RKT mechanisms.

Collaboration is crucial between headquarters and subsidiaries. As a result, the subsidiary acts in its self-interest and does not just serve as a conduit for the parent firm to keep control over it. Suppose the subsidiary interests are not always aligned with those of the corporate headquarters or the MNE. It is because the subsidiary interests are controlled by different individuals (Nohria & Ghoshal, 1994). According to the firm's resource-based approach, all subsidiaries and headquarters are sources of intangible resources due to their interconnected network of relationships. According to one widely held opinion, a subsidiary has historically been regarded as a critical asset due to its linkages to local actors. The subsidiary was founded with the parent firm's clearly stated goals and purposes.

Forging ahead, a subsidiary's technologies, know-how, expertise, and strengths may also be referred to as a parent company's attempt to reassign to internalize its strategies (Inkpen et al., 2019; Song et al., 2018; Rabbiosi, 2011). It should be acknowledged that skills and abilities (i.e., creativity, development, marketing, processing technology, and operational management procedures) directly impact firm performance (Inemek & Matthyssens, 2013; Bontis et al., 2002). Therefore, subsidiaries fueled by the intertwined source of competition are only known to affect the firm's efficiency and have not been discovered simultaneously. They studied how the RKT (the recipients' overall efficiency) increases are aligned with the gains in MNE innovation and competitiveness and vice versa (Birkinshaw et al., 2017; Ambos et al., 2006; Hansen et al., 2005; Yamin & Otto, 2004). While knowledge transfer from MNEs to subsidiaries is often described regarding effective knowledge strategies, increased competitive advantages, beneficial subsidiary roles, and processes also considered MNEs' success (Kotabe & Kothari, 2016; Cantwell & Mudambi, 2005).

From an organizational point of view, the subsidiary workflow is decentralized regarding the decision-making knowledge transfer process. Its structure is less hierarchical, and the subsidiary plays an essential role in MNE's strategic decision-making process (Najafi-Tavani et al., 2015b; Andersson et al., 2007b).

Reverse transfer is knowledge transfer from a foreign subsidiary to its parent organization (Chung, 2014). Reverse knowledge transfer is widely acknowledged as a tactic for subsidiaries to expand their sway (Wang et al., 2019). In response, increased power can provide subsidiaries numerous benefits, such as more control over value-generating operations and a mandate within MNEs (Borini et al., 2016; Birkinshaw et al., 1998). Reverse knowledge transfer of innovation does not necessarily result in power benefits for subsidiaries of MNEs in the absence of support from the parent company (Najafi-Tavani et al., 2015b).

This study's key contribution to the literature on the RKT process, Meyer et al. (2020), relates to subsidiary efforts in developing and transferring subsidiary knowledge. The subsidiary must fully understand the knowledge transfer strategy (Meyer et al., 2020). This involves predicting and avoiding specific obstacles to adopting the knowledge at headquarters (Hadengue et al., 2017). The two analytical pillars of RKT are its headquarters and subsidiary efforts and its external network strength (Rugman et al., 2011). Occasionally, a subsidiary's knowledge is shared with the headquarters or maintained by other subsidiaries (Lee et al., 2020; Narula, 2014). This research focuses on the subsidiary's efforts to develop and transfer knowledge. It highlights how the RKT process affects the performance of the headquarters and the subsidiary. This study is a subset of a larger study that could evaluate headquarters and subsidiary performance using various data collection techniques but only focused on the subsidiary context (subsidiary functional managers were the respondents), leaving out the significantly more difficult headquarters performance. This paper contributes to the literature on parent-subsidiary interconnections (i.e., subsidiary-headquarters embeddedness) by applying the new theoretical frameworks of the resource-based view and networks theory of multinational enterprises to an empirical study setting in the emerging market, with a focus on foreign subsidiaries in Malaysia. As long as the relationship between subsidiaries and headquarters is one of the primary determinants of subsidiary knowledge development, it would be easier to measure headquarters' performance based on the perception of subsidiaries' managers sending knowledge to headquarters. This study, however, is limited in its focus on subsidiary performance. The primary objective of this study is to determine the effect of RKT on the performance of foreign subsidiaries.

Moreover, the research has designed how externally and internally embedded subsidiaries create knowledge. Besides, access to data at headquarters would be challenging, and the direction of knowledge transfer would change and be difficult to manage. This study highlights factors influencing resource abundance (subsidiary knowledge development, knowledge flow, external and internal embeddedness, internal socialization mechanisms, and subsidiary control flexibility or autonomy). It capitalizes on emerging market potential by strengthening local market network links. This study reveals that the control flexibility of the parent company, subsidiary knowledge development, and an effective internal socialization mechanism will have a significant and positive effect on subsidiary performance.

2.5.2 Knowledge Flow

Michailova and Mustaffa (2012) assert that research on subsidiary knowledge flows within MNEs has become more "fluid” or "dynamic" in recent years. Such growth, they argue, is a natural characteristic of any stream of literature or area that has not yet reached maturity. However, there is a risk that heterogeneity, variation, and pluralistic tendencies will evolve, although the earlier study by Gupta and Govindarajan (1991) recast subsidiary roles in a new light. Gupta & Govindarajan (1991) define a structure based on the bidirectional flow of knowledge between subsidiaries and MNEs. Their study distinguishes four generic subsidiary roles characterized by two dimensions of knowledge flow: the degree to which subsidiaries participate in knowledge transfer and the sort of

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knowledge provided or obtained by subsidiaries. The knowledge inflow (knowledge absorption or formulation) originates with the parent firm.

In contrast, the knowledge outflow is referred to as knowledge transfer (another way of referring to knowledge from subsidiaries to the parent company). While Gupta and Govindarajan (1991) identify the many functions of subsidiaries within MNEs, they do not investigate the flow of knowledge or the transfer/exchange between the subsidiary and its local environment inextricably linked to subsidiaries, more precisely, with consumers and competitors.

To be more specific, Gupta and Govindarajan (1991) divide generic subsidiary functions into the following categories: Local Innovator, Implementer, Integrated Player, and Global Innovator. Similarly, Birkinshaw and Morrison (1995) categorized them into local implementers, specialist contributors, and global mandates. Nobel and Birkinshaw (1998) proposed a new classification system for research and development subsidiaries in which a distinct control mode primarily regulates the R&D unit. However, this study demonstrated that foreign developers have robust relationships on both internal and external levels. Ghoshal and Bartlett (1998) also proposed four possible subsidiary positions based on the host market's size and resources.

They envisioned the MNE as a network of transactions involving information or knowledge. In either direction, low flows predicted the presence of a local innovator. The global innovator was tasked with innovating on behalf of the network. On the other hand, their research reveals the breadth of subsidiary knowledge flow that delves into two distinct modes of internal idea interchange between subsidiaries and headquarters (Gupta & Govindarajan, 2000) and external knowledge exchange. Internal knowledge exchange occurs between subsidiaries and headquarters, while external knowledge exchange occurs between subsidiaries and external associations.

Consequently, relationships between subsidiaries and the external environment frequently influence the flow of knowledge (Wang et al., 2009). These relationships between subsidiaries and external environments allow subsidiaries to share expertise and transfer it to headquarters. External knowledge flows into subsidiaries as inflows and outflows, positively associated with subsidiary and headquarters results. This research sense is dictated by two types of knowledge flow: an external knowledge flow that displays subsidiaries' interaction with external partners and the simultaneous implementation of a close link between the subsidiaries and the headquarters. This is how this research suggests the proposed structure can clarify the growth of subsidiaries and how subsidiary tasks emerge from the MNE's overall strategy. To effectively perform a subsidiary function, a wide range of relationships between the subsidiary and headquarters, subsidiary knowledge development and flow, and subsidiary autonomy are required to establish. The process can be applied to study local and cross-border firms' knowledge development processes. The fact that knowledge production is contingent on the efficient flow of knowledge. The type of knowledge flow overcomes geographical and spatial constraints to provide innovators with previously unknown or non-traditional accessible knowledge. It enhances reciprocal connections between source and user, increasing comprehension and promoting faster access to existing knowledge. Consequently, knowledge flow or transfer is often regarded as a prerequisite for knowledge formation and reuse, which benefits innovators by overcoming geographical and spatial constraints to create a shared cognition (Hautala & Jauhiainen, 2014).

While an attempt has been made to study knowledge transfer and subsidiary performance, network-wide knowledge transfer (Del Giudice et al., 2017), and knowledge transfer between the foreign subsidiary and headquarters (Mudambi et al., 2014b). There are still many research gaps, and very little is known about selecting specific subsidiary knowledge development procedures such as knowledge acquisition,

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transfer, and efficiency gained through external network ties. This research intends to design adequate subsidiary knowledge through a cross-border knowledge transfer framework recombining external and internal embeddedness and effective socialization mechanisms that are more useful for organizational knowledge. Thus, to improve the overall subsidiary and MNEs competence growth, RKT is crucial to gaining strategic knowledge in host countries where MNEs operate.

2.6 Cross-border Knowledge Transfer

Research on knowledge transfer in organizations began through technology transfer research (Garud & Nayyar, 1994; Teece, 1977). The idea of technology transfer was predominant. The term "tacit knowledge" was coined in the early 1990s (Nonaka & Takeuchi, 2007; Winter, 1998; Kogut & Zander, 1992). The idea of knowledge is explained explicitly in documents or diagrams. Later the concept of tacit knowledge changes itself as knowledge. Demonstrating the concept of Michael Polanyi is that "we can know more than we can tell" (Polanyi, 1966, p. 4). Then, there is potentially a vast, tacit space of knowledge behind which we can explain explicitly (Nonaka, 1994). The cross-border transfer of knowledge can be perplexing; it has occurred so far. A growing body of research on cross-border knowledge transfer was conducted over time, and the term "technology transfer" shifted to "knowledge transfer." The researchers highlighted the function of the "tacit aspect" of knowledge that may be difficult to transfer cross-border (Harzing et al., 2016; Song, 2014; Argote & Ingram, 2000; Davenport & Prusak, 1998; Hippel, 1994). The implicit concept is related to ambiguity or stickiness of knowledge that is difficult to transfer across the border.

The existing multinational relevant research organizations develop new affiliates that offer an ever-expanding array of cross-border knowledge transfer areas (Golesorkhi et al., 2019; Mudambi et al., 2014b; Minbaeva et al., 2014; Yang et al., 2008). Nevertheless, the definition of MNE argues that it is an opportunity to effectively transfer and exploit knowledge in the intra-corporate context than external business processes (Nunes & Simion, 2014; Gupta & Govindarajan, 2000). It also suggests that MNEs achieve competitive advantages by transferring knowledge to subsidiaries. Building an organizational knowledge stock requires sharing knowledge across corporate entities by various functional units of MNEs (Duvivier et al., 2019; Ambos & Ambos, 2009). Knowledge transfer may not address organizational challenges without sharing knowledge within or across the organization.

The recent trend in cross-border knowledge transfer is a social capital concept as a community social network (Inkpen & Tsang, 2016; Tsai, 2000; Nahapiet & Ghoshal, 1998) and social capital's role in improving innovation in R&D ventures (Chen et al., 2008). Decisions made by groups or individuals in a collectivistic manner exhibit network effects, whereas decisions made independently have no such effects (Rooks et al., 2016).

On the other hand, Villena et al. (2011) identify the role of social capital in interactions between customers and suppliers regarding whether or not it helps or impedes value development. Another trend concentrates on technology and R&D (Scott-Kennel & Saittakari, 2020; Achcaoucaou et al., 2017; Athreye et al., 2016). The latest research trend focuses on the global performance management framework (Maley & Moeller, 2014), as well as cross-border knowledge transfer and performance (Cappellano & Makkonen, 2020; Jandhyala & Phene, 2015), subsidiary knowledge creation or development through social capital theory (Najafi-Tavani et al., 2015a). Thus, this research aims to capture knowledge transfer mechanisms and effectively manage them across the border. Apart from the MNE sector's primary influence, research on subsidiary knowledge transfer is dependent on external knowledge and the effectiveness with which it is typically conveyed across functioning network systems and processes, as clear comprehension is

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necessary for research. Thus, the various factors associated with knowledge transfer and the challenges faced need to identify.

2.7 Embeddedness

Subsidiaries have an alliance with external partners that provides an essential source of knowledge for competitive advantages. Research has shown that new knowledge from outside organizations can enhance the subsidiary's product, process, and innovation development (Andersson et al., 2002). Furthermore, subsidiaries with local partners embedded in their geographic location will add value to the parent, allowing parent firms to capitalize on their knowledge (Zhang et al., 2014). For this, the interaction with the parent company, the embeddedness of the subsidiary, denotes interconnectedness. Incidentally, subsidiaries can acquire strategic knowledge from their parent, allowing them to accomplish their host environments' objectives (Kostova et al., 2016; Luo, 2003). Thus, internal and external embeddedness gives subsidiaries the prospect of learning opportunities and is the primary source of competitive advantages (Cenamor et al., 2019; Oehmichen & Puck, 2016; Samiee, 2008). Therefore, the two subsidiaries will significantly benefit from working with each other: (i) they have access to internal learning opportunities, and (ii) there is the potential for significant competitive advantages in the relationship with internal and external entities.

Nevertheless, the subsidiary must effectively manage external and internal embeddedness in a global network to increase internal and external knowledge (Pu & Soh, 2018). Embeddedness extends knowledge across the subsidiaries and the corporate headquarters and is often called bridging the RKT (Ferraris et al., 2018; Ratajczak-Mrozek, 2017; Ciabuschi et al., 2014). Although this can be implemented internally and between network nodes, there is no alliance without understanding its internal and external structure. Because of its direct and embedded relationships with the system

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dependencies, the company benefits from maintaining tighter control of its value chain at the root and facilitating the evolution of subsidiaries. Embedded relationships are anticipated to consider the origins of knowledge and capability (Monteiro & Birkinshaw, 2017).

Embeddedness defines a method of maintaining a close link with organizations and companies and promotes operational efficiency (Gulati, 1998; Uzzi, 1997). Differentiating economic action from social action depends on embedded dyadic relationships with their surrounding networks and the overall relational factors (Grabher, 1993, p. 4). This helps a subsidiary, parent, and merger business function together (Lin et al., 2019; Dellestrand, 2011). The network has a foundational association with internal and external business networks (Ferraris et al., 2018; Forsgren et al., 2007), and various ways to be embedded have been identified in the literature. However, this study analyzes internal embeddedness (i.e., subsidiaries with headquarters) and external embeddedness (i.e., subsidiaries with external actors). At the same time, this study aims to discover whether or inspect the relationship between a firm's successes through external embeddedness. On the other hand, it also aims to determine whether a connection between subsidiaries' and headquarters' embeddedness influences the subsidiary's success.

The business network literature defines the link between subsidiaries and parent companies and subsidiaries' joint adjustment to create production processes and products as the reciprocal relationships between subsidiaries and parents (Andersson et al., 2015d; Forsgren et al., 2007). The reciprocal relationship is referred to as internal embeddedness or subsidiary headquarters embeddedness. The internal activity can help MNEs compete more effectively by successfully disseminating and absorbing knowledge from other MNEs (Asakawa et al., 2018; Wang et al., 2009). The embeddedness of subsidiary headquarters (e.g., internal embeddedness) has been identified to facilitate inter-firm

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alliances and network connections (Andersson et al., 2005). Subsidiaries must be strategically located throughout the network to communicate with the parent and other subsidiaries. In addition, internally embedded relationships facilitate creative ideas by providing broad expertise and assistance and chances for knowledge sharing across the MNE network (Andersson et al., 2015d). Therefore, internal embeddedness is essential for MNEs because it encourages subsidiary expansion.

The subsidiary's external embeddedness offers broad avenues for research and development because of its proximity to various external players. It has two meanings: direct and indirect connections between manufacturers and consumers (Andersson & Forsgren, 1996). External networks recognize that firm organization trends can be differentiated by how many and the number of external networks encompass and how comprehensive the structures are (Burt, 2009). For external actors, the ability to drive the pace of creation and innovation depends on getting encouragement from partners or benefactors who are prepared to rely on product development (Cenamor et al., 2019; Almeida & Phene, 2004) heavily. By communicating with their customers and suppliers, subsidiaries allow them to increase their relations to the extent of their external activities.

On the assumption, it is said that highly "embedded" firms are essential to MNE success. All businesses can be improved by improving productivity and whether performance improves internally through the connection between subsidiaries and headquarters or externally embedded network partners. Therefore, internal and external knowledge sources are considered for firms' competitiveness (Demeter et al., 2016; Monteiro et al., 2008). Studies have shown that the subsidiaries' ties with headquarters play a significant role in developing knowledge and new products. At the same time, other research has shown that subsidiaries are positively connected with their headquarters and make it possible for global products to emerge (Ferraris et al., 2018; Yamin & Andersson,

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2011). The logical extension of this argument is that subsidiaries are involved with their host country or the country they are affiliated with. The local subsidiaries are essential for promoting the company's growth at the subsidiary and corporate levels. Their versatility, contribution, and enhanced productivity are resources to extend and develop the host economy.

2.8 Subsidiary Autonomy

The MNE industry's concern about subsidiary autonomy in its research over the past decade has gained much interest (Wang et al., 2019; Cavanagh et al., 2017; Gammelgaard et al., 2012). The scope and complexity of MNE operations in the local economies are broad. However, they are essential, but foreign subsidiaries are vital parts of the business that make up the different strategies and place a significant position on the markets (Cuervo-Cazurra et al., 2019; Birkinshaw et al., 1998). An ample amount of additional effort has been found, showing that quantitative aspects of autonomy and achievement have been established (Geleilate et al., 2019; Mudambi et al., 2014a; Ambos et al., 2010). However, much is yet to be discovered about the possibility of growth in developed countries since they have not been analyzed thoroughly (Tao et al., 2018; Wang et al., 2014).

The definition of autonomy is nuanced and complex (Young & Tavares, 2004). Researchers identify autonomy as the headquarters' decision-making authority. However, numerous studies have stated that it is a pivot towards decentralization as subsidiary autonomy (Kawai & Strange, 2014; Nell & Andersson, 2012). At many levels of an organization, the increased delegation of decision-making and implementation of responsibilities allows for self-autonomous decisions or new roles to be created in strategic, functional, and operational capacities (Beugelsdijk & Jindra, 2018; Kawai & Strange, 2014). Hence, the critical value of subsidiary autonomy is in the local decision-

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making power and practice context. At the same time, the subsidiary can have plenty of access and choose the way for both technical knowledge and human capital.

Subsidiary decision-making practices can independently adapt business strategy, knowing local market knowledge that aligns with competitors, customers, suppliers, and others (Blomkvist et al., 2017; Luo, 2003). In addition, subsidiary autonomy enhances knowledge creation and dissemination as interlinked with external partners (Beugelsdijk & Jindra, 2018; Andersson et al., 2015c; Young & Tavares, 2004).

The operational and market-level strategy involves autonomous strategic behaviour, shaping corporate strategy and policy with new business opportunities. Therefore, subsidiaries' capacity to participate in autonomous strategic actions can affect the MNE's strategic context (Beugelsdijk & Jindra, 2018; Ambos et al., 2010).

This research incorporates the first development of subsidiary knowledge through autonomy. Key studies in subsidiary knowledge development are firmly based on network relationships with MNEs and other subsidiaries (O'Brien et al., 2019; Ghoshal & Bartlett, 1990). Based on the hierarchical organization, headquarters MNEs make all strategic decisions. On the other hand, Hedlund (1979) proposed a lateral network of the independent business unit forming the "center of excellence," adding value to the MNEs. Over time, however, research on MNEs highlighted that subsidiaries are also the source of knowledge and actively involved in added benefit to the knowledge base of MNE as they relate to external sources (Bloom & Hinrichs, 2017; Cavanagh & Freeman, 2012; Birkinshaw et al., 1998).

Further, headquarters may be able to protect knowledge and limit autonomy due to the conflicting aspect between knowledge sharing and knowledge protection (Ritala et al.,

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2015). Typically, subsidiaries seek new knowledge from external sources predominant in the external environment (Lin et al., 2019; Andersson et al., 2015c).

Organizational autonomy is the degree to which one may exercise significant control over decisions that do not require others' consent (Brock, 2003, p. 58). According to this concept, MNE grants permission to manage various environments with varying discretion. Since subsidiaries are connected and influenced by the local environment, they learn and respond more quickly. Therefore, allowing the decisions to be made and rapid responses impact subsidiaries to have the opportunity to grow. It has been proven that subsidiary autonomy would enhance the linkages between subsidiaries where inter-subsidiary relationships are already established (Kim & Anand, 2018; Monteiro et al., 2008). Therefore, subsidiary autonomy embodies maintaining the relationship between organizations and growing a multifaceted connection, including intra-and inter-organizational contexts.

Inter-organizational interactions are significant to learning, development, and productivity gains (Shin, 2019). When employed successfully, intra-organizational relationships are essential for business success since they facilitate company knowledge exchange (Monteiro et al., 2008). Nonetheless, Gammelgaard et al. (2012) discovered that intra-organizational relationships maintain inter-organ relationships utilizing subsidiary autonomy reinforcements. The more dependent subsidiaries are on the parent company, the less effective the subsidiaries' links are (Birkinshaw et al., 1998). External network connectivity enables subsidiaries to reach their external partners, who help promote market access by allowing an extensive local network of MNEs (Song et al., 2018; Ghoshal & Bartlett, 1990). As a result, the interconnectedness between customers, suppliers, or competitors provides subsidiaries and parent firms with learning opportunities. It can be concluded that increased decision-making knowledge is an advantage since increased decisional autonomy enhances knowledge transfer. In order to measure the impact of subsidiary autonomy on knowledge development and efficiency, this study seeks to generate to what extent subsidiary autonomy enhances subsidiary knowledge development, RKT, and performance.

2.9 Concept of Socialization

Socialization is mainly informative since it is a conduit for knowledge from the subsidiaries to the parent company (Williams & Lee, 2016; Björkman et al., 2004). The socialization process activates the subsidiary's ability to implement and integrate knowledge exchange within the MNE (Decreton et al., 2019; Noorderhaven & Harzing, 2009). Through social interaction and communication, knowledge transfer is accelerated within MNEs (Smale et al., 2015; Ghoshal & Bartlett, 1988). Much as socialization clears up ambiguities and retains strong relationships between business units, this has been argued to help ensure that it maintains the unity and cohesion of both groups by improving the communication across subsidiaries and with the headquarters (Najafi-Tavani et al., 2012b; Schreiner et al., 2009). A recent study discovered that the level of communication between subsidiaries and headquarters is related to knowledge transfer or exchange using a similar mindset (Gaur et al., 2019). However, lateral mechanisms positively influence subsidiary-headquarter and inter-subsidiary communication (e.g., joint work in teams, task forces, and meetings). Subsidiary and headquarters managers travel extensively, directly affecting RKT (Ambos et al., 2019; Ghoshal et al., 1994). Additionally, Ghoshal and Bartlett (1988) emphasize the value of collaborative task forces and team activities in facilitating subsidiary knowledge transfer. Socialization also has a beneficial effect on knowledge transfer in the KIBS market (Little & Deokar, 2016).

2.9.1 Socialization Mechanism and Network Strength

Knowledge transfer between units within MNEs is crucial for MNE research (Li et al., 2013). Research on knowledge transfer and established the range of organizational characteristics that typically promote knowledge transfer across network relations, including socialization mechanism (Khan et al., 2015), knowledge network (Foss & Pedersen, 2019; Hansen, 2002), and close connections between global and local counterparts (Li et al., 2016). However, this knowledge exchange usually depends on the actions of specific individuals and teams within the organization. Individuals' or groups' unique ability to fit across organizational boundaries is critical for headquarters and subsidiaries (Schotter et al., 2017). Scholars established corporate mechanisms facilitating network knowledge transfer through socialization. Both formal and informal socialization mechanisms bridge successful knowledge transfer between global, local, and internal organizations (Li et al., 2016). Firms can also store, maintain and share knowledge through socialization channels to be competitive in the marketplace (Ambos et al., 2019; Bhatti et al., 2016). Therefore, socialization mechanisms must foster mutual understanding and purpose across organizations and minimize significant distinctions between MNE's subsidiaries and other units across the border. Besides, information and knowledge might be transferred easily from subsidiaries to headquarters or vice-versa, and both subsidiary and headquarters managers can better understand the rationality behind the socialization mechanism.

2.9.2 Internal Socialization Mechanism and the Role of Subsidiary Manager

The research found that the subsidiary manager's constructive actions would support the subsidiary initiative MNEs (Nuruzzaman et al., 2019). However, this approach could be in vain if the headquarters manager did not share informal or formal knowledge. Thus, if knowledge sharing does not work together, the idea of innovation may not arise in time or ever. Moreover, recent research found that socialization might reduce headquarters'

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adverse effects (Decreton et al., 2019). This study established that subsidiary managers' proactive activities bring new ideas. Placing socialization mechanisms, widespread corporate culture, and rotation programs reduced the negative relationship between subsidiaries and headquarters. Therefore, headquarters involvement may increase subsidiary initiatives, significantly add value, and provide strategic resources and rare and unrepeatable knowledge that may contribute to other parts of MNEs (Nell et al., 2016; Dellestrand & Kappen, 2012).

According to the study, R&D managers should concentrate on various socialization mechanisms, such as daily communication with multiple R&D units through long-term training and short-term visits (Athreye et al., 2016; Mendez, 2003). In addition, knowledge transfer at the subsidiary level is improved by socialization or a participatory atmosphere between subsidiaries and headquarters (Williams & Lee, 2016). Based on the social capital perspective, intra-corporate socialization and collaboration will promote knowledge transfers within the MNE (Aklamanu et al., 2016; Williams & Lee, 2016; Gooderham et al., 2011; Gupta & Govindarajan, 2000). Furthermore, subsidiaries with a technically skilled workforce in the host location use local knowledge rather than internal knowledge sources within the MNE (Athreye et al., 2016), which means that subsidiaries' local network connections are the facilitators of knowledge development.

Gupta and Govindarajan (2000) examine two distinct modes of socialization: formal and informal integrating mechanisms, which illustrate the effect of subsidiary knowledge outflow. Additionally, this research demonstrates that the corporate socializing process affects both sides of knowledge transfer (from headquarters to other subsidiaries). In contrast, this study aims to determine the extent to which the socialization process increased RKT and how this affected subsidiary performance. Additionally, the capacity to transfer knowledge is beneficial to the headquarters.

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2.10 Impact of Socialization on KIBS

KIBS is an expert firm providing highly customized services to meet other organizations' needs (Carmona-Lavado et al., 2013). However, KIBS is crucial because it facilitates its innovation process (Horváth & Rabetino, 2019; Pina, 2015; Miles, 2005). KIBS is highly tacit, and the most successful way to transfer knowledge is by direct sender-receiver communication (Najafi-Tavani et al., 2012b; Nonaka et al., 1996; Kogut & Zander, 1993). Despite KIBS research's relevance, researchers concentrate on highly tangible output-based manufacturing firms. They have discovered that socialization processes substantially impact knowledge transfer (Najafi-Tavani et al., 2012b; Noorderhaven & Harzing, 2009; Gupta & Govindarajan, 2000). However, little research has been done on the impact of the socialization mechanism on KIBS-based subsidiary results. Internal embeddedness enhances the firm's performance, and the socialization mechanism's effect increases subsidiary-parent interaction (Najafi-Tavani et al., 2012b, p.480). Nonetheless, the study's main drawback is that it fails to tackle external embeddedness's possible impact on RKT, often associated with a subsidiary and headquarters' success. This work theoretically and empirically explores the potential implications of socialization mechanisms in KIBS industries.

2.11 Knowledge-Intensive Business Services (KIBS)

KIBS was introduced by Miles et al. (1995). In economic geography or regional economy, business services and advanced services products (APS) are critical (Pina & Tether, 2016; Freel, 2016; Wernerheim & Sharpe, 2003). As a result, these two establish two distinct traditions, KIBS geography, KIBS invention, and management studies, respectively (Bohatkiewicz et al., 2017; Miles, 2005). The words "advanced produce services," "producer services," and "high-order producer services" were highlighted by Geographer. The term "knowledge-intensive business services," or KIBS, is used by some innovation researchers, and its importance is later illustrated by policymakers (Pina &

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Tether, 2016; Gault, 2013). They either provide primary sources of information and knowledge to their customers (e.g., measurements, surveys, training, and consulting) or use their ability to create services that serve as intermediate inputs to their customers' knowledge-generating information-processing activities (e.g., communication and computer services).

During the first period, the authors concentrated on the characteristics and functions of KIBS (Yam et al., 2010; Muller et al., 2008). Others investigated the development of technologies in KIBS by patents (Amara et al., 2008) and their technical contribution (Guimarães & Meirelles, 2014). The KIBS industry's capacity-building and creative phenomenon have been highlighted in recent studies (Desyllas et al., 2018; Asikainen, 2015; Segarra & Teruel, 2014). These studies include an in-depth understanding of how innovation occurs and how KIBS relates to innovation processes, including assisting clients in their innovation efforts. Although prior research established a relationship between KIBS innovation and cross-border knowledge transfer, relatively little study has been conducted on KIBS innovation via cross-border knowledge transfer in the service industry (Milbratz et al., 2020; Segarra & Teruel, 2014; Najafi-Tavani et al., 2014). The level of engagement between KIBS and its clients demonstrates the influence of the amount of knowledge shared and the level of customization services provided (Milbratz et al., 2020; Pace & Miles, 2019). As a result, creative businesses must recognize that they are part of a network to collaborate and exchange capital, knowledge, and ideas to improve their products or services. Further, Kamp and de Apodaca (2017) concentrate on KIBS based on business performance through manufacturing companies' engagement, which raises overall export and turnover at the regional level.

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2.11.1 KIBS Definition

Table 2.1: KIBS Definition

Author/s	**Definition of KIBS**
Miles et al.(Miles et al., 1995, p. 37)	*“KIBS are services that involved economic activities which result in the creation, accumulation, dissemination of knowledge.”*
Wood (2009, p. 18)	*“KIBS are private-sector firms that offer specialized professional, business, or technical expertise to other organizations.”*
Muller and Zenker (2001, p. 1502)	*KIBS are “consultancy” firms “performing mainly for other firms, services encompassing a high intellectual value-added.”*
Hertog (2000, p. 505)	*KIBS are: “Private companies or organizations,” that are a) highly dependent on “professional knowledge, i.e., knowledge or expertise related to a specific (technical) discipline or (technical) functional domain” and b)” supplying intermediate products and services that are knowledge-based.”*

Even though the word describes innovation intermediaries and high-value-added knowledge-intensive processes, it differs from other types, such as customer service. However, the growing concern about innovation is the primary driver of interest. As a result, KIBS is described as a knowledge-based organization, and knowledge is considered crucial to innovation. Furthermore, these KIBS standards for creativity differ from the definition of professional services. The study defines KIBS as professional services and innovations that depict knowledge developments through interactions with customers, competitors, suppliers, and network partners.

2.12 KIBS is of Critical Importance in the Malaysian Economy

Due to its knowledge development and distribution phenomenon, KIBS is the fastest-growing Malaysia. As a result, KIBS is regarded as a knowledge-driven economy spawning a new knowledge society model. Therefore, KIBS is considered as advertising

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and market analysis, accounting and management consultancy, IT services, engineering, and technical services play a critical role in generating knowledge that is essential for long-term development and innovation (Doloreux et al., 2019b; Corsi et al., 2019; Pina & Tether, 2016; Muller & Zenker, 2001). More precisely, private KIBS firms use professional knowledge in their technical discipline or a specialized domain that generates intermediate knowledge businesses, particularly products or services (Wyrwich, 2019; Pina & Tether, 2016; Hertog, 2000).

Earlier studies on the service industry established that KIBS enterprises serve as knowledge carriers, resulting in national and regional economic progress (Miozzo et al., 2016; Hipp & Grupp, 2005). Additionally, the traditional conception of KIBS firms as private enterprises or organizations based primarily on specialized knowledge and engaged in economic activities that result in knowledge generation, accumulation, and distribution (Corsi et al., 2019; Miles et al., 2018). Knowledge might be heterogeneous due to different types of functional domain presence. Due to their characteristics and environment, various professional service firms are also considered KIBS. It requires distinctive theories and management research (Castaldi & Giarratana, 2018; Greenwood et al., 2005). Therefore, it is difficult to categorize the lack of qualified service firms' boundary conditions and determine what firms proposed to apply for study and considered KIBS.

However, various developed countries specifically define and classify KIBS. However, the definition has not been established in Malaysia, and the KIBS industry is not defined. Nevertheless, more recently, MITI (2019) identified the potential of twelve classified service sectors (e.g., professional services, accounting, auditing, computer-related services, R&D services, real estate services, other business services such as related advertising and management consulting, communications, education, and tourism-related

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services) that may be categorized as such. Therefore, this sector will be a good research platform. On the other hand, the service industry is growing very fast in Malaysia, but minimal research on this sector (Kheng et al., 2013). This is due to the gradual transition from agro-based to manufacturing (O'Brien et al., 2019; Oki, 2018; Jarman & Chopra, 2008). Malaysia appears to be developing and implementing a new economic model to help it transition from a middle-income to a high-income economy by recognizing and implementing the service sector's role in increasing innovation and generating high growth. Malaysia's effort to improve the economy and build new development by concentrating on the service industry is highly based on knowledge-intensive.

As a result, the services sector assumes a share of GDP growth for the economy to mature, as seen in developed countries (MIDA, 2020). The mid-term review also outlined six key pillars to support and continue sustainable growth. The last pillar creates a foundation to reinforce development across all economic sectors (11th Malaysian Midterm Review Plan, 2018). However, the emphasis was given to traditional agro-based, manufacturing, and service industries to boost long-standing disparities and structural economic issues that remained unresolved and affected the pace of earlier economic growth. The service sector will, above all, be the primary driver of economic growth driven by several sub-sectors, including (i) enhancing service sector competitiveness and productive ability, (ii) enhancing human resource capacity, and (iii) productivity growth and creating high-paid jobs, and (iv) encouraging SMEs to provide employee training (Mid-Term Review 2018, p. 317).

2.13 Research Framework of RKT and Subsidiary Performance

This study's theoretical basis is based on a comprehensive literature review, covering the unique feature and performance of foreign subsidiaries in the KIBS industry and considering the characteristics of the proposed conceptual framework in the KIBS. This

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study also highlighted various forms (external and internal) of network interactions, investigating factors related to foreign subsidiary performance and shedding new light on the significant empirical research phenomenon.

2.13.1 External Environment and External Relationships Characteristics

The framework of this study distinguished two research contexts: the external environment (e.g., subsidiary autonomy and external embeddedness) and the internal environment (e.g., internal socialization mechanism, subsidiary-headquarters embeddedness). Additionally, the MNE's external environment is a multidimensional concept incorporating various local contexts. The foreign-based subsidiary is a multiple-embedded entity because of its integration into the MNE and the host country networks. The word "embeddedness" (external and internal) refers to the subsidiary's position, significantly shaped by institutional factors from home and host settings. Indeed, a growing body of research on international business views an MNE subsidiary's external embedding in the host location of its operation as a critical component of the MNE's knowledge management strategy (Cantwell, 2009). Because MNEs can channel their operations through a range of resources within and outside their headquarters, a subsidiary connected to a particular foreign-based (host) location is the vehicle for acquiring these resources. Accordingly, considering the subsidiary's strategic needs and operational area, the type of local resource acquired and developed is established.

Alternatively, Gupta and Govindarajan (1991) defined decentralization as the amount to which corporate superiors cede decision-making authority to a subsidiary's general manager. Birkinshaw (1997) represents a subsidiary as "any operational unit controlled by a multinational corporation that is located outside the home country" (p.207). While this definition is limited in that it does not include subsidiaries based in the parent's home country, it includes joint ventures and, more crucially, eliminates erroneous belief in a

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single subservient parent-subsidiary relationship. Rather than that, it recognizes that most MNEs' various relationships with several other corporate entities worldwide may affect, or be influenced by, the subsidiary's position (Ghoshal & Bartlett, 1990). Subsidiary autonomy is significant because it facilitates the development of strategic knowledge and the flow of knowledge with external partners (Andersson et al., 2015d).

However, since multinational organizations' subsidiaries simultaneously deal with internal and external network environments, they must have strategies to meet these challenges. The connections within these networks influence a subsidiary's activities, affecting the parent company's relationship with its subsidiaries. When subsidiary employees establish ties with local partners, competitors, suppliers, and other external organizations, subsidiaries can learn new skills and knowledge and discover new business prospects (Bartlett & Ghoshal, 1989).

2.13.2 Internal Environment and Internal Relationships Characteristics

As MNEs of subsidiaries are well known, external and internal network connections are crucial for knowledge transfer. Diverse network connections within these networks affect a subsidiary's operations, affecting the parent company's interactions with its subsidiaries. Moreover, if subsidiaries' degrees of integration into their internal network continues to grow, so will the amount of information and knowledge exchange between subsidiaries and MNE (Andersson & Forsgren, 1996). In this regard, theoretical grounding based on the RBV and business network view is necessary to lay a firm basis; interaction and cooperation with MNEs and other subsidiaries contribute to the overall improvement of subsidiaries (Forsgren et al., 2015).

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To put it another way, embeddedness is a notion that encompasses both the attributes of a relationship and its consequences. This indicates that it is connected to a relationship's characteristics and features that a relationship possesses. Granovetter (1985) and Grabher (1993) described embeddedness as an aggregation of associations, interactions, and relationships that extend throughout a range of business actors regarding economic transactions and the effects of these transactions as the broad-scale links of these various actors. As the subsidiary has a significant amount of resources and activities, including knowledge and innovation, embedded within it, this suggests that a considerable portion of the subsidiary's resources and operations, including knowledge and innovation, is embedded within the subsidiary (Uzzi & Lancaster, 2003). While a subsidiary with a significant external network (i.e., embeddedness) would benefit from increased competency, whether such competency manifests as intra-organizational ascendancy are entirely dependent on the subsidiary's relationships with its related business units (e.g., sister subsidiaries), which may be thought of as the subsidiary's degree of global corporate integration (Forsgren et al., 2015).

However, the internal socialization mechanism enhances intra-MNE knowledge transfer and improves subsidiary headquarters embeddedness. Organizations frequently employ socialization processes to foster the development of common goals, values, and a shared sense of identity. Informal social relationships developed because socialization expands possibilities to obtain diverse knowledge within the MNE network. Social integration mechanisms foster the sharing, diffusion, and development of knowledge. While their ability and capacity to develop significant inter-organizational networks and integrate internal and external knowledge increased, subsidiaries play a more critical role in knowledge transfer because they build more robust inter-organizational networks with local players (Vrontis et al., 2017; Andersson et al., 2002).

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This study seeks to establish a mutually reinforcing knowledge transfer from external and internal knowledge source perspectives informed by RBV and business networks. One network of contacts is effective only if a firm possesses external and internal capabilities, given the strong connection between external and internal knowledge acquisition and internal capabilities. Therefore, this model highlighted the research relevant to external relational factors, including subsidiaries' local connections among customers, competitors, suppliers, and research bodies. This research context identifies through the comprehensive literature that external network connection through embedded relations and subsidiaries' autonomy is the prime source of competitive advantages. Besides the external factors, the strongest determinants of subsidiary knowledge development, internal organizational factors also give a firm a competitive advantage in the global market (Asakawa et al., 2018). Internal organizational factors or strategic motive of firms enters a new market, and both subsidiary and headquarters managers can plan effectively to execute the strategic planning for further development. Internal organizational factors (internal socialization mechanism, subsidiary-headquarters embeddedness) affect internal knowledge development and exchange between subsidiaries and headquarters.

Internal factors include firm-specific resources, and non-codified knowledge may be exchanged between subsidiaries and headquarters managers. Internal embeddedness can provide valuable resources and knowledge to a focal subsidiary and limit the activities outside the network (Mudambi, 2011).

Broadening the resource-based point of view, early research on subsidiary performance viewed MNEs' internationalization intending to acquire resources from other geographic areas lacking in their home region as the primary driver for MNEs to gain competitive advantage and enhance innovation capability (Barney, 1991). More

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study, however, has revealed the complexity of resource advantage in innovation performance. Even outside the rigid boundary, it is challenging. Because they are networked with suppliers, consumers, competitors, research and development, universities, and other relevant actors, externally embedded and autonomous subsidiaries can access knowledge superior to their competitors. Sharing and transferring knowledge across and within firms' boundaries are crucial for subsidiaries and headquarters (Ferraris et al., 2018; Van Wijk et al., 2008) due to the competitiveness of these knowledge resources in the global economy (Wijk et al., 2008). While contemplating the effect of RKT on subsidiary performance, this knowledge can be available within and beyond the firm's boundaries. In these studies, RKT has proposed that knowledge from external network actors and the internal association between subsidiaries and headquarters are related to performance. Although mergers and acquisitions best illustrate the external transfer of information across company boundaries (Xi et al., 2020) and strategic alliances (Faems et al., 2020; Khamseh & Jolly, 2014), the internal transfer of knowledge has been extensively examined in multinational firms (Ferraris et al., 2018; Gooderham, 2007). However, research on both external and internal network relationships is scarcer.

This study illustrates that by focusing on MNE subsidiaries as a unit of analysis, it is possible to better comprehend these essential players in the bulk of the world's economy and the complexity of multi-embedded networks (Nell et al., 2011). This is a key distinction, as few studies have examined the notion that subsidiaries do not necessarily work as organizational agents controlled by headquarters but, given constraints, behave innovatively and develop their strategies (Lunnan et al., 2019). In this study, subsidiaries are connected with both external and internal players, and while knowledge originates from both external and internal sources, reverse knowledge from these sources is investigated. This is because MNE subsidiaries are interconnected within the complex network. External relationship qualities (knowledge from the external environment) and

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internal relationship characteristics (internal environment) are the focus of this study. Figure 2.2 depicts the study's conceptual framework, which explains the factors that affect subsidiary knowledge development, RKT, and performance.

2.14 Mediation Relations and Their Impact

2.14.1 Several Mediating Impacts on Reverse Knowledge Transfer

The mediation framework has become more widespread and is crucial for advancing social science theory and knowledge (Pieters, 2017). On the other hand, according to Memon et al. (2018), mediation is commonly viewed as essential to the scientific standing of knowledge, and irreplaceable equipment utilized for mediational designs is indispensable to social science and business research. The mediator is causally placed between an independent variable (X) and a dependent variable (Y), per the mediation process (Hayes & Rockwood, 2017). As theory is always the basis for empirical research, the theoretical context supporting the mediating relationships must be studied thoroughly (Hair et al., 2021; MacKinnon et al., 2012).

In addition, the goal of mediation must be based on two variables that are both conceptually and numerically related (see, for example, (Hayes, 2009; Baron & Kenny, 1986). Consequently, the aim of a mediation study may be either to discover methods for modifying the quantity of the dependent variable or to comprehend how the independent variable influences the dependent variable. A crucial requirement for evaluating mediation is that the effect of the hypothesis is articulated and supported by theoretical and empirical data (Rungtusanatham et al., 2014). According to Memon et al. (2018), one must comprehend the advantages and drawbacks of the available methodologies for mediation testing, the reliability and validity of the instrument, the sample size required to detect the desired effects, and the chosen software.

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This study identifies two reverse knowledge transfer pathways (i.e., SKD and SHE). Based on the existing literature on RKT and subsidiary performance and complex MNEs' business network theories, SKD mediates the relationships between SA, EE, SHE, and RKT. According to a study by Najafi-Tavani, external embeddedness appears to be the primary factor of subsidiary knowledge growth (Najafi-Tavani et al., 2015a). This link suggests that the subsidiary's external integration with local network partners may be more capable of producing better new information than its competitors. Conversely, RKT is highly related to subsidiaries' knowledge development. The corporation also operates in RKT, although externally integrated companies are traditionally identified with SKD. Therefore, it is essential to examine the potential mediation effect that SKD could have on the link between EE, SA, SHE, and RKT.

Based on the literature and the theoretical foundation, the study concludes that it was necessary to analyze four mediation interactions. Although the conceptual framework hints at the possibility of sequential mediation between RKT and SA, SKD, SA, EE, ISM, and SHE regarding subsidiary performance. However, sequential mediations were not tested in this study for three reasons. Due to the complexity of the web of relationships, only a few studies corroborate the relationship found in the literature. Second, based on the theoretical foundation, this study emphasized external and internal network characteristics and the involvement of multiple factors. Adding the mediation relationships without first testing the network structure could be detrimental. Thirdly, there are insufficient data from a methodological standpoint to prove the effectiveness of mediation relations. This may be an area in which additional research could be conducted.

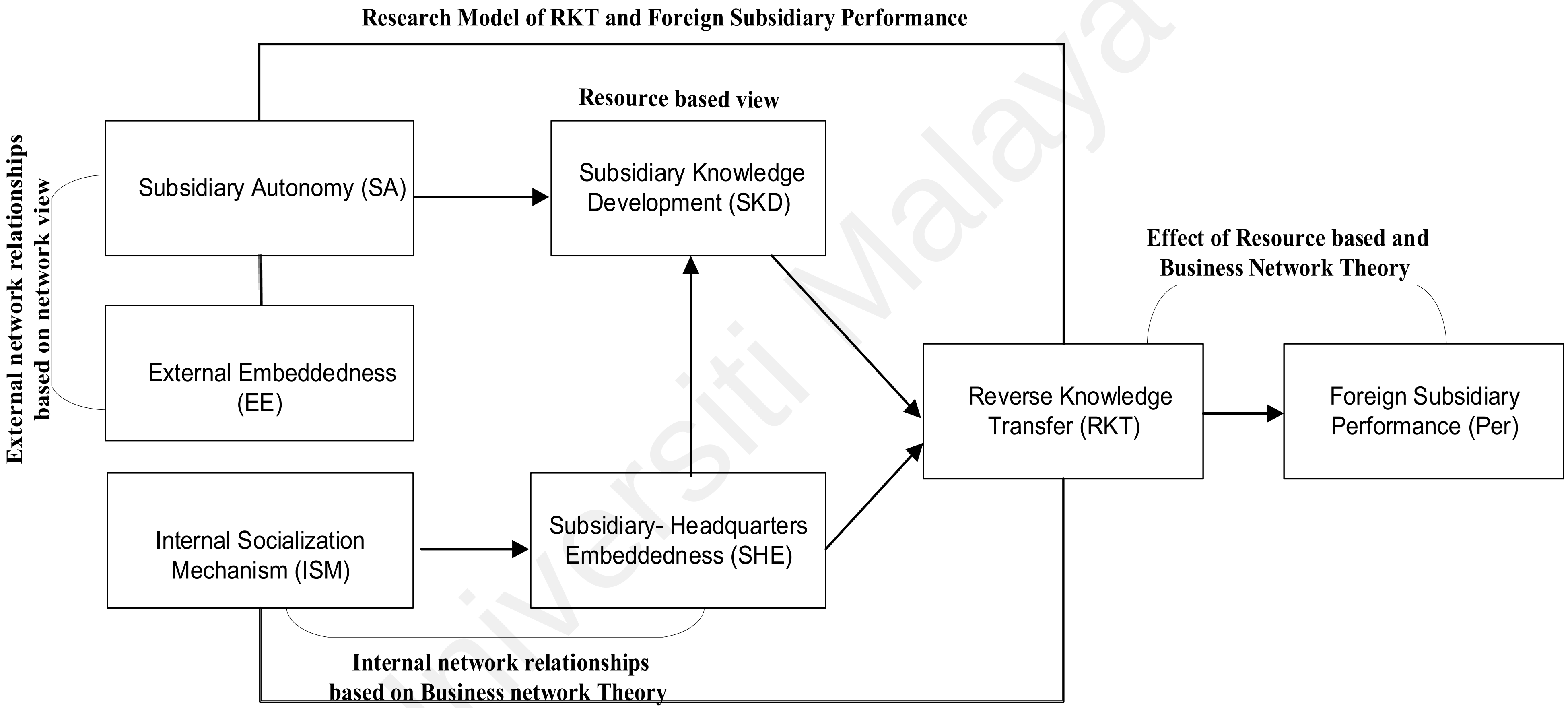

Figure 2.2: Conceptual Research Framework of Subsidiary Performance

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2.15 Theory and Hypotheses Development

The relationships discovered during the literature review provided this study's framework. This framework proposes a set of general hypotheses, describing the nature of relationships between independent and dependent variables and the effect on external and internal organizational factors, developing subsidiary knowledge and RKT associated with subsidiary performance. However, this study identified and suggested several mediation effects on RKT based on the literature and underlying theories. This model also describes the impact of control variables on RKT on subsidiary performance. The intensity of each relationship will be measured and empirically supported by empirical analysis. As a result, the present thesis examines several relational variables using the resource-based view (RBV) and business network view perspectives (BNT). However, this approach investigates a recent output phenomenon of foreign subsidiaries in Malaysia.

2.15.1 Development of Hypotheses

In the business network literature, the reciprocal relations between subsidiaries and parent corporations, as well as mutual adaptation between enterprises in terms of evolving production processes and products, is referred to as subsidiary embeddedness (Anderson, Forsgren, et al., 2007; Forsgren et al., 2005; Anderson et al., 2001). Embeddedness plays a vital role in the interactions with other companies or institutional players that serve as success generators for the organization (Isaac et al., 2019; Gulati, 1998). On the other hand, close interactions encourage mutual relationships and foster trust. As a result, knowledge-sharing practices increase, knowledge misuse is minimized, and knowledge holders' transparency is enhanced (Schreiner et al., 2009). Furthermore, subsidiary autonomy is the ability to exercise autonomous action in some aspects, improving the production of subsidiary knowledge and significantly affecting reverse knowledge transfer. On the other hand, the internal socialization mechanism is often a business

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practice involving subsidiary and headquarters managers engaging in knowledge exchange and reducing the knowledge gap between them. This study is highlighted based on the literature gap and constructs theoretical structure and derives from identifying the research framework variables and offering the rationale for selected variables.

2.15.1.1 Subsidiary Autonomy

Subsidiary autonomy is described as a subsidiary's ability to make critical strategic decisions independently (Silveira et al., 2017; Mudambi & Navarra, 2015; Nell & Andersson, 2012; Mudambi & Navarra, 2004). Thus, subsidiaries can make strategic decisions outside the parent company's existing strategy or be given the authority to practice autonomous power regarding adapting existing products or services, sales, marketing strategy, product or service development, or collaboration with external partners. However, this research adopted subsidiary autonomy as the decision-making power that the headquarters have given (Geleilate et al., 2019; Tao et al., 2018; Cavanagh et al., 2017; Chiao & Ying, 2013; Gammelgaard et al., 2012); and if subsidiaries enjoy a higher level of decision making power, then it entitled as autonomy (Newburry et al., 2003). Thus, the subsidiary gains power due to autonomous strategic practices and gains autonomous status (Ndubisi et al., 2015). Likewise, subsidiaries can develop new knowledge (Andersson et al., 2002) and be ready to facilitate their innovative decision-making (Kawai & Strange, 2014).

Within the scope of an MNE network, respective subsidiaries may be granted a high degree of autonomy at the parent company's discretion (Ghoshal & Nohria, 1989). Additionally, autonomy can grow due to parent-subsidiary partnerships in which the subsidiary anticipates the parent's capabilities. The firm provides knowledge-intensive business services must integrate with their local environment to strengthen subsidiary learning capacity (Miles et al., 2018; Miles et al., 1995) and build new knowledge

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(Sumelius & Sarala, 2008; Piscitello & Rabbiosi, 2006; Birkinshaw et al., 1998; Ghoshal & Bartlett, 1988). The versatility and adaptability of subsidiary business practices to local demand are enhanced when they have a high degree of autonomy (Harzing, 1999). According to Cantwell and Piscitello (1999) and Najafi-Tavani et al. (2012a), a high degree of autonomy benefits subsidiary knowledge acquisition and development by enabling the subsidiary to make rapid and autonomous decisions.

Conversely, a network relationship promotes knowledge sharing and builds trust between partners. As subsidiary autonomy increases, so does subsidiary knowledge development and RKT, and the subsidiary achieves a new status referred to as decision-making ability (Rabbiosi, 2011). When subsidiaries enjoy high autonomy, they actively advance knowledge by utilizing local knowledge (Cavanagh et al., 2017; Frost, 2001).

According to a recent study in the manufacturing industry, having greater autonomy will help obtain strategic resources that are difficult to come by among competitors or business groups (Chen & Zheng, 2018). A high level of operational autonomy relies on winning the trust of the headquarters' recognition (Jong et al., 2015), which ultimately improves subsidiaries' efficiency and knowledge development and the opportunity to learn the local environment to enhance the market scope and opportunity (Dahms, 2017; Jong et al., 2015). Despite this, the details in the KIBS firms are somewhat few concerning the growth of facilities' subsidiary knowledge and knowledge transfer.

Conversely, a high degree of centralization may negatively influence knowledge development and new ideas (Grevesen & Damanpour, 2007). A low level of autonomy stifles subsidiary knowledge development by limiting subsidiaries' ability to learn from their experiences (Ghoshal & Bartlett, 1988).

Subsidiary autonomy and the extent to which knowledge transfer or RKT and performance are focused on conceptual studies (Michailova & Zhan, 2015). However, little empirical evidence shows that autonomy is related to product improvement and subsidiary knowledge development in the KIBS sector (Najafi-Tavani et al., 2012a). Since it assists clients in innovating, service-based KIBS is supposed to have a wide range of effects. The KIBS firm is noted for its high level of client involvement. As a result of the ability to concurrently contextualize and decontextualize knowledge, the service industry has vast opportunities for knowledge creation and dissemination in comparison to other industries.

Moreover, client interaction allows subsidiaries to build a reputation and trust among network actors and co-create knowledge (Ryan et al., 2018; Strambach, 2008). Hence very little has been explored about how the subsidiary can develop knowledge. A high degree of autonomy often necessitates advancing expertise to improve RKT in the KIBS firm. As a result, the following hypotheses are developed:

Hypothesis 1: The greater the autonomy of the subsidiary, the more it will produce new knowledge.

Hypothesis 3: The higher the degree of subsidiary autonomy, the higher the degree of RKT.

2.15.1.2 External Embeddedness

Previous research has appeared to concentrate on social network links. Firms benefit from information sharing and resource exchange; resources or a knowledge transfer may facilitate through geographically distant connections (Roberts & Beamish, 2017; Bae et al., 2011). It is argued that reverse knowledge transfer and subsidiary knowledge development are based on external network links between partners. Subsidiaries interact

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with a network of inter-and intra-firm partnerships with vendors, rivals, consumers, and other entities with access to marketing and technical knowledge that helps companies compete (Lowe & Wrigley, 2010). Similarly, the subsidiary embedded within the local environment is related to the subsidiary's strategic decision-making process.

According to Frost (2001), foreign subsidiaries are a substantial source of new ideas for the whole corporate network. Additionally, these subsidiaries are linked to local networks of customers, manufacturers, competitors, agencies, and government agencies (Giroud & Scott-Kennel, 2009; Håkansson & Snehota, 1995; Ghoshal & Bartlett, 1990; Granovetter, 1985). Furthermore, subsidiaries with externally embedded partnerships can acquire new knowledge and create new opportunities in the host environment, which benefits the subsidiary's competence growth (Achcaoucaou et al., 2017; Hardy et al., 2003; Andersson et al., 2002). Besides, external business embeddedness enables subsidiaries, and accurate information creates a learning opportunity and improves efficiency (Perri et al., 2013; Andersson et al., 2002).

If the subsidiary adds to the MNE's knowledge base, external embeddedness may be beneficial (Zhang et al., 2014; Najafi-Tavani et al., 2013; Andersson et al., 2007a). Additionally, because KIBS businesses rely on working ties with local businesses, such partnerships greatly aid their success (Doloreux et al., 2008; Muller & Zenker, 2001). By extension, externally embedded subsidiaries reinforce links with the parent company related to knowledge growth (Nell & Ambos, 2013; Sumelius & Sarala, 2008).

Several studies have proven that when approached from a network viewpoint, business networks help increase the technical proficiency and bargaining power of MNEs (Mats et al., 2005). The external business network is a business exchange between a buyer and a seller, creating new business relationships. Extant literature has focused that the focal

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firm must be embedded in the specific network ties to discover the potential of firm-specific advantages for firm performance (Sharma et al., 2019; Vahlne & Jonsson, 2017).

On the other hand, research in the manufacturing sector concentrated on subsidiary external embeddedness and is believed to have resulted in a higher stock of subsidiary knowledge. It also broadens the parents' knowledge base (Cho & Lee, 2004; Gupta & Govindarajan, 2000). The study by Najafi-Tavani et al. (2012a) has several shortcomings; first, it does not adequately address the effect of external embeddedness on RKT. Second, there is a deficiency in developing competence inside the KIBS-based subsidiaries related to RKT and performance.

This study investigates whether external embeddedness improves the flow of knowledge at the subsidiary level, given the possible effect on RKT in the subsidiaries. The more subsidiaries connected to an external network, the more knowledge development in the subsidiary. As a result, the hypotheses that follow are formulated:

Hypothesis 2: The more closely subsidiaries' relationships with their local actors are rooted, the more new knowledge is developed.

Hypothesis 4: The stronger the subsidiary is embedded in its local environment, the higher the RKT.

2.15.1.3 Subsidiary Knowledge Development

The underlying concept is that MNEs benefit from the knowledge generated by their international operations. In this sense, the subsidiary can contribute to the development of competence. As a result, foreign subsidiaries produce new products, new technologies, new talents, and new process designs, all of which contribute to the development of their knowledge, capacity, and technical capabilities (Borini et al., 2014; Borini et al., 2012; Govindarajan & Trimble, 2012; Birkinshaw, 1997; Ghoshal & Bartlett, 1988).

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The ability to produce new products or services is crucial to the company's success (Revilla et al., 2010). Since subsidiaries are rooted in local and host country cultures, they are more likely to learn and grow new knowledge in today's highly competitive market climate. On the other hand, knowledge contributions from business relationships are used to build the subsidiary's knowledge (Foss & Pedersen, 2002). As a result, the local climate or location advantages are essential in developing knowledge (Mudambi et al., 2018).

Operational expansion is significant in multinational companies. While an international firm can have its headquarters in the country that serves as its most prominent market, a subsidiary also has a different, equal, or additional emphasis on global markets and greater profitability (Almeida & Phene, 2004). According to Gupta and Govindarajan (2000), subsidiaries will contribute knowledge to headquarters or subsidiaries. If they can create "non-replicable knowledge," a subsidiary can give a host an increased yield and economy of scale. In this market research sense, subsidiaries have a distinct advantage over the parent company since they have a more prosperous link to their home and host countries. Therefore, they can establish unique and irreplaceable "non-replicable knowledge." Even though only a few studies suggest that subsidiaries' knowledge contributes to reverse knowledge transfer, little is known about KIBS in the service sector (Pace & Miles, 2019).

MNEs are precisely the means that have focused on both expanding and sharing knowledge across the entire networks in recent years, which has greatly benefited their ability to tap into new knowledge as well as improve the network's overall resources (Bartlett & Ghoshal, 2002; Ghoshal & Bartlett, 1988). A significant advantage in creating unique and valuable knowledge in the headquarters is a subsidiary's ability to gain a significant competitive advantage in producing commercially viable and practical

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knowledge (Rugman & Verbeke, 2001). Therefore, the subsidiaries would be able to create a unique ability that is pertinent for each major multinational enterprise, thereby leaving those companies in business well-positioned to continue benefiting from the use of that knowledge after the competition is over (Colakoglu et al., 2014; Andersson et al., 2005). KIBS is usually highly customized and intangible (Jia & Li, 2018). Moreover, customization is an essential source of competitive advantages (Campagnolo & Cabigiosu, 2015). Thus customized solutions or knowledge production develops during client interaction (Cabigiosu & Campagnolo, 2019). From a resource-based perspective, rare and non-duplicable knowledge is generated through interaction between KIBS clients. Thus professional knowledge may generate in KIBS-based subsidiaries (Miozzo et al., 2016).

Nonetheless, Miozzo et al. (2016) demonstrated how numerous elements referred to as formal appropriability procedures (i.e., patent protection) might facilitate RKT in KIBS firms where reciprocal knowledge generation and transfer are the norms. This study primarily focused on firms engaged in innovation and formal appropriability methods (i.e., patents, copyrights, and trademarks), overlooking the critical role of external network partners, widely regarded as the fundamental source of knowledge generation (such as know-how). Closely associated KIBS subsidiaries with established local network partners will likely benefit from knowledge exchange. Nevertheless, the subsidiaries' knowledge or knowledge creation capability has been little explored in the KIBS in the service industry with empirical evidence. The more subsidiaries develop knowledge, the more knowledge stock is transferred to the subsidiary; however, the degree to which subsidiary knowledge increases RKT is unknown. Consequently, any of the following hypotheses can be derived:

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Hypothesis 8: The stronger the subsidiary is embedded in its local environment, the higher the RKT.

2.15.1.4 Internal Socialization Mechanism

Several mechanisms are used to transfer knowledge, such as controls, socialization, teamwork, and knowledge infrastructure (Bouquet et al., 2014; Ambos & Ambos, 2009; Zhao & Luo, 2005; Gupta & Govindarajan, 2000). Other (global, regional, or domestic) counterparts to assist subsidiaries in dealing with new challenges and problems, the involvement of a subsidiary international force, joint training programs, visits, and informal communications, all of which serve to help managers to handle new and emerging issues within the international subunit (Decreton et al., 2019; Harzing & Noorderhaven, 2006). The socialization mechanism is excellent for tacit and non-codified knowledge transfer and is suitable for face-to-face communication (Noorderhaven & Harzing, 2009; Haas & Hansen, 2005; Bartlett & Ghoshal, 1989). Tacit or soft knowledge evolves through social relations within a professional service firm (Beaverstock, 2004). Therefore, the responsiveness of ambiguous or unintentional knowledge is obtained through various discussions or experiences, and with the help of their network of professionals, explicit or demanding knowledge development. The more information have on a group, the more likely subsidiary to obtain knowledge relevant to that competitiveness. Wilson et al. (2006) indicate that there is typically much social regulation in person-to-person contact regarding social power. The better the opportunities for interactions and the use of multiple channels, such as face-to-to-face contact, or exchange in the virtual world, the more likely transmission losses can be resolved (Decreton et al., 2019; Björkman et al., 2004; Tsai & Ghoshal, 1998). However, social interactions help promote reciprocal knowledge, making acquiring resources easier (Cooper et al., 2019; Lane & Lubatkin, 1998; Ibarra, 1993).

With time spent on internal socialization, there is a rise in the connections between subsidiaries and their parent companies (Najafi-Tavani et al., 2012bp.480). Several other researchers emphasized distance as an obstacle to knowledge transfer (Ambos & Håkanson, 2014; Eisenhardt & Santos, 2002). Socialization can benefit by mitigating the negative influence on the partner's motivation and ability (Schreiner et al., 2009). As a result, this study anticipates that socialization mechanisms would positively affect the RKT.

Despite the essential existence of KIBS, prior research has concentrated on highly tangible output-based manufacturing firms and discovered a significant favorable influence of socialization mechanism on RKT (Gupta & Govindarajan 2000; Noorderhaven & Harzing 2009). Harzing et al. (2016) also underline the need to distinguish between RKT directions and accounting for potential employees' varying knowledge transfer capacities in the manufacturing industry. This study established the importance of interactions between subsidiary and headquarters personnel within the same country or across borders. On the other hand, a recent study by Decreton et al. (2019) indicates how MNEs can overcome inherent difficulties connected with headquarters conducting subsidiary activities. This was accomplished by analyzing the effect of organizational socialization mechanisms on reducing the adverse relationship between subsidiary manager participation and initiative facilitation behaviour. Thus, in the KIBS context study, socialization mechanisms are anticipated to ease tensions between subsidiaries and headquarters and develop connections and knowledge exchange. The socialization mechanism is identified in the research context because know-how knowledge transfer is critical in the KIBS in the service industry, and relatively little research has been undertaken. As a result of this investigation, the following hypotheses are developed:

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Hypothesis 5: The greater the extent to which internal socialization mechanisms are used, the greater the extent to which RKT increases.

2.15.1.5 The Role of Internal Socialization Mechanism on Subsidiary-Headquarters Embeddedness

Effective coordination between the subsidiary and parent firm in a highly competitive market is critical. However, research has demonstrated that horizontal networking fosters employee relationships, such as collaborating on projects with others in the subsidiary and the business's primary unit (Ghoshal et al., 1994). As with travel and transfers of managers between subsidiary and lead headquarters, Ghoshal and Bartlett (1988) refer to the administrative linkages as "normative integration," where great distances and administrative supervision are needed. While other researchers believe that constant contact across the entire network results in greater overall exposure and abilities. Hansen et al. (2005) argue that subsidiaries and headquarters employees gain a range of knowledge.

Additionally, a corporate training program boosts the partnership between headquarters and subsidiaries. Socialization is a set of techniques to explain communication processes' origin, structure, and intent (Noorderhaven & Harzing, 2009). Gorovaia and Windsperger (2010) strove to elucidate the communication power of socialization, considered a "rich communication channel."

Socialization facilitates coordination, a common goal, and an understanding of how tasks may be accomplished effectively (Decreton et al., 2019; Nelson, 2009; Winter & Nelson, 1982). Thus socialization fosters the re-utilization of individual behaviour (Ramarajan & Reid, 2020; Kogut & Zander, 2003). In the MNE context, subsidiary and headquarter managers effectively organized joint training programs, task force, and organizational goal-setting activities. The meeting with the subsidiary and headquarters manager is to exchange tacit knowledge and later codify it usable for the subsidiary and headquarters.

This study predicted that the subsidiary's internal socialization or rich interaction would positively affect the subsidiary's and headquarters' relationship. Since this requires transferring global knowledge is a concern, international cooperation between subsidiaries and headquarters and their parent organizations is needed. The research shows that as a result of these findings, it is assumed the following hypotheses:

Hypothesis 6: The more organizational structures (internal socialization mechanism) are used, the more deeply the subsidiary is intertwined or embedded with its headquarters.

2.15.1.6 The Role of Subsidiary-Headquarters Embeddedness in Subsidiary Knowledge Development

Based on the inter-organizational context, the close relationship between subsidiaries and their headquarters facilitates the flow of strategic resources that shape subsidiaries' knowledge development and performance (Phene & Tallman, 2018; Lee, 2010; Frost et al., 2002). However, the close relationship between subsidiaries and their headquarters is called internal embeddedness (Asakawa et al., 2018; Nell & Ambos, 2013). Subsidiary-headquarters embeddedness in the organizational context forms corporate strategies and structures that increase subsidiaries' capability development. Subsidiaries may decide the pattern of knowledge development and diffusion of knowledge and the degree and type of interdependence between subsidiaries and headquarters (Ciabuschi et al., 2015; Kostova & Roth, 2003; Bartlett & Ghoshal, 1989). Embedded relationships facilitate the transfer of knowledge and intra-firm knowledge transfer, promoting collaboration (Tsai & Hsu, 2019; Tsai & Ghoshal, 1998). As a result, this relationship fosters trust between subsidiaries and corporate headquarters (Andersson et al., 2001).

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The use of intra-firm knowledge transfer accelerates the transfer of tacit knowledge, even more so when it is ubiquitous (Sheng et al., 2015; Gupta & Govindarajan, 2000). Tacit knowledge is established by an employee's experience and everyday interactions, and this knowledge can only be transferred by making frequent communication with each other (Sheng et al., 2015). In contrast, subsidiary managers can reduce the pernicious negative correlation between subsidiary tacit knowledge and multinational corporations' ability to innovate by avoiding the trap of excessive dependency on technological procedures over interpersonal processes (Roth et al., 2009). Global market forces place higher pressure on businesses to leverage these worldwide marketing chances. This has increased interaction between MNEs across borders to access international marketing opportunities (Murray & Chao, 2005). A detailed understanding of a problem will yield explicit (known as "know what") and tacit (known as "know-how") knowledge. Still, the MNEs will need to leverage tacit knowledge or highly context-specific information if they want to succeed (Bindroo et al., 2012).

On the other hand, Lin (2014) conducted a recent study to ascertain the association between socialization strategies and technological innovation capacities at the alliance and knowledge integration levels. The study discovered that socio-technical factors (socialization mechanisms and technological innovation) affect the quality of network alliances and supplier relationship management. Although this empirical study established significant relationships between firms' socialization mechanisms and network collaborations and demonstrated a strong motivation for knowledge transfer integration (i.e., supply integration among network partners), it was limited to the manufacturing industry.

Moreover, headquarters can guide and facilitate interdependencies (Kostova et al., 2018). This study reveals that the MNE model, taken from MNE strategy literature

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(multinational, global, and transnational) and the social milieu in which a specific subsidiary is placed, influences the level of self-interest and limited rationality. As a result, subsidiaries will actively foster internal connections with headquarters by seeking embeddedness within the MNE network. This puts them in a more important place to integrate headquarters knowledge, resulting in a high degree of subsidiary knowledge development and technical development effort (Almeida & Phene, 2004). Additionally, it is anticipated that the stronger the structural relationship between subsidiaries and headquarters, the more knowledge is expected to be developed and transferred. As a result, the following hypothesis was proposed:

Hypothesis 7: The greater the subsidiary's ties to its parent company, the more it engages in reverse knowledge transfer.

Hypothesis 9: The more interconnected or embedded the subsidiary is with its headquarters, the more subsidiary knowledge develops.

2.15.1.7 Reverse Knowledge Transfer

Whether technology or organizational practices, subsidiaries' external relationships, and the processes they generate knowledge determine the source of knowledge. The research on MNEs usually highlights the need for intra-MNE knowledge transfer using a dyadic approach that progresses vertically. However, because of their close interaction with external sources, subsidiaries function as sources of knowledge (i.e., suppliers, competitors, users, and other associations). Transferring knowledge from subsidiary to parent strengthens competency and empowers the subsidiary to make independent decisions, resulting in superior performance (Phene & Almeida, 2008). The research hypothesizes that RKT is a process that maintains a connection between subsidiary and headquarters performance. Suppose an organization's internal lack of knowledge sharing while developing a new product influences its profitability negatively (Hoopes & Postrel, 1999). A business output increases the organization's specialized knowledge (Van de Ven, 2004).

A network of capital, social ties, and knowledge transactions that extends through various geographical location-based relationships are the subjects of interest to Gupta and Govindarajan (1991). It has been shown that transferring skills and capabilities between organizational subunits is vital to proper functioning. Gupta and Govindarajan (1994) suggest that, given the specific characteristics of their marketplaces, knowledge from other MNE units is also insufficiently valuable to local innovators. However, their study did not investigate the theoretical or empirical basis for the relationship between RKT and performance. Others concentrate on knowledge transfer or flow or exchanging business practices (Szulanski, 1996). The activities concerned delivering and expanding technological and marketing knowledge between technical and commercial divisions (Holm & Sharma, 2006; Håkanson & Nobel, 2001).

On the other hand, Monteiro et al. (2008) underlined that internal knowledge transfers occur due to knowledge flow and the knowledge transfer process (i.e., membership in an internal knowledge network). This is a dyadic mechanism of knowledge transfer. The subsidiary and the headquarters participate when MNE subsidiaries engage in knowledge transfer (reciprocal transfer and the sending and receiving phenomena). Furthermore, this study discovered that knowledge transfer is most likely to occur in large corporations, where high-functioning members of an "in the community" (like affiliates network members) come together to share knowledge. In contrast, the isolated subsidiary rarely shares knowledge. A subsidiary may be a source of techniques (e.g., knowledge, technology, or processes) or a way for each parent firm (to be used by the subsidiary). Typically, in parent-subsidiary interactions, a dyadic flow of knowledge occurs (Jaw et al., 2006).

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In addition, subsidiaries benefit multinational corporations in retaining knowledge because they can expand and develop new knowledge within the firms' network (Najafi-Tavani et al., 2012b; Venaik et al., 2005; Bartlett & Ghoshal, 1999). A company must maintain competitiveness in the global market and improve its efficiency and capabilities (Pereira et al., 2016; Rabbiosi & Santangelo, 2013; Ghoshal & Bartlett, 1990). As learning occurs within the organization, the product expands within the firm. By extension, employees will be brought in for the new training and strengthen the MNEs' knowledge base (Blomkvist et al., 2010).

Product and service innovation revitalizes or reshapes existing products and services to act as drivers for firm performance (Danneels, 2002). On the other hand, Lee et al. (2001) attempted to explain business performance by combining two fundamental theories, the resource-based view (RBV) and social capital, from a more comprehensive viewpoint. The findings demonstrate that the two are mutually reinforcing since it (social capital) is worthwhile only when a firm possesses the other (i.e., internal capabilities). Furthermore, internal capacities are inextricably linked to internal knowledge gain, whereas social capital is linked to externally acquiring knowledge. In this research context, the subsidiaries are connected externally (i.e., suppliers, competitors, customers) and internally (i.e., subsidiary-headquarters network relationships) through a business network and resource-based view.

Similarly, Lee et al. (2001) illustrated the complexity and significance of the relationships between the external competitive environment, internal knowledge resources, innovation, and firm success in a high-technology manufacturing sector. While knowledge assets are plentiful, this study demonstrates that innovative new products significantly impact revenue growth in high-technology firms. This is consistent with the

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resource-based approach, which maintains that knowledge is a firm's most valuable competitive asset. Additionally, the findings show that the quality of innovation, as assessed by its impact on revenue growth, is connected to the organization's knowledge assets.

Indeed, subsidiaries increasingly serve as a strategic resource for knowledge generation and innovation growth within MNEs. Based on the findings of this study, subsidiaries have a wider variety of sources of knowledge, which leads to a more significant amount of knowledge sources conducive to generating new and innovative performance (Ferraris et al., 2017a). However, this study identified trends in the manufacturing sector that may not be generalizable across the industry. Another study by Gaur et al. (2019) suggests that multinational corporations' knowledge transfer depends on the interactions between actor, company, and country-specific factors and the specific knowledge being transferred.

Previous research has established a link between RKT and the creation of innovations at corporate headquarters (Nair et al., 2018). These results are consistent with the limited empirical study on the benefits of RKT in the setting of multinational businesses (Driffield et al., 2016; Najafi-Tavani et al., 2015b) and give evidence to support the basic assumption of current studies on the internationalization of firms, namely that RKT is indeed a crucial step in the growth of the MNE's competitive edge (Meyer et al., 2020; Kogut & Mello, 2017; Mudambi et al., 2014a). Mudambi et al. (2014a) assert that multinational firms are differentiated networks in which subsidiaries have varying capacities to develop new knowledge and capabilities for their parent organizations. Most network theory assumes that subsidiary innovativeness and the number of reverse knowledge transfers to the parent MNE are positively associated.

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On the other hand, the goal of the Najafi-Tavani et al. (2015b) study is to evaluate the effect of reverse knowledge transfer or the flow of knowledge from a subsidiary to the headquarters, focusing on the autonomy and practice of subsidiaries, designating them as the powerhouses of MNEs. The empirical study reveals that reverse knowledge transfer significantly boosts the subsidiary's relative influence within the multinational organization.

Ferraris et al. (2017b) highlight the effect of knowledge management techniques on that relation involving external research and innovation and performance outcomes, claiming that organizations with superior knowledge management capabilities can effectively manage and incorporate external resources and that superior knowledge management skills enhance the usage of external R&D, the breadth of external knowledge sources, and the innovative performance of subsidiaries. Innovation is one of the most important sources of competitive advantage and performance for a company, according to recent research by Jiménez et al. (2019) and colleagues Nair et al. (2018) and Park and Vertinsky (2016). This study demonstrates that in the case of RKT, the geographical distance between the knowledge transmitter and recipient is particularly significant. Even though communicating non-duplicable tacit knowledge requires more effort, this knowledge is vital for enhancing the inventive competitive advantage of multinational firms. In a recent study, Mudambi et al. (2014b), Najafi-Tavani et al. (2015b), and Nair et al. (2018) underlined the involvement of the headquarters in the RKT process. This study highlighted the subsidiary as a knowledge transmitter to the parent company). However, a subsidiary as a recipient of network knowledge (both external and internal knowledge) and its utilization for subsidiary innovation performance has received less attention to date. Innovation comprises either managerial, product, or service performance. Meyer et al. (2020) recent review study suggests that focusing on multinational enterprise subsidiaries as a unit of analysis would improve our

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understanding of these vital actors in most global economies and the complexity of MNEs with several embedded subsidiaries. Additionally, dynamic subsidiary management would improve the global market's understanding of the multinational corporation.

Besides, introducing subsequent product innovation influences the competitive market share and survival factor (Beugelsdijk & Jindra, 2018; Doloreux & Porto Gomez, 2017; Banbury & Mitchell, 1995). Additionally, product innovation is also associated with revenue growth or financial performance. RBV and business networks remain significant theories in the MNE environment due to their theoretical foundation, emphasizing the crucial significance of knowledge resources for cross-border organizations. On the other hand, KIBS-based subsidiaries acquire knowledge through broad network connections (i.e., external and internal) within the subsidiary and then send it back to headquarters. Nonetheless, while RKT can benefit or increase the relevance of a subsidiary, it has yet to be demonstrated that it results in improved performance. The hypothesis is thus formulated:

Hypothesis 10: The higher the extent of reverse knowledge transfer, the greater the degree of subsidiary performance.

2.15.1.8 Mediating Relations among Constructs

a) ***The Mediating Effect on Subsidiary Knowledge Development, Embeddedness of Subsidiaries in Headquarters, and RKT.***

Extant literature made a more refined note of this: it is integral to achievement (increased capacity to achieve); transfer of knowledge and innovation are significantly correlated with each other (Hünnemeyer, 2020; Driffield et al., 2016; Park & Vertinsky, 2016; Najafi-Tavani et al., 2015b; Ambos et al., 2006; Håkanson & Nobel, 2001). However, knowledge transfer has the effect of leveraging subsidiaries' strengths and headquarters-subsidiary relationships (Easterby-Smith et al., 2008). Additionally, subsidiaries' knowledge development competence depends on the subsidiaries' decision-making autonomy, and subsidiaries gain power in the MNE's context (Ciabuschi et al., 2012). It also predicted that the subsidiaries' knowledge development and RKT depend on the subsidiaries' critical activities, such as hiring subsidiaries' top managers.

It was also anticipated that the fundamental operations of the subsidiaries, such as the hiring of top managers and the new product development process, would impact the subsidiaries' knowledge development and RKT. New product development or innovation in the MNEs of subsidiaries is fundamentally linked to the degree and nature of autonomy in strategic decision-making and the ability to access the local external network knowledge (Jun et al., 2019; Beugelsdijk & Jindra, 2018; Hoenen & Kostova, 2015). To practice autonomy, however, a degree of knowledge development is required. While subsidiaries are empowered to make independent decisions, they are more likely to be externally active, allowing them access to relevant information. If they lack the required power to make decisions, MNE subsidiaries cannot gain competence.

Capacity for strategic decision-making in establishing network partnerships with local network participants or external organizations, generating new knowledge, and identifying new business opportunities (Ghoshal & Nohria, 1989). In addition, the subsidiary manager can efficiently manage strategic knowledge and filter relevant, useable knowledge in an organizational setting or at the subsidiary level. Consequently, subsidiaries might acquire more resources and capabilities and expand their influence within global organizations. They can also bargain with their parent corporations.

Scholars have recommended additional studies on the role of internal and external knowledge in subsidiary knowledge development (Ryan et al., 2018; Najafi-Tavani et al., 2015b; Almeida & Phene, 2004). Based on previous research regarding the development of knowledge through the recombination of existing knowledge (Kogut & Zander, 1992), this study proposes that subsidiaries development of knowledge through their participation in autonomous decision-making as they are connected to the external environment. Consequently, the more knowledge development at the subsidiary level, the greater the prevalence of autonomy practices. The subsidiary can convey knowledge to the headquarters and use it for operations. Because this knowledge emerges through the subsidiary's autonomous decision-making practice, it is as vital for subsidiaries but has gotten little attention. Therefore, it is asserted that subsidiary knowledge development mediates the relationship between subsidiary autonomy and RKT. Thus, the hypothesis is developed as follows:

Hypothesis 11a: The relationship between subsidiary autonomy and RKT is mediated through subsidiary knowledge development.

b) Mediating effect on subsidiary knowledge development, external embeddedness, and RKT

Prior studies show that subsidiary-headquarters embeddedness significantly contributed to subsidiary knowledge development (Najafi-Tavani et al., 2015a). As a result, the subsidiary developed a variety of types of knowledge, including an understanding of existing strategy know-how (knowledge about customers, competitors, and suppliers), service production strategy know-how (expert knowledge of service development approaches), process design know-how, technology know-how, and marketing know-how (e.g., customer relationship management, customer-driven product changes, prices, and an understanding of customer behaviour). However, these types of knowledge are not generated in an automated process. Hence, subsidiary embeddedness in a dual context (external and internal) enhances the subsidiary's new technology development (Phene & Tallman, 2018). Based on RBV and BNT, which serve as the theoretical basis for this study, RBV asserts that unique subsidiary resources are a

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significant component of its competitive advantage (Barney, 1991). Therefore, in the KIBS-based subsidiary, knowledge is the essential resource for achieving and maintaining competitiveness (Spender & Grant, 1996), a center of excellence (Asakawa & Lehrer, 2003; Moore, 2001), and becoming a regional innovation center (Liu & Chen, 2012). Working with external partners also improves the BNT subsidiary's ability to compete with rivals and collaborate with other network actors in its environment (Uzzi, 1996). Consequently, the subsidiaries' network partners provide them with vital fresh thoughts and knowledge, and their interactions with the local network are a novel and practical means of creating value (Li et al., 2010).

Nonetheless, when embedded linkages exist between internal and external networks, they assist subsidiaries and headquarters with global operations and knowledge activities (Andersson et al., 2015d, 2002). As long as externally embedded subsidiaries operate with local networks, such as clients, suppliers, and research institutes, confidence and collaboration will increase, enabling knowledge sharing across organizational borders (Yang et al., 2019; Uzzi & Lancaster, 2003). This strategy is predicated on the notion that strategic resources can be discovered by establishing ties between subsidiaries that are part of social relationships and external networks. Based on prior research examining how subsidiaries create knowledge in their internal contexts (Ambos et al., 2010) or the changing role of the subsidiary's local knowledge network (Mudambi & Swift, 2012), little is known about how subsidiaries' knowledge development can mediate the relationship between external embeddedness and subsidiary knowledge flow (RKT). This research focuses on the role of RKT in external and internal network environments. According to the available literature, both external and internal embeddedness may be associated with the growth of MNEs' capabilities and the performance of their inventions (Nair et al., 2018).

Nevertheless, there is evidence in the existing research that external knowledge could boost the flow of knowledge to subsidiaries. Recent qualitative research conducted by Ryan et al. (2018) demonstrates that knowledge development for dual embedded subsidiaries (both external and internal) occurs when both the internal MNE subsidiary role and the local network knowledge base simultaneously change. This study did not, however, demonstrate that the level of knowledge development might serve as a link between external embeddedness and RKT. This is because the impact of RKT cannot be measured apart from the subsidiary's knowledge development. Since knowledge is generated in response to external changes, a local knowledge network is necessary. These could also help them determine how essential the context is to the subsidiary and how it can be utilized to influence it. Thus, the following hypothesis is formulated:

Hypothesis 11b: The relationship between external embeddedness and RKT is mediated by subsidiary knowledge development.

c) ***Mediating effect on the development of subsidiary knowledge, subsidiary-headquarters embeddedness, and RKT***

Subsidiary-headquarters embeddedness describes the links between the subsidiary and the network of the parent firm. Moreover, established and successful connections generate trust, which is crucial for cooperation and knowledge exchange (Minbaeva et al., 2018; Buckley et al., 2009). Thus, embedded connectivity could provide the subsidiary with knowledge and other capabilities, reducing its dependence on local sources (Luo, 2003). On the other hand, Håkanson and Nobel (2001) discovered that embedded relationships or integration between subsidiaries and headquarters facilitate knowledge transfer by lowering the associated expenses.

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However, the ability of subsidiaries to investigate and produce new knowledge proved considerable, primarily due to the subsidiaries' growth (Ciabuschi et al., 2014). Moreover, Frost (1998) states that subsidiaries can balance internal and external information. Thus, a subsidiary can be connected to its headquarters while maintaining separate communication channels.

Each subsidiary was linked to its parent by business agreements, significantly increasing its reliance on the local market. While utilizing this approach, it has been suggested that the headquarters' (management) authority over subsidiaries should be weakened (Ho, 2014; Asakawa, 1996). Having subsidiaries in other regions or companies under one's principal umbrella will aid business expansion. However, tiny scales will maintain them under one administration, primarily due to businesses' fast acquisition and reconstitution throughout time (Ho, 2014; Ghoshal & Bartlett, 1990). Therefore, subsidiaries must be linked to their headquarters to retain their relationship with the parent firm. Personal and professional ties are established via interaction and strengthened with time (Foss et al., 2013; Dellestrand & Kappen, 2012). Therefore, business relations promote the inflow of company-related information, clients, competition, and ideas from external sources and their assimilation within the subsidiaries and headquarters. Therefore, subsidiary-headquarters embeddedness promotes subsidiary knowledge.

Most current research focuses on the embeddedness of subsidiary headquarters concerning parent-to-subsidiary knowledge transfers (Michailova & Mustaffa, 2012). For instance, Monteiro et al. (2008) revealed that knowledge is more likely to be transferred to MNE subsidiaries with highly substantiated competency, impacting their innovative performance. Similarly, Noorderhaven and Harzing (2009) observed that social relationships between managers, which are especially favourable to exchanging tacit knowledge, facilitate such knowledge flows. Recent research conducted by Ferraris et al.

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(2020) demonstrates that the relational embedding of subsidiaries into the external local network is essential for developing local innovations. This study also revealed that reverse knowledge transfer demands internal embeddedness, a prerequisite for transitioning from local innovation to global invention. However, many studies are complicated because businesses require time and an appropriate plan to improve subsidiaries' long-term knowledge development and integration capabilities.

Moreover, tacit knowledge resides within the individual and cannot be transferred separately; nevertheless, it can be transmitted through embedded relations (Birkinshaw et al., 1998). Personal connections are crucial for cross-border knowledge transfer in a service-based KIBS firm where tacit knowledge is prevalent (Bai et al., 2019; Buckley et al., 1992). Managing the relationship between headquarters and subsidiaries and supporting knowledge development is essential for multinational organizations' exchanges between headquarters and subsidiaries. Second, it expands the scope of the study to include RKT, that have been less thoroughly investigated in previous research. To raise RKT, however, it is required to develop additional knowledge. Therefore, the hypothesis is formulated:

Hypothesis 11c: The relationship between subsidiary headquarters embeddedness and RKT is mediated by subsidiary knowledge development.

d) ***Subsidiary-Headquarters Embeddedness acts as a mediator between ISM and RKT.***

Identify socialization mechanisms based on Gupta and Govindarajan's research (2000). Socialization as a formal technique, such as liaison persons, task groups, and permanent committees, is necessary for establishing a strong link or relationship between headquarters and subsidiaries, positively affecting the communication interface density and knowledge outflows to headquarters. Their research indicated that subsidiaries and

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other organizations must establish interpersonal and personal contacts. Since the transfer of knowledge and RKT are astoundingly complicated and challenging to encapsulate because of the intricate cross-border and inter-organizational widths, it is necessary to employ appropriate socialization mechanisms to enhance knowledge transfer between subsidiaries and the parent firm (Nell et al., 2016; Ambos & Schlegelmilch, 2007). In comparison, a study by Rabbiosi and Santangelo (2013) contends that informal socialization mechanisms, including collaborative teamwork, workshops, meetings, and frequent visits across subsidiaries and parent companies, serve as a grasp of the RKT process. Although prior research has classified socialization as informal or formal, this study classifies it as an internal socialization mechanism incorporating informal and formal socialization mechanisms. This is because, in the absence of formal preparations, including the headquarters, none of the procedures offers channels for organizations receiving knowledge to rapidly recognize the attributes of knowledge for knowledge sharing or transfer. Establishing intimate links between the subsidiary and parent company requires internal socialization and headquarters-subsidiary integration (Gupta & Govindarajan, 2000). A socialization mechanism (an additional communication channel) raises the RKT by improving the parent company's knowledge (Decreton et al., 2019; Monteiro et al., 2008). It makes communication between headquarters and subsidiaries easier. A company founded on the KIBS philosophy seeks to develop a network for integrating and exchanging knowledge (Williams & Nones, 2009). Implementing a comprehensive training program and rotating key individuals between subsidiaries and headquarters can fix the problem (Williams & Nones, 2009). Thus, constant communication between subsidiaries and headquarters strengthens their relationship (Schreiner et al., 2009). According to these arguments, the socialization mechanism substantially enhances the degree to which subsidiaries communicate locally

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specialized information to headquarters and the amount of contact between headquarters and subsidiaries (Najafi-Tavani et al., 2012a).

Networks of relationships enable cross-border knowledge transfer, according to the BNT hypothesis. Nevertheless, there may be a balance between relationships between headquarters and subsidiaries, as interactions with headquarters are likely to inhibit entrepreneurial and proactive conduct (Stea et al., 2015). In this instance, identifying the socialism mechanism is a boundary condition for this relation. Moreover, similar to prior research, our findings suggest that socialization mechanisms can gently regulate subsidiary behaviour (Björkman et al., 2004). In addition, Noorderhaven and Harzing (2009) employ a sender-receiver model in which social interaction is viewed as channels with the necessary 'bandwidth' for the transfer of highly tacit and complex knowledge, and socialization mechanisms not only have a significant impact on knowledge-sharing but also strengthen the relationships between subsidiaries and headquarters. According to a recent study, headquarters engagement is likely to affect the behaviour of subsidiary management adversely (Decreton et al., 2019). In a way, socialization enhances network knowledge and strengthens the tie between subsidiaries and headquarters. In addition, the embeddedness of subsidiary headquarters is crucial for RKT, which needs further study. As a result, the following hypothesis is developed:

Hypothesis 11d: Subsidiary headquarter embeddedness acts as a mediator between internal socialization mechanisms and RKT.

2.15.1.9 Mediator Variable Relationships

Based on the existing literature and research gap, this study identifies two mediators that produce four essential mediation relationships: subsidiary knowledge development (SKD) and subsidiary headquarters embeddedness (SHE). The first relationship demonstrated that SKD mediates between SA and RKT (11a). The second relationship

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demonstrated that SKD mediates between EE and RKT (11b). Thirdly, SKD mediates the interaction between SHE and RKT (11c); fourthly, SHE mediates the relationship between ISM and RKT (11d).

2.16 Model Summary

The conceptual framework for the study is depicted in Figure 2.2. The model investigates the probability of interactions between determinants. First, this model demonstrates how external relationship characteristics, such as external embeddedness and subsidiary autonomy, influence subsidiary knowledge development and RKT. Second, it is thought that internal relationship characteristics (internal socialization mechanism and embeddedness of subsidiary headquarters) positively correlate with RKT. This structure is expected to significantly impact subsidiary knowledge development and strengthen relationships between subsidiaries and headquarters. Third, external and internal relationships between subsidiaries significantly predict subsidiary knowledge development. Fourth, this research framework identifies several mediation impacts, including subsidiary knowledge development and subsidiary-headquarters embeddedness, which considerably affect subsidiary autonomy, external embeddedness, and internal socialization mechanism with RKT. Embedded linkages enable the exchange of resources, such as information, between resource seekers and resource holders.

Consequently, the core strength of network theory, embedded relationships, allows subsidiaries to exchange tacit and explicit knowledge (Forsgren et al., 2007). Based on theory and a gap in the literature, this research framework concludes that the propensity for knowledge can significantly influence subsidiary performance and contribute to MNEs. This study excluded measurements of headquarters performance, which are integrated with those of subsidiaries, due to the difficulties of gathering data from the headquarters. Otherwise, the perspective of headquarters would add value to this

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investigation and allow for comparing study results. Table 2.2 shows the overview of the developed hypotheses.

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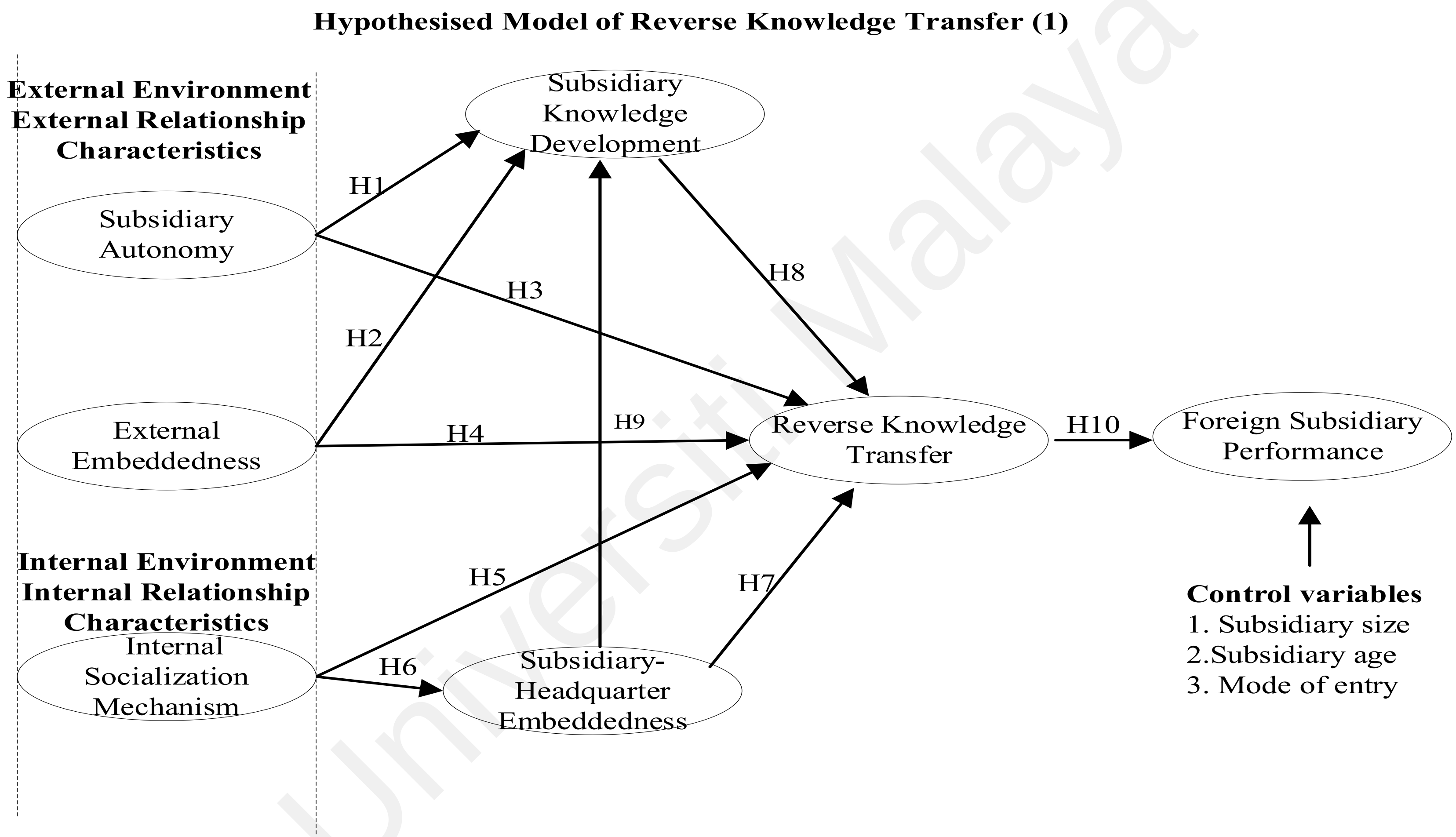

Figure 2.3: Hypothesized Model of Reverse Knowledge Transfer and Subsidiary Performance

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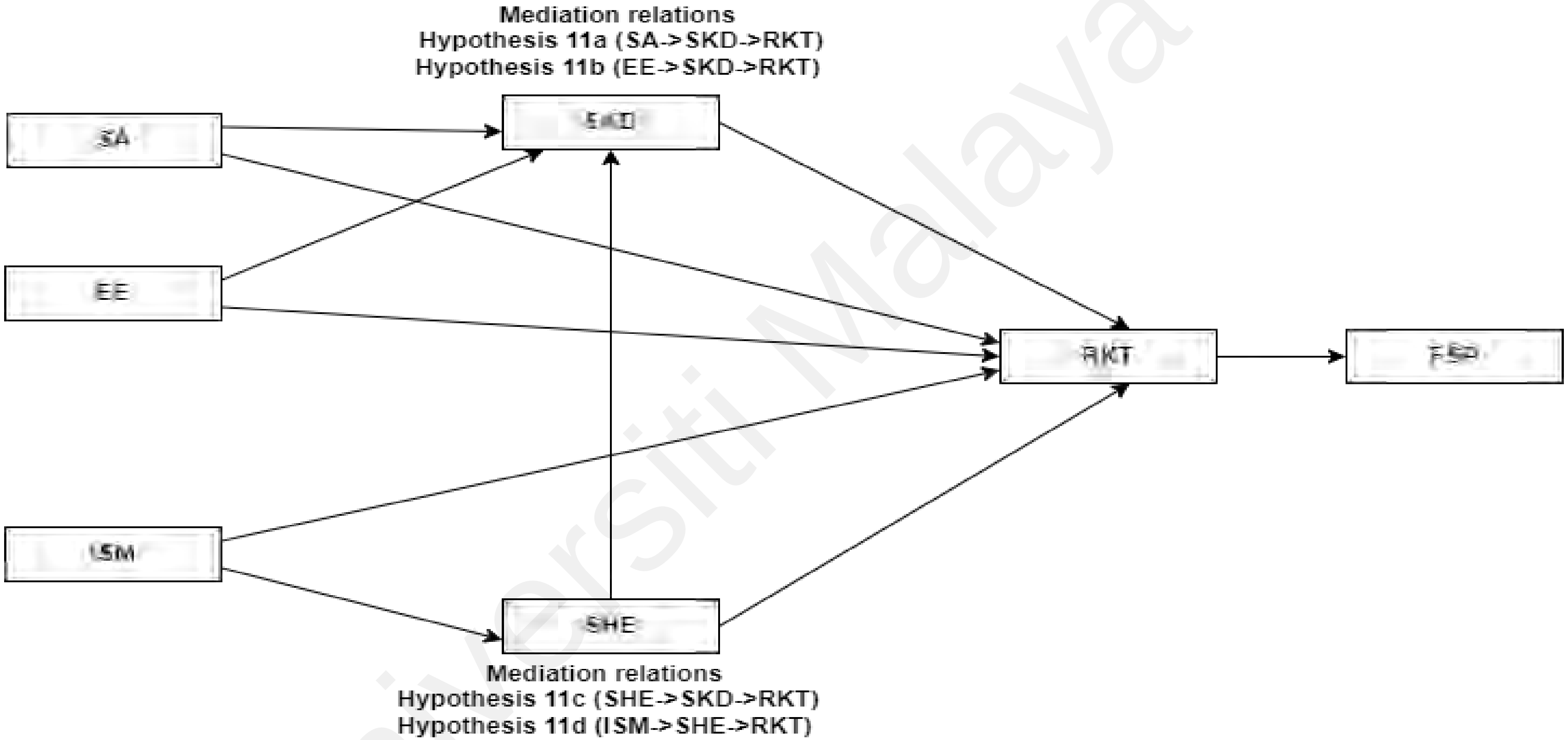

Figure: 2.4 Specific Mediation Relationships

Table 2.2: Developed Hypotheses

Hypothesis 1	The greater the autonomy of the subsidiary, the more it will produce new knowledge.
Hypothesis 2	The more closely subsidiaries' relationships with their local actors are rooted, the more new knowledge is developed.
Hypothesis 3	The higher the degree of subsidiary autonomy, the higher the degree of RKT.
Hypothesis 4	The stronger the subsidiary is embedded in its local environment, the higher the RKT.
Hypothesis 5	The greater the extent to which internal socialization mechanisms are used, the greater the extent to which RKT increases.
Hypothesis 6	The more organizational structures (internal socialization mechanism) are used, the more deeply the subsidiary is intertwined or embedded with its headquarters.
Hypothesis 7	The greater the subsidiary's ties to its parent company, the more it engages in reverse knowledge transfer.
Hypothesis 8	The degree to which subsidiaries develop knowledge, the greater the extent of RKT.
Hypothesis 9	The more interconnected or embedded the subsidiary is with its headquarters, the more subsidiary knowledge develops.
Hypothesis 10	The higher the extent of reverse knowledge transfer, the greater the degree of subsidiary performance
Hypothesis11a	The relationship between subsidiary autonomy and RKT is mediated through subsidiary knowledge development.
Hypothesis11b	The relationship between external embeddedness and RKT is mediated by subsidiary knowledge development.
Hypothesis11c	The relationship between subsidiary headquarters embeddedness and RKT is mediated by subsidiary knowledge development.
Hypothesis11d	Subsidiary headquarter embeddedness acts as a mediator between internal socialization mechanisms and RKT.

2.17 Summary of the Chapter

This chapter reviews and discusses the findings of prior studies on RKT and how it occurs across the border. This chapter introduced a range of applicable concepts to this study, covering (research) theories relating to the transfer of knowledge and organization enablers. Subsequent sections addressed characteristics of relationships and the development of subsidiary knowledge, RKT, and KIBS in Malaysia's service sector and highlighted innovation and performance perspectives. Thus, to complete the chapter, a literature review was conducted, alongside hypotheses generated, to pull observations and convert these into ideas, subsequently set out as research questions for further study.

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These questions will be analyzed using knowledge transfer, empirical data, and research design to examine foreign subsidiary performance.

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CHAPTER 3: RESEARCH METHODOLOGY-CONDUCTING A QUANTITATIVE STUDY

3.1 Introduction

The previous chapters illustrated that research examining the RKT in KIBS and their effect on subsidiary performance as a line of investigation is still in its infancy regarding years of interest. Therefore, this chapter discusses the methodology used in the study. Consistent with the MNEs' understanding that research in the KIBS sector is complicated, as shown in Chapter Two (2), this chapter will justify using deductive empirical research as the chosen methodology since it is suitable for the research questions. This chapter, however, will begin by outlining the methodological framework for conducting deductive research, which includes the design and strategy. The study describes additional quantitative methods chronologically, including data collection and appropriate analytical tools. The sample was drawn from the knowledge-intensive services industry listed in section 3.3. In addition, companies list development procedures and surveys stated in sections 3.4 and 3.5. Finally, a research methodology is included in section 3.6, showing how to develop research designs and use research strategies. The sections and subsections following this were all illustrated by examples including, but not limited to, the piloting of the questionnaire, variables, data collection methods, respondent screening and calculation, missing data and treatment, and outlier examinations that followed chronologically.

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3.2 Research Methodology

The research model was constructed through an in-depth literature review to identify the antecedents of RKT and then follow the methodology described in the literature to establish the postulated findings. Some factors that have been commonly mentioned in the literature were included. In addition to its basic features, one of the subsidiary's other noteworthy features is the correlation between the sender and the characteristics of the recipients. The factors that influence RKT have been classified into several broad categories. These are the subsidiary's features, the aspects of the sender-receiver relationship, the network of relationships, and knowledge attributes (see Chapter 2).

This was conducted using a rigorous scientific methodology to examine the theoretical underpinnings. The subsequent estimate for the various features was developed using the findings of previous studies that the study deemed adequate (see Chapter 2). The questionnaires were created using a "tailored designed process" to get the answers formed and implemented using a customizable process (Dillman, 2011). This study focuses on the KIBS sector, and the population consists of Malaysian subsidiaries of foreign parent companies. A total of 5000 foreign-listed firms were obtained, including the Ministry of International Trade (MITI), the Malaysian Investment Development Authority (MIDA), and the OneSource database (now Dun & Bradstreet). However, based on the research criteria and the enterprises classified as knowledge-intensive (i.e., highly reliant on expert knowledge), only 1000 businesses fit the research criteria.

Additionally, 523 companies meet the research requirements with the more stringent criteria after screening using the OneSource database. The database can segregate how many MNEs of the subsidiaries operate in Malaysia. Although MNEs have multiple subsidiaries, many are considered independent and branch operations. According to the definition used in this study, a foreign subsidiary owns at least 50% of the shares in an

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MNE's operating subsidiary. To maximize response rates and managers' willingness to participate in the survey, the top 523 subsidiaries (by revenue) were contacted.

Despite this, the final response list was with 523 Senior Managers, Human Resource Managers, and Mid-level Managers contacted. In the case mentioned above, 244 people responded. Thus, the AMOS 25 (i.e., structural equation modelling) effectively utilizes data collection through face-to-face and email questionnaires (for more information, see Chapter 4).

3.3 Sample

This study's population comprises the most significant Malaysian subsidiaries in terms of revenue produced by their non-Malaysian parent company. However, selecting an acceptable sample size for survey research is critical from a methodological and theoretical standpoint. This research aims to determine the effects of RKT in knowledge-intensive business services, more precisely, how embeddedness and subsidiary autonomy affect subsidiary knowledge development and subsequent contributions to subsidiary success in product development, increased sales, and management efficiency. Nonetheless, the study sample should include subsidiaries of KIBS engaged in external knowledge acquisition from external environments. Equally, the sample of this thesis is designed based on the theoretical representative of KIBS in the service industry-based foreign subsidiaries in Malaysia. The sample is derived from the number of sub-sectors on KIBS listed below.

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Table 3.1: Classification of KIBS according to NACE Europe (sectors and subsectors)

NACE	BRANCH (description)
72	*Computer and related services*
721	*Hardware consultancy*
722	*Software consultancy and supply*
723	*Data processing*
724	*Database activities*
725	*Maintenance and repair activities*
726	*Other services related to data processing*
73	*Research and development*
7310	*Research and experimental development in natural science and engineering*
7320	*Research and experimental development in social science and humanities*
74	*Other business activities*
741	*Legal activities, bookkeeping, and auditing activities, tax consultancy, market research and public opinion polling, Business and management consultancy, holdings*
7411	*Legal activities*
7412	*Accounting, bookkeeping, and auditing activates-tax consultancy*
7413	*Market research and public opinion polling*
7414	*Business and management consultancy activities*
742	*Architectural and engineering activities and related technical consultancy*
743	*Technical testing and analysis*
744	*Advertising*
7484	*Other business activities*

Source: adapted from (Muller & Doloreux, 2009, p. 66)

This study used purposive or judgmental sampling as selecting elements is solely focused on the researcher's judgment. Furthermore, the sample is the sub-sector analysis representing the study population. The data was collected once in a while via the survey instrument, mainly during several exhibitions held in Kuala Lumpur from March 2016 to December 2017.

The study's unit of analysis is foreign subsidiaries (firms) located in different regions in Malaysia. The sample was chosen based on statistical representatives. However, the data source has been derived from the Avention Business OneSource database (i.e., now Dun &Bradstreet). OneSource provides several attributes of company details: annual reports, company profile, business information, lists of subsidiaries and headquarters

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located worldwide, description of business activities, financial analysis, and executive contact details. Besides, it provides industry reports and profiles of over 100 essential industries and market shares. Furthermore, it supplies executives, including the CEO, CKO management, and middle management, with key company profiles and data about the different corporations, including corporate and trade news, industry intelligence, and financial results, as well as profiles for the entire organization, along with economic and market size, as well as data for many business regions.

OneSource provides access to detailed reports, significant development, and strategic initiatives of headquarters and subsidiaries for headquarters and subsidiaries. This database also provides coverage of Asia and Africa-based MNEs and lists the market share of each subsidiary worldwide. The database was chosen due to its comprehensive coverage and availability of representatives of subsidiaries compared to other data sources.

3.4 Companies List Development Procedures

The list of the companies has been developed from the OneSource database. Furthermore, contacts were drawn from the database, including email, office hours, and the person's name in the company's top management. Subsidiaries are defined regarding shareholding from the MNEs that at least fifty percent of the subsidiaries occupy. There is no official definition and classification of KIBS provided in the Malaysian context, and it is hard to define and categorize KIBS in the service industry. However, the Ministry of International Trade and Industry (MITI) recently designated twelve (12) sectors as part of the service industry. The lists were compiled using the provided data and the KIBS European Industry Classification (NACE), which involves subsidiaries using knowledge and technology to propel their businesses: private and manufacturing sectors, public sector organizations, and research institutions. The subsidiaries include computer and related; research and development (R&D); technical testing and analysis; technical services, telecommunication services, marketing research, management consultancy, adverting and publishing, financial services, and other service-related falling under KIBS.

From the OneSource database, approximately 1000 listed company selected. However, purification takes a considerable time, as it is complicated to differentiate from the KIBS and foreign subsidiary definitions, as stated earlier. The top 523 companies (by revenue) have been chosen to prevent unwanted communications.

3.5 Survey Development Procedures

A survey is "generally understood as a form of data collection that relies on self-reported responses to a previously prepared set of questions" (Frey, 2018, p. 1639). The most critical part of the survey is creating questions to measure employees' experiences and behaviors. Therefore, the researcher must understand the objective and the respondent's target group to develop the right questions.

The central goal of survey research is to obtain valid data representing the target population (Frey, 1998). It is noted that many decisions must take every step to explore the mistakes to collect data accurately. It is evident that a more extensive survey may provide more information but may lead to more participant fatigue (Frey 2018).

This research on RKT selects the appropriate population, including subsidiary managers and senior managers with experience and involvement over a more extended period. According to Frey (2018), several steps need to follow in designing a useful survey;

(i) *Determine the population*
(ii) *Sampling the population*
(iii) *Creating a cover letter and questionnaire*
(iv) *Motivational survey state*
(v) *Survey demand*

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(vi) Witting the questions
(vii) Ordering the questions
(viii) Data collection
(ix) Cost versus benefits

However, the survey design is crucial to assist in an efficient way to collect the data from a larger group of people.

3.6 Research Design and Strategy

The research design addresses what, why, and how research questions (Plowman, 1999, p. 31). To answer the questions, the researcher should choose an appropriate research method and technique by which the issues surround deductive and inductive reasoning. Therefore, this part will illustrate the application of a quantitative approach. Research usually starts with a question that needs to be answered. The study is planned around that problem, "in this way, our research questions, incorporating the purposes of research, lead us to methodology and methods" (Crotty, 1998, p. 3). There are main research approaches stated (Scheuer, 1999, p. 9), (i) the quantitative deductive approach, (ii) and the inductive qualitative approach. Each procedure follows its way of doing research.

Epistemology deals with the knowledge that assists inquiry through philosophical grounding (Crotty, 1998, p. 8). Each research is based on epistemological views relevant to the theory of knowledge with a specific method application. The primary two epistemological aspects are objectivism and constructionism. Objectivism is the view where "truth and meaning reside in them like objects" and meaningful entries. Thus, meaning is produced because of an attempt to create meaning (Crotty, 1998, pp. 44-55). Therefore, this epistemology underpins the positivist stance that consistent quantitative method.

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The quantitative or deductive method designates the procedures of deducing hypotheses from evidence, aiming to "prescribe the conduct of true scientific practice" (Gill 1991.p293). The deductive method assumes the proposition from evidence, which is empirically tested (O'Reilly, 2008, p. 104).

> *"In deductive research, a hypothesis is derived from existing theory and the empirical The World is then explored, and data are collected, to test the hypothesis. An inductive approach is where the researcher begins with as few preconceptions as possible, allowing the theory to emerge from the data" (O'Reilly, 2008, p. 104)*.

The deductive research started with a general statement and hypotheses and examined the possibilities to reach a logical conclusion. In other ways, deductive research test the assumptions and theories to consequences. Usually, research into social sciences approaches the quantitative method through surveys and experiments.

On the other hand, the inductive qualitative approach is "the inquirer often makes knowledge claims based primarily on constructionism perspective" (Creswell, 2003, p. 18). Constructionism is the epistemological view that "all knowledge, and therefore meaningful reality, is contingent upon human practices, being constructed in and transmitted within an essentially social context" (Crotty, 1998, p. 420). Thus, constructionism rejects the objectivist view claiming that the meaning is not discovered in an objectivist view but as a meaningful reality that is socially constructed (Crotty, 1998, p. 9). It is the view of "the very existence of a social phenomenon that stems from human action" (Crotty, 1998, p. 56). Inductive research is the opposite of deductive. It makes a broad generalization from specific observations. The distinction between inductive and deductive is based on theory versus deductive is made using observation is two independent of whether or mutually complementary approaches are under consideration. The critical assumption between quantitative and qualitative philosophies are given below.

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Table 3. 2: The Assumption of the Two Central Paradigms

Assumption	Question	Quantitative	Qualitative
Ontological	What is the fundamental essence of reality	Apart from the researcher, the reality is objective and singular.	As shown by participation in a study, the reality is subjective and multifaceted.
Epistemological	What are the relationships of the researcher to the research?	The researcher is independent of being researched	The researcher interacts with the being researched
Methodological	What is the process of research?	-Deductive process -cause and effect -static design –categories isolated before the study -context-free -generalization leading to prediction, explaining, and understanding. -accurate and reliable through validity and reliability	-inductive process -simultaneous mutual shaping of factors -Emerging design categories identified during the research process -Context-bound -Patterns and theories developed for understanding - Accurate and reliable through verification

Source: Adapted from (Collis & Hussey, 2013)

Drawing upon the key assumptions identified in the table above, the investigator applies cause and effect thinking, uses measurements and observation, tests the theory, and "employs strategies to collect data based on a survey" (Creswell & Creswell 2017, p. 18).

This research is categorized in two ways (i) external environmental factors that subsidiaries are associated with external partners through knowledge development, and (ii) intimate association between subsidiary and headquarters through relationship characteristics that facilitate subsidiaries' knowledge development.

The influence of the two groups (external and internal environments) from which the subsidiary developed knowledge by identifying the antecedents of knowledge transfer and relationship characteristics of RKT and the effect of RKT on subsidiary performance. This research integrates three determinants: subsidiary autonomy, external embeddedness, and subsidiary-headquarters embeddedness that positively affect subsidiary knowledge development. These factors will empirically be investigated in

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Hypotheses H1, H2, and H9. Besides relationships, the characteristics group contains two elements: internal socialization mechanism and subsidiary-headquarters embeddedness. The relationships have been empirically tested in hypotheses H3, H4, H5, H6, and H7. Subsidiary knowledge development in association with RKT will investigate hypothesis H8, and how RKT is interlinked with subsidiary performance will be tested in hypothesis H10. This study's four mediation models were tested in H11a, H11b, H11c, and H11d (refer to Chapter 4). By addressing the outline gap, this research enables RKT and subsidiary performance by answering several research questions in Chapter 1.

3.7 Research Strategies

The research strategy depends on the following three conditions: (i) "The type of research questions posed"; (ii) "The extent of control an investigator has on actual behavioural events"; and (iii) "The degree of contemporary as opposed to historical events " (Yin, 2009, p. 5). The following table identifies the effective research strategies of different research methods.

Table 3. 3: Effective Research Strategy

Strategy	The Form of Research Questions	Requires control of Behavioral events?	Focus on contemporary Events?
Experiments	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much	No	Yes
Archival Analysis	Who, what, where, how many, how much?	No	Yes/No
History	How? Why?	No	No
Case study	How? Why?	No	Yes

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Using the above framework suggested that quantitative survey study analysis is appropriate for this research context while seeking to answer who, what, and where (Yin, 2009, p. 6). On the other hand, based on the study by Oakley (1999, p. 156), the attributes of quantitative studies are as follows;

Table 3.4: The Characteristics of Quantitative Studies

Inquiries into the facts/causes of social phenomena	Measurements of obstruction and power
Objective/Goals/expectations	The perspective of an 'outsider' is excluded from the data.
Unsubstantiated,verification-focused, reductionist, and hypothetico-deductive	Result-driven
Reliable/Consistent: data that is tangible an replicable	Generally applicable

According to Burrell & Morgan (2017, 1979), a quantitative approach considers the social world objective. Additionally, the current casual partnerships have the most vigorous context for comprehending the issue (Pugh & Hickson, 1976). On the other hand, based on empirical research, a hypothesized relationship can produce if the study is highlighted based on theory and provides evidence of causal relationships between variables ("Encyclopedia of Research Design," 2010). Creswell and Creswell (2017) explain that using cause-and-effect thinking and testing theories through statistical data is best for conducting quantitative studies. Alongside this also added the best way of doing research surveys. According to Creswell (2003), this research will study the causal relationships between RKT, subsidiary knowledge development, and subsidiary performance; a quantitative approach is appropriate. This study utilizes survey-based analysis because it meets the quantitative structure's requirements. This research focuses on a substantial body of literature and widely accepted ideas regarding cross-border knowledge transfer. After all, this research method enables the incorporation of subsidiary-based data, establishing relationships between RKT and its effect on subsidiary performance.

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3.7.1 Questionnaire Design

A questionnaire is a set of questions usually used to generate data to meet the research and survey objectives (Clow & James, 2013). Before designing the questionnaire, it is essential to consider the study's purpose. Although there is no ideal questionnaire development format, specific guidelines must be followed to create a high-quality questionnaire. It is argued that the quality of data gathered if the questionnaire design is accurately designed. The first step is to develop a questionnaire to meet the survey objective. However, the objective survey guides selecting the questions and the appropriateness of questionnaire wording. The survey objective was set in light of this study setting. The second stage is the questionnaire design process based on data collection methodology. Therefore, after determining the data collection method should follow the measure of the survey objective, and the key consideration is to determine the type of scale and the best way to phrase the questionnaire. Besides, preparing a cover letter for mail surveys and face-to-face data collection is necessary. However, using this method, all of the measurements in this study were established by reviewing the existing literature. Several drawbacks and difficulties were encountered when developing the questionnaire. The questionnaire was designed so that several questions were challenging to understand for the non-academic as many academic terms were used. Below the figure shows the steps of developing an effective questionnaire:

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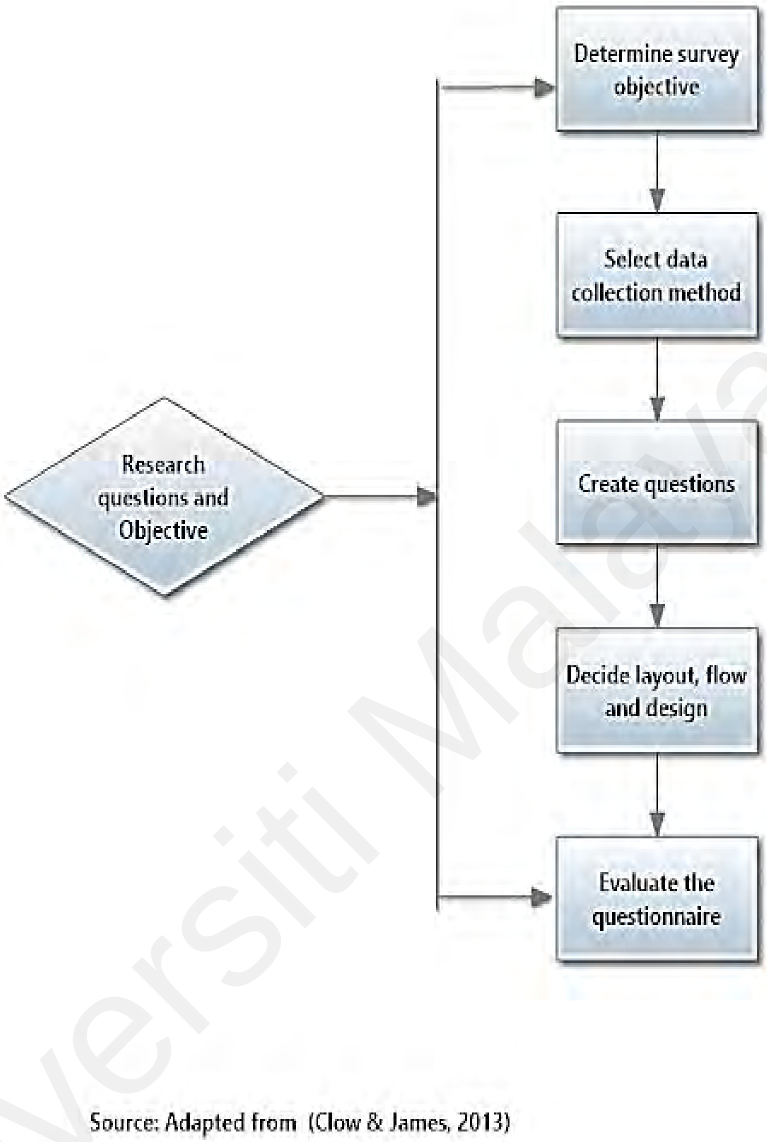

Figure 3. 1: The Steps of Designing an Effective Questionnaire

Several limitations have been identified during questionnaire drafting. Some of the questions were not suitable for the service industry survey.

For this reason, with careful crosschecking, those not suitable were removed from the questionnaire. This questionnaire often suffers from a logical sequence that the respondent may lose while answering. Besides, the letter is essential to give a clear idea about this research, and a subsequent checking cover letter also improved. Another limitation of this questionnaire was the explicit Likert scale scaling, clarifying 1 to 7 points. Each will sometimes be convincing to respond affirmatively to each positive nature, except the researcher will expect all affirmative responses and provide clarification. Thus, the researcher eliminated explicit scaling and replaced it with 1= not at all and 7= to a great extent.

Table 3. 5: Problems Associated with Each Draft

Draft	Problems Associated
First draft	- A few of the questions were complicated to understand - Use of academic term that is not easily understood by non-academic - The problem of a sequence of questions - Some of the questions are difficult to separate from manufacturing to the service industry - No cover letter included - 5-point Likert scale
Second draft	- Covering letter is too long to read - Repeated questions and no logical sequence - Long questions and respondents may not feel like the answer
Third draft	- Identified measurement scales problems - Vague questions - Company demography information not included - Avoid double-barrel questions

3.8 Piloting the Questionnaire

This study conducted a pilot test to test the feasibility of the study with a small group of participants to achieve the expected outcome. Both qualitative and quantitative research employ pilot studies. This research serves as a justification for a subsequent, more comprehensive analysis. Besides, it also allows the pre-test of the particular research instrument. A pilot study is useful for various reasons;

- A pilot study may be used to evaluate one's readiness, research ability, and dedication as a researcher (Lancaster et al., 2004).

- A pilot study may aid the researcher in his or her work (Kilanowski, 2006).
- It enhances the credibility of the survey (Padgett, 2016).

3.8.1 The Issue Resolved in the Pilot Study

Table 3. 6: The Issue Resolved in the Pilot Study

❖ Are some questions difficult to understand though the respondent is willing to answer?
❖ Some questions might be sensitive- so respondents might skip them.
❖ Whether all questions are worded clearly?
❖ Are the directions clear so respondents understand what is expected of them?
❖ Do the skip patterns work as intended?
❖ Can the respondents understand the routing instructions in the questionnaire?
❖ How long does it take?
❖ Does the technology work?

Adapted from (Thomas, 2004)

According to Thomas (2004), two types of people may involve in the pilot study. The first type of representative of the target audience, and the second type is the survey measurement specialist. However, one or two measurement experts should be sufficient to provide feedback.

On piloting procedures, this study was a pre-tested questionnaire by experts in the field of studies, 10 Ph.D. students, and 20 subsidiaries' top managers in Malaysia. According to Thomas (2004), 10 to 30 respondents were required to test the pilot study based on the complexity of the study. However, the second pilot study could be conducted if no significant or significant changes result from the first study. This study is complex, and difficult to manage more respondents; however, the researcher collects to access 30 respondents in the pilot study.

According to Creswell (2003), pre-testing the questionnaire is to check the face validly. On the other hand, it enhances the survey's credibility (Padgett, 2016). The structure of the cover letter has been changed based on the feedback, making it more

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compact and understandable. Some questions are added in the explanation, such as "R&D" to "Research and Development." This is because of the clear idea about the term used.

Another feedback from the expert in this field incorporates a 7-point Likert scale. The scale is recommended to be extended to a greater length to ensure maximum reliability and validity (Presser & Krosnick, 2010). According to these experts, measuring with a greater degree of variation (7-point Likert scale) would produce a more significant result as an increase in variance. The literature has already established that when a 5-point Likert scale is incorporated, response rates and respondent satisfaction are likely to increase; however, lower levels of dissatisfaction are likely to be encountered (Babakus & Mangold, 1992). Therefore, choosing a scale of 5-point or 7-point is a mixture of the idea and depends on the research context.

However, the earlier draft incorporated “neutral " in the questionnaire with the listed construct, namely, "external embeddedness," "subsidiary-headquarters embeddedness," "subsidiarity knowledge development," "RKT," and subsidiary performance in a questionnaire. According to feedback received regarding the elimination of the "neutral" issue, this is because trichotomous scales (e.g., "like," "dislike," "neutral") may be “problematic for another person who has a moderately positive or negative attitude, equally far from the midpoint and the end of the underlying continuum" (Presser & Krosnick, 2010, p. 269). Furthermore, useful feedback revealed that long questionnaires were not employed in the pilot phase since participants could get bored answering too many questions.

The PhD students also received feedback that some wording has been changed. Based on the suggestion from the PhD, students, and academics are using simple language and familiar words to understand the questionnaire quickly. The researcher then avoids technical and strategic terms such as "strategic- know-how." This is not complete; what does it mean? Later added explicitly that all about "knowledge about the customer, competitors, supplier, and so forth.". An expert in the field also suggested avoiding double-barreled questions instead of single and double negation.

The common perception of scale points may be level with words or numbers to understand the questions and examine the problem. Therefore, while pre-testing the questionnaire, that scale point should be levelled with either words or numbers. However, received feedback from the expertise on research that the levelling of each scale point with words and numbers may have consented to response bias, and the study's objective may not have been achieved.

The most crucial reason for pre-testing the questionnaire with 30 knowledge-intensive business services was to identify the most applicable method for administrating the survey. To give the questionnaires to 40 executives and company-wide CEOs and board members, they included with envelope in each stack of questionnaires and addressed them. A return envelope was included with each one. Six (6) of the forty (40) companies completed the survey and replied. The approach was taken directly through the phone; those who agreed to participate emailed the questionnaire to 20 companies. Unfortunately, out of twenty (20), four (4) responded.

As email communication channels have increased, one must use electronic communication effectively when conducting surveys. Since the primary method was to perform an email survey which typically utilizes software that is part of the email or electronic, (ii) questionnaire text embedded in the email itself (Lavrakas, 2008, p. 231), this research follows the electronic attached email. The inadequate response is that it is challenging to use, as it is in the form of an attachment, and printing and emailing it is time-consuming. As sample representativeness of the general population is difficult to achieve using internet surveys in this context, and data quality may degrade due to the low respondent engagement, high workload, or insufficient understanding of the questions, a face-to-face survey method was chosen (Determann et al., 2017; Windle & Rolfe, 2011).

3.9 Sample and Data Collection Procedures

The sampling frame consists of two fundamental ideas that populations are called the "theoretical universe" and access to a large part of the population through a list of the "working universe" (Byrne 2017, P. 2). Based on Byrne's (2017) concept, the list from which we derive a sample is called the sampling frame. Based on his theory, the sample must be obtained to use statistical inference to attach probability statements, derive hypotheses, and test data hypotheses. It is well-argued that random sampling is more likely to represent the population from which it is drawn. This is because it is designed to have equal chances of being selected. In other words, the sampling frame is a list of people from the population the researcher can include in the study (Zhan 2019).

However, sampling procedures include gathering suitable items from a population. The representative or good samples will ensure the ability of the results to be generalized to the population. The survey involved 1000- listed companies, where 523 fit the research criteria. The respondent’s designation and mailing lists were sources from the OneSource database.

It could evolve following the data collection procedures. Purposive sampling was used in this analysis. Purposive sampling is a method used in non-probability sampling that refers to a judgmental or expert sample. Nonprobability sampling does not require the selection to have known non-zero probabilities. Additionally, each population variable does have a defined non-zero probability of being chosen in probability sampling. The primary goal of purposive samplings is to generate a sample that can theoretically be

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presumed to represent the population (Lavrakas, 2008). Purposive sampling is a key component of judgmental sampling, known as non-probability sampling (Sarstedt et al., 2018; Cochran, 1977). The researchers' judgment or experience in the field is solely responsible for selecting the sample components. The researcher may incorporate the necessary characteristics for analyzing the effect under investigation (Sarstedt et al., 2018). Besides, prior researcher knowledge is essential, and considering all the factors associated with the investigation could lead to a representative sample.

Purposive sampling was used to pick a subset of the exhibitions mentioned in this study from which participants would be drawn. Thus, the first stage units represent the main subsidiaries' manager, CEO, or CKO, in conjunction with the expert subject matter judgment used to pick the study's participants.

In this study, the primary data collection method has been used by distributing the questionnaire by hand in exhibitions, industry workshops, and through mail surveys. First, the postal service administered the questionnaire, posted it to 40 companies, senior managers, and CEOs, including names, positions, and locations, and attached it to the returned envelope. However, only six (6) companies responded to the survey forty (40). Secondly, the questionnaire was emailed to twenty (20) businesses. The managers and executives of these companies were approached directly over the phone and agreed to participate. Out of twenty (20), only four (4) responded. The reason for less response might be the respondents' time constraints, downloading the survey, answering, and attaching it to an email. Most managers and CEOs are busy with their daily tasks.

The third stage of collecting data is distributing questionnaires at the selected Exhibition, workshop, trade showcase, information technology (IT) fair, MITI trade show, and international business machine (IBM) business connect seminar. The total

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respondents were two hundred thirty-four (234) from approximately twenty to thirty (20-30) exhibitions, conferences, trade showcases, workshops, and business connect.

Table 3.7: Listed Exhibitions

Name	Location	Date
IBM Business Connect	IBM Malaysia office	March 24, 2016
28th International Invention, Innovation & Technology Exhibition	KLCC Convention Centre	May 11-13, 2017
Google Malaysia	Google Malaysia office	June 25, 2017
SME Export Day: Cross-border success	Ministry of Trade and Industry MITI	August 9, 2017
SME Export Day: The most comprehensive Conference with a step to step Export Guidance	Ministry of Trade and Industry MITI	August 9, 2017
MDEC- Global and Digital Free Trade Zone	Menara MITI	August 22, 2017
Invest Fair-	Mid Valley Exhibition Centre	22-27 August 2017
Malaysia IT Fair	Mid Valley Exhibition Centre	8-10 September 2017
International Trade showcase	PWTC	19 September 2017
International Trade Showcase (OIC World Muslim Biz)	PWTC	18-21 September 2017
International Investment Trade Showcase	PWTC	19 September 2017
Malaysian Property Expo	Mid Valley Exhibition Centre	13-15 October 2017
National Innovation and Creative Economy-NICE Expo	Technology Park Malaysia	12-16 October 2017
Malaysia IT fair	Mid Valley Exhibition Hall	15 -17 December 2017

Since this research utilized a foreign subsidiary sample and anticipated substantial consequences addressing the primary research questions, prior contact with respondents was made. However, human resources, operations, and marketing responded to the inquiry and other functional managers. Human resource and operations managers are expected to be the most knowledgeable senior managers. Although the majority of MNE surveys are designed to elicit responses from managing directors (MD), chief executives

(CEO), or chief knowledge officers (CKO), the researcher attempted to "alleviate survey fatigue" by disseminating the survey to functional managers. Additionally, these managers are seen as the least decentralized in their functional domains. Indeed, the majority of the respondents were senior managers. Finally, prior research indicates that organizational managers' viewpoints on subsidiary RKT (external and internal) are often consistent with those of other subsidiary executives (Chang et al., 2012).

3.10 Measurement of Variables

External embeddedness, subsidiary-headquarter embeddedness, subsidiary knowledge development, internal socialization mechanism, subsidiary autonomy, RKT, and subsidiary performance are quantified or measured using well-established scales. According to Gupta and Govindarajan (2000) and studies on RKT, this research will focus on five distinct types of knowledge: sales and marketing strategy, service and development strategy know-how, distribution and management system know-how, and practice know-how. All of these are highly relevant to Malaysia's KIBS background.

Except for subsidiary autonomy, all things are scored on a seven-point Likert scale to elicit responses about respondents' expectations and attitudes. Based on prior literature, the following variables were highlighted in this research design: However, in the case of RKT, which serves as a dependent variable for other constructs (e.g., SA, EE, ISM, Subsidiary-Headquarters embeddedness, and SKD), RKT also functions as an independent variable for subsidiary performance, which is a novel finding. Precisely, the following variables will be measured in the following ways:

3.10.1 Foreign Subsidiary Performance

How will you score your subsidiaries on the following questions compared to your industry's competitors? (i) Our profitability is much better than our competitors;(ii) Our sales growth has been much higher than our competitors; (iii) Our market share has been

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higher than our competitors; (iv) Our productivity has been much higher than our competitors;(v) Our customer satisfaction has been much better than our competitors; (vi) Our technological improvement has been much higher than competitors; (vii) Our new product/service development is much higher than our competitors; (vii) Our quality of product/service is much better than our competitors. This survey assessed answers on a seven-point Likert scale regarding the agreement on that axis ranging from 1= strongly disagree to 7 = strongly agree. The subsidiary performance was estimated based on the scale (Dahms, 2017; Gammelgaard et al., 2012; Birkinshaw et al., 2005) study.

3.10.2 Reverse Knowledge Transfer

The scale is based on the Gupta and Gupta and Govindarajan (2000) and Yang et al. (2008) studies. The seven types of knowledge relevant to this study are (a) strategy know-how (knowledge about customers, competitors, and suppliers), (b) service production strategy know-how, (c) process design know-how, (d) marketing know-how (customer relationship management, customer-driven product changes, pricing, and market positioning); (e) distribution know-how; and (f) packaging design/technology know-how. Using a seven-point Likert scale with values ranging from 1 (not at all) to 7 (to a great extent).

3.10.3 Subsidiary Autonomy

Subsidiary autonomy is based on the processes described in Ghoshal and Bartlett (1988) and Ghoshal and Nohria (1989). When respondents were asked to assess the overall impact of the subsidiary and its headquarters on the subsidiary's decision-making, they estimated the relative influence of the following issues: (i) Adaptation of new products and services; (ii) introduction of new services/introduction of the new product for local and foreign market; (iii) launching new product/services for local and foreign markets;(iv) the product/service development budget led collaboration with external

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partners; (v) definition of R&D projects, planning, resources; (vi) Sales and marketing strategy; (vii) Product/service pricing strategy; and (viii) personnel policy strategy. The questions were graded on a five-point scale ranging from 1 (parent company makes all decisions alone) to 5 (subsidiary makes all decisions alone).

3.10.4 External Embeddedness

To assess external embeddedness, subsidiary managers were asked if, when considering their most external business relationships, the subsidiary was able to acquire knowledge from the local environment; (a) Strategy know-how (knowledge about customers, competitors, and suppliers), (b) Service production strategy know-how, (c) Process design know-how, (d) Marketing know-how (customer relationship management, customer-led product changes, pricing, and market positioning; (e) Distribution know-how; (f) Packaging design/technology know-how; (g) Management systems and practices know-how. This query was adapted from a contribution made by (Andersson, Björkman & Forsgren 2005); Andersson, Forsgren, and Holm (2001) using a seven-point Likert scale with a range of 1 (not at all) to 7 (to a great extent).

3.10.5 Subsidiary Knowledge Development

Gupta and Govindarajan (2000) and Yang et al. (2008) developed a scale to assess the development of subsidiary knowledge, and this study adopted the scale in this study. Concerning the study's validity, the seven categories of knowledge are as follows; (a) Strategy know-how (knowledge about customers, competitors, and suppliers), (b) Service production strategy know-how, (c) Process design know-how, (d) Marketing know-how (customer relationship management, customer-led product changes, pricing, and market positioning; (e) Distribution know-how; (f) Packaging design/technology know-how; (g) Management systems and practices know-how. Using a 7-point Likert scale ranging from 1= not at all and 7= to a very great extent. The following questions were posed to the

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respondents: "To what extent during the last three years did your company obtain and develop the… knowledge which is superior to that of headquarters, sister companies, and competitors?"

3.10.6 Internal Socialization Mechanism

Internal socialization entails respondents evaluating various socialization processes and activities in the subsidiary and headquarters over the last three years. These activities are associated with (i) participating in corporate inter-unit communication committees/teams/task forces, (ii) constituting project groups to work on headquarters problems, (iii) movement of personnel between both firms and (iv) participating in a joint training program, (v) visit to the parent company by your company's top managers, (vi) visit to the parent company by your headquarters top managers. This scale is based on Gupta and Govindarajan (2000) and Noorderhaven and Harzing (2009).

3.10.7 Subsidiary-Headquarters Embeddedness

In thinking of your relationship with headquarter, please indicate the extent to which the subsidiary exchanges knowledge with its headquarters concerning; (a) Strategy know-how (knowledge about customers, competitors, and suppliers), (b) Service production strategy know-how, (c) Process design know-how, (d) Marketing know-how (customer relationship management, customer-led product changes, pricing, and market positioning; (e) Distribution know-how; (f) Packaging design/technology know-how; (g) Management systems and practices know-how. This question has been adapted from (Andersson, Björkman & Forsgren 2005); Forsgren et al. (2005) using a 7-point Likert scale ranging from 1= not at all and 7= to a very great extent.

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Table 3. 8: Illustrates the Operationalization of the Research Construct

Construct	Indicator	Sources
Foreign Subsidiary Performance Measured on a 7-point Likert scale ranging from 1- strongly disagree to a 7=strongly agree	Relative to your competitor in your industry, how would you rate your subsidiaries on each of the following questions? Our profitability is much better than our competitors; Our sales growth has been much higher than our competitors; Our market share has been higher than our competitors; Our productivity has been much higher than our competitors; Our customer satisfaction has been much better than our competitors; Our technological improvement has been much higher than competitors; Our new product/service development is much higher than our competitors; Our quality of product/service is much better than our competitors.	The subsidiary performance was estimated based on the scale Birkinshaw et al. (2005) and Dahms (2017) study.
Reverse Knowledge Transfer Measured on a 7-point scale ranging from 1= not at all to 7= to a very large extent	To what extent during the last three years did your company acquire knowledge from external and internal network partners for its use and exchange similar knowledge with its headquarters? (a) Strategy know-how (knowledge about customers, competitors, and suppliers), (b) Service production strategy know-how, (c) Process design know-how, (d) Marketing know-how (customer relationship management, customer-led product changes, pricing, and market positioning; (e) Distribution know-how; (f) Packaging design/technology know-how; (g) Management systems and practices know-how.	Gupta and Govindarajan (2000) Yang et al. (2008)
Subsidiary Autonomy a 5-point scale ranging from 1=, the parent company decides alone to	Please estimate the relative overall influence of the subsidiary and its headquarters in deciding upon the following issues for the subsidiary. (i) Adaptation of new products and services;	Ghoshal and Bartlett (1988), Ghoshal and Nohria (1989).

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5= the subsidiary decides alone.	(ii) introduction of new services/introduction of a new product for local and foreign markets; (iii) launching new products/services for local and foreign markets; (iv) the product/service development budget-led collaboration with external partners; (v) definition of R&D projects, planning, resources; (vi) Sales and marketing strategy; (vii) Product/service pricing strategy; (viii) personnel policy strategy.	
External embeddedness Using a 7-point Likert scale ranging from 1= not at all and 7= to a very great extent	In thinking of your most external business relationships, the subsidiary had been able to acquire knowledge from the local environment; (a) Strategy know-how (knowledge about customers, competitors, and suppliers), (b) Service production strategy know-how, (c) Process design know-how, (d) Marketing know-how (customer relationship management, customer-led product changes, pricing, and market positioning; (e) Distribution know-how; (f) Packaging design/technology know-how; (g) Management systems and practices know-how.	(Andersson, Björkman & Forsgren 2005); Andersson, Forsgren, and Holm (2001)
Subsidiary knowledge development Using a 7-point Likert scale ranging from 1= not at all and 7= to a very great extent.	"To what extent during the last three years did your company obtain and develop the… knowledge which is superior to that of headquarters, sister companies, and competitors?" (a) Strategy know-how (knowledge about customers, competitors, and suppliers), (b) Service production strategy know-how, (c) Process design know-how, (d) Marketing know-how (customer relationship management, customer-led product changes, pricing, and market positioning; (e) Distribution know-how; (f) Packaging design/technology know-how; (g) Management systems and practices know-how.	Gupta and Govindarajan (2000) and Yang et al. (2008) study.

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Internal socialization mechanism Mark 1= never to 7= every time	In thinking of your different socialization mechanisms, please indicate to which following activities were practiced during the last three years in both your company and parent company. (i) Participating in corporate inter-unit communication committees/teams/task forces, (ii) constituting project groups to work on headquarters problems, (iii) movement of personnel between both firms, (iv) participating in joint training programs, (v) visit the parent company by your company's top managers, (vi) visit the parent company by your headquarters and top managers.	Gupta and Govindarajan (2000); and Noorderhaven and Harzing (2009).
Subsidiary-headquarters embeddedness Ranging from 1= not al all, to= 7= to a very large extent	In thinking of your relationship with headquarters, please indicate the extent to which the subsidiary exchange knowledge with its headquarters concerning: (a) Strategy know-how (knowledge about customers, competitors, and suppliers), (b) Service production strategy know-how, (c) Process design know-how, (d) Marketing know-how (customer relationship management, customer-led product changes, pricing, and market positioning; (e) Distribution know-how; (f) Packaging design/technology know-how; (g) Management systems and practices know-how.	(Andersson, Björkman & Forsgren 2005); Forsgren et al. (2005)

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3.10.8 Control Variables

Controls will include subsidiary size, age, and entry mode (i.e., greenfield or acquired access). As a result, there will be two distinct modes of subsidiary entry. On the other hand, the subsidiary age will be capped at the number of years defined. This is because an older subsidiary may have a greater capacity for knowledge transfer. The natural log of the subsidiary's employee count will also be used to calculate its scale. This component defined ancillary features such as the number of local connections, the competitive benefits and range, and the significance of intra-firm networks (Yang et al., 2008).

3.11 Respondents Overview

This segment included an overview of the respondents to this study. This research concentrated on KIBS-related fields. Chief Executive Officers (CEO), Chief Knowledge Officers (CKO), Managing Directors (MD), General Managers (GM), Senior functional managers, and mid-level KIBS industry managers with sufficient expertise to respond to the questionnaire are included in this survey.

3.11.1 The Response Rate from the Respondents

The criteria for selecting respondents and the final list were limited to 523 and 244 individuals, respectively. The questionnaire was distributed in the same manner that most questionnaires are based on a participant's network of relationships. Despite this, most senior functional managers responded to the questionnaires, owing to the CEO's tremendous workload. Nevertheless, only a handful of CEOs completed the form (i.e., obtained from office employees) while the researcher collected it from their offices. As part of the survey's conclusion, most questionnaires have been returned.

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Most of the questionnaires were collected from the exhibition. Apart from the face-to-face survey, the researcher gathered ten respondents with valid information from sixty in two stages via an email survey. Around ten respondents were collected from two phases of the email survey, while the remainder were gathered at the exhibition. Consequently, 10 cases out of 244 were excluded because more than 20% of the questionnaire contained missing values, leaving 234 for additional data analysis procedures.

Gerbing and Anderson (1988) contrasted responding firms with non-responding companies regarding the subsidiary's age, employee count, and headquarters country of origin. The t-test is used to determine non-response and reveals no significant difference between the two groups; therefore, non-response bias is not an issue in this research.

Additionally, each company's data was gathered from a single informant. Thus, the same individual presented both the dependent and independent variables. Therefore, it is critical to avoid common method bias (Podsakoff et al., 2012; Richardson et al., 2009; Spector, 2006; Podsakoff, 2003; Williams et al., 1989) to design studies that eliminate common method bias while adequately addressing the method bias concerns.

3.11.2 Missing Data and Treatment

Missing data occurs when participants do not understand or respond to more than two survey questions. It is typical for data to be missing from specific questionnaires (Schreiber, 2017; Hair et al., 2006; Coakes et al., 2006). Many fundamental reporting processes used in structural equation modeling have been modified. Unfortunately, data missing is not uncommon, so it is possible to employ techniques to detect and treat missing data. Several new studies have shown that, in addition to the previous methods, The Expected Maximization (EM) methodology is better when used on incomplete data (Dong & Peng, 2013). This is a more effective and superior strategy than the others. Alternatively, list-wise deletion can be used, which requires substitution (Graham et al.,

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1997). This study had no missing data because the researcher took the time to fill out the instrument entirely and was present in person (although with few exceptions). However, this data collection procedure did not affect how respondents responded to the questionnaire. As a result, this was a thoroughly objective technique. Using Microsoft Excel 16, the study detected missing data in the dataset. The COUNTIF algorithm in Excel assists in identifying missing data. There were no data gaps in the study.

3.11.3 Outliers Examinations

Any research data set may contain outliers or extreme values that impact the conclusion of the analysis. The phrase "data outlier" refers to an unusually high or low value (i.e., extreme value) acquired from one or more respondents (voluntarily or involuntarily) which is not representative of the sample or population. Tabashnick and Fidell (2007, p. 72) define an outlier as "a case with such an extreme value on one variable (a univariate outlier) or such a strange combination of scores; on two or more variables (multivariable outlier)" (p. 72). Besides, Hair et al. (2006) define an outlier as an observation (or series of observations) that stands out due to its exceptionally low or high value on a scale of measures. When data is not regularly distributed, it can be caused by random extremes or outliers, resulting in erroneous and unsuitable results that lack statistical validity (Hair et al., 2017; Kline, 2015; Finch, 2012; Tabashnick & Fidell, 2007). Many researchers have sought to figure out what triggers outliers. Tabashnick and Fidell (2007, p. 73) defined four possible causes for outliers to identify specific causes. 1) insufficient or inaccurate data input, 2) miscoding or incomplete coding, 3) insufficient or inaccurate observation entry, and 4) observation entry with an extreme value (high and low). Kline (2005) defined two types of outliers: univariate outliers, which occur when a single variable reaches an extreme value, and multivariate outliers when two or more variables exhibit an unusual combination of extreme values.

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3.11.4 Test of Normality and Homoscedasticity

This section highlighted data normality, multi-group homogeneity, covariance testing, multicollinearity, and non-response bias. Conducting data normality is crucial to detect any possible infringement of the basic assumption of applying multivariate techniques. Non-response bias can affect the population-wide study's results and output. Concerns about non-response bias arise because replies vary between non-respondents and respondents. Additionally, multicollinearity exists when the independent variable is a composite of the other factors or when the independent variables have a strong correlation (Tabachnick & Fidell, 2013). Therefore, this part is discussed calculating normality. The assumption of normalcy regarding the idea that dependent variables reflect equal variance in the number of independent variables implies that all independent variables are about equal Hair et al. (2006).

In contrast, Tabashnick and Fidell (2007) define homoscedasticity as homogeneity in one variable's scores; alternatively, one variable's score is similar to the others. Before conducting multiple regressions, the researcher must assume equal variance between the independent and dependent variables (Field, 2009). The randomness present in non-normal distributions manifests itself as heteroscedasticity. It poses extreme issues when undertaking multivariate analysis (Hair et al., 2006).

Heteroscedasticity can occur for two reasons: first, non-normality, which means the independent variable is not normally distributed; and second, an additional level of measurement error (Tabashnick & Fidell, 2007; Hair et al., 2006). When one data group is used to analyze other groups, it is known as homoscedasticity (Tabashnick & Fidell, 2007). Levene's test of equal variance is the most commonly used method in testing for homoscedasticity (Pallant & Manual, 2010; Field, 2009; Pallant & Manual, 2007; Hair et al., 2006). This study, however, intends to undertake Mardia's test of multivariate normality with several approaches.

3.11.4.1 Normality

It is often referred to the idea of "normality" as one of the "underlying assumptions" in multivariate analysis (Tabashnick & Fidell, 2007; Hair et al., 2006; Kline, 2005). Normality is defined by the premise that all data in each item is typically distributed and that all linear combinations of items usually are distributed (Tabashnick & Fidell, 2007; Hair et al., 2006). According to Hair et al. (2006, p. 79), “if the variation from the normal distribution is sufficiently large, all resulting statistical test is invalid because normality is required to use the F and t Statistics.” Additionally, the authors indicate that violating normality during multivariate analysis can underestimate fit indices and standardized residuals of estimations (ibid).

Multivariate Normality can be examined using Mardia's (Mardia, 1974) multivariate kurtosis coefficient, which can be normalized and compared to a Standard Normal Distribution. Numerous statistical methods exist for determining the multivariate kurtosis coefficient, including MATLAB code, R code, or EQS (Bentler, 1995), the Multivariate normality test (MVN) computer program WebPower, and Monte Carlo Syntax analysis SPSS. Most other structural equation modelling software must also routinely compute Mardia's kurtosis coefficient (i.e., normality test in AMOS). DeCarlo (1997) developed an SPSS macro for Mardia's g2 kurtosis and skewness test (g1) and argued that the absence of univariate skewness and kurtosis is a necessary but insufficient condition for multivariate skewness, kurtosis, and normality.

This study evaluated the normality of the data utilizing a variety of methods, including multivariate normality via a quantile (Q-Q) or probability (P-P) plot (omitted due to the use of the Mardia test), the MVN tool, WebPower, and Monte Carlo analysis in IBM

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SPSS. Conducting a structural equation model (SEM) or confirmatory factor analysis requires a multivariate normality test (CFA). Variables are continuous if the experiment uses a well-known SEM software package (AMOS) that assumes variables are continuous and delivers optimal results when data are typically distributed, and variables are assumed to be continuous. For testing normality, a quantile plot of Mahalanobis distances is also necessary. According to Tabachnick et al. (2007), the hypothesis of multivariate Normality should be rejected for both large and small normalized estimate values when using huge samples, i.e., values larger than +1.96 or smaller than -1.96. This coefficient and its associated "critical value" can be interpreted as an AMOS-supplied significance test (a critical value of 1.96 corresponds to a p-value of .05).

Given that the results of a normality test depend on the study type and the sample size, none of the above methods is required to conduct one. Larger sample numbers are more likely to give significant (i.e., non-normal) results (Tabachnick & Fidell, 2019). In addition, in SEM, the significance of Mardia's coefficient is always guaranteed if the sample size is quite large (Cain et al., 2017). In conjunction with descriptive statistics of kurtosis values for individual variables, where kurtosis values more than 3.00 may indicate that a variable is not normally distributed, it is advised to use a test other than the significance test alone (Westfall & Henning, 2013).

3.12 Summary of the Chapter

This chapter clarifies the target population, research framework, sampling strategy, and methods of data collection described in the research hypothesis. The sample for the study was drawn from the Ministry of International Trade and Industry (MITI), the Malaysian Investment Development Authority (MIDA), and the OneSource database, which included foreign subsidiaries located in Malaysia that are traditionally engaged in knowledge-intensive business services. Additionally, the measurement of each research

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model variable is discussed in detail in this chapter. However, this section also discussed the reasoning for the study's process selection, sampling frame, and research unit selection. Finally, this section highlighted the importance of pre-testing the major survey questionnaires and focused on the reliability and validity of test results. The following chapter will discuss the data analysis and the results of the hypotheses, proposed model, mediation test, and assessment of the control variable.

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CHAPTER 4: RESULTS FINDINGS-ANALYSIS OF THE SURVEY RESULT

4.1 Introduction

The previous chapter developed a methodological framework for doing the appropriate research. This chapter examines data analysis issues that must be addressed after the data collection procedure to analyze and evaluate the proposed research model. The first section discusses the demographic characteristics of survey respondents; the second section discusses fundamental research techniques such as missing data and treatment, outlier examinations, and multivariate assumptions about data such as normality and non-response bias test. The EFA pattern matrix model also tests in this section. The structural equation modelling methodology was used to analyze the data. This section discusses the confirmatory factor analysis (CFA) results used to verify the factor structure of the components. Confirmatory factor analysis (CFA) is performed using three widely used model fit measures: normed fit index, comparative fit index (CFI), and root mean square error of approximation (RMSEA).

Additionally, the measurement model is evaluated using a variety of goodness-of-fit tests. As a result, three measures of convergent validity are used to demonstrate it: factor loading, composite construct reliability, and average variance extracted. The discriminant validity of the constructs was evaluated to determine whether they shared more variance with their indicators than with other constructs. This section summarizes the fit indices obtained during the structural model assessment. The other section discusses and highlights the measurement's reliability and validity. Finally, the chapter discusses interpreting testing hypothesis results using the SEM package AMOS 25. Additionally, this part investigated several mediation relationships and control variables.

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4.2 Main Study Survey

Check and Schutt describes a survey study as "the collection of information from a sample of individuals through their responses to questions" (2011, p. 160). This study allows for various approaches to selecting participants, data collection, and several instrumental methods. This survey is based on a questionnaire that includes numerically rated items. As a result, the researchers' primary purpose was to collect data fast by finding a large sample of interest. This study is divided into several sections, each presented chronologically.

4.2.1 Demographic Characteristics of the Respondents

The study has been conducted on subsidiaries whose headquarters are outside Malaysia. To provide a thorough descriptive profile of this organization, this section outlines these companies' demographic characteristics, including the size of subsidiary corporations (the number of employees), the age of the subsidiary corporations, the mode of entry, and the geographic location of the parent companies. The listed table below demonstrates the demographic attributes of the subsidiary companies.

According to Table 4.1, 64 (27.35%) of the 234 organizations had less than 100 employees, 42 (17.94%) had between 100 and 200 employees, followed by 41 (17.52%) businesses with between 200 and 300 employees; 34 (14.52%) companies had 300 to 400 employees; 28 (11.99%) companies had 400 to 500 employees, and 25 (10.68%) companies had more than 500 employees. This means that subsidiary corporations serve more than 500 employees.

As shown in Table 4.2, subsidiary businesses have existed for many years. Fifty-one (51) companies (21.79%) had existed for more than 40 years. 50 (21.36%) of the 234 organizations had between 30 and 40 years of experience, 44 (18.82%) had between 20 and 30 years of experience, and a maximum of 52 (22.22%) had between 10 and 20 years of experience. A large number of 37 (15.81%) companies were operational in less than ten years. Table 4.3 shows two types of mode entry into subsidiary companies: Greenfield and acquired companies, with 132 (56.42%) entering greenfield systems and 102 (43.58%) entering acquired systems.

Parent firms are generally located on the continent where the corporation has established them, and the continent is referenced when classifying their nations of origin (America, Europe, Oceania, Africa, and Asia). The largest subsidiaries are spread across these two continents in Figure 4.1 and Table 4.4; 32.47% of the list are headquartered in the United States and Europe (24.78%). Apart from these, 14.98% of parent companies are in Oceania. On the other hand, Africa is home to a minuscule percentage of subsidiary parent companies (5.55%). However, an Asian conglomerate owned 22.22% of its subsidiaries.

Table 4. 1: The Composition of Subsidiaries Number of Employees

Subsidiary size range	Frequency	Percentage
0-99	64	27.35%
100-199	42	17.94%
200-299	41	17.52%
300-399	34	14.52%
400-499	28	11.99%
500-599	25	10.68%
Missing		
Total	234	

Table 4. 2: Sample Composition by Subsidiary Age

Subsidiary age range	Frequency	Percentage
< 10 years old	37	15.81%
10-19	52	22.22%
20-29	44	18.82%
30-39	50	21.36%
>40	51	21.79%
Missing		
Total	234	

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Table 4. 3: Sample Composition by Mode of Entry

Mode of entry	Frequency	Percentage
Greenfield subsidiaries	132	56.42%
Acquired subsidiaries	102	43.58%
Total	234	

Table 4.4: Sample Composition by Geographic Location of the Subsidiaries' Parent Firm

Continent	Frequency	Percentage
America	76	32.47%
Europe	58	24.78%
Oceania	35	14.98%
Africa	13	05.55%
Asia	52	22.22%
Missing		
Total	234	

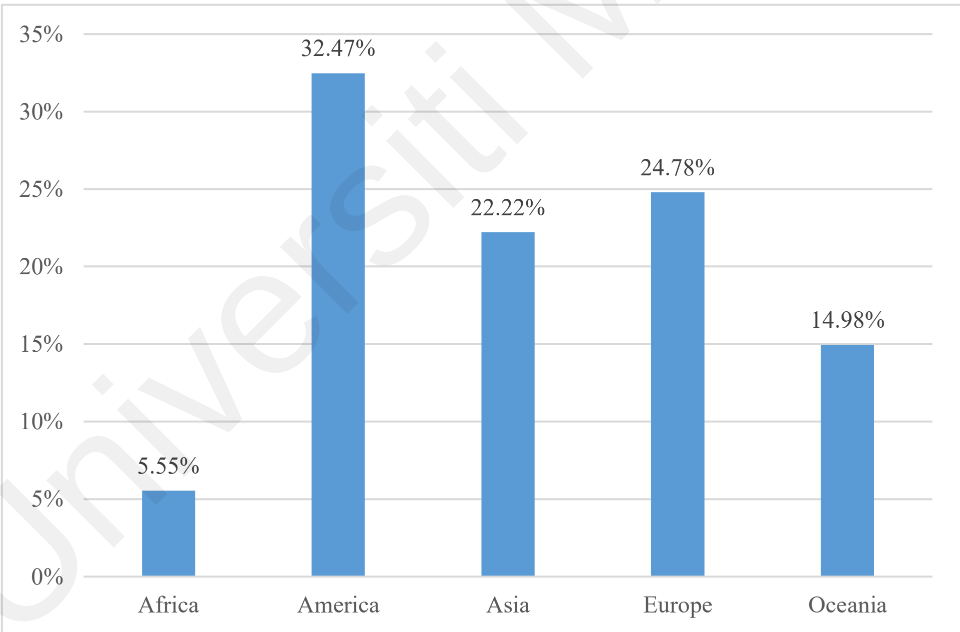

Figure 4.1: Geographic Location of the Parent Company

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Table 4.5: Composition of Subsidiaries' Main Function

Types of Company	Frequency	Percentage
Software/computer network	30	12.82%
Management consultancy involving new technology	49	20.94%
Legal services	13	05.55%
Training in new technology	20	08.54%
Design involves new technology	12	05.12%
Technical Engineering	11	04.70%
Computer system design service	12	05.12%
Wireless telecommunication carriers services	7	02.99%
Miscellaneous Professional Services	14	05.98%
Environmental services involving new technology (e.g., remediation; monitoring; scientific/laboratory	5	02.13%
Office services (other than those involving new office equipment, and excluding "physical" service like cleaning)	6	02.56%
Marketing/ advertising	20	08.54%
Road Transportation service	6	02.56%
R&D and design activities	9	03.84%
Education and training services	4	01.70%
ICT such as telecommunication and mobile services	16	06.83%
Total	234	99.89%

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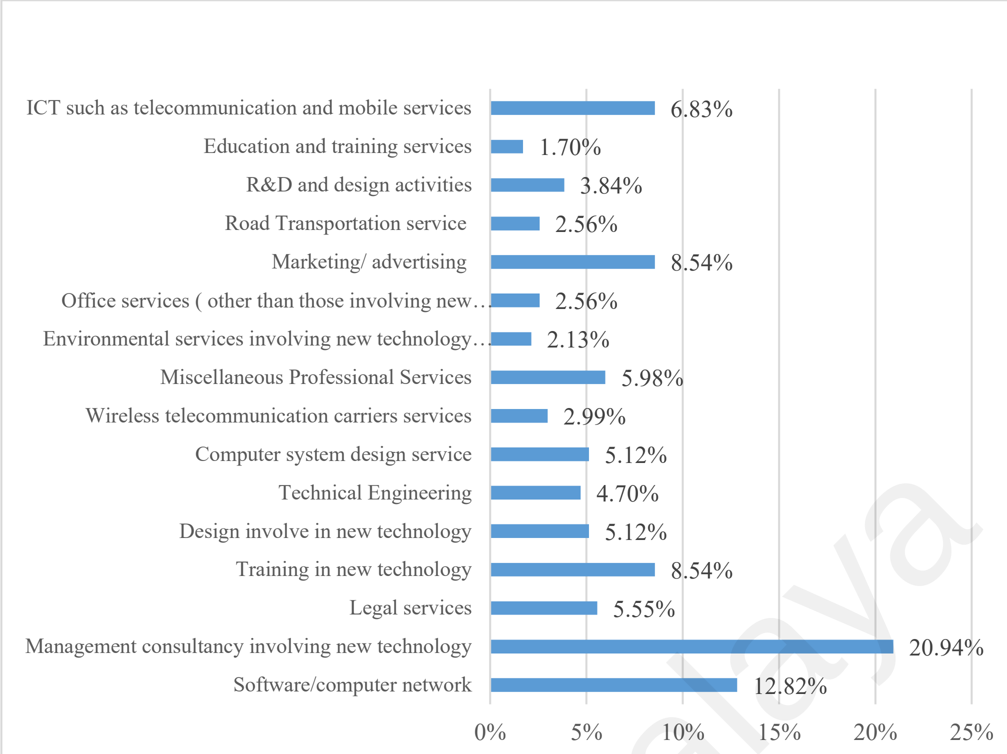

Figure 4.2: Composition of the Subsidiary Main Function

As illustrated in Table 4.5 and Figure 4.2, this study's new technology management consulting firm was one of the highest key participants derived from the data (20.94%). Additionally, the software and computer network were subsidiary companies' second vital tasks (12.82%). The other vital activities were marketing/adverting (8.54%), training in new technology, which accounts for 8.54%, ICT-telecommunication, and mobile (6.83%), and miscellaneous professional services 5.98%), as well as the remaining 1.70% to 5.12%.

4.2.2 Outliers Examinations Using Z-Score Method

This study combined items from a construct to create a single variable to identify univariate outliers. The data values for each observation were converted to uniform scores, often known as z-scores, using SPSS's descriptive statistics feature (Tabashnick & Fidell, 2007). Outliers may be related to sample problems, questionnaire difficulty, or improper data entry. Furthermore, it may reflect valid extreme examples of the target demographic (Tabachnick et al., 2019). Before data analysis, it is essential to manage outliers to increase generalizability effectively. Although there are other statistical strategies for identifying, classifying, and controlling outlier situations, the Z-score method was used to identify univariate outliers. Z-score = 3 is typically employed as a limit-setting threshold. Similar to the standard deviation method, z-scores exceeding +3 or falling below -3 are considered outliers. According to Tabachnick and Fidell (2013), the typical absolute value utilized to identify outliers is 3.29. In other words, z-scores more than +3.29 or less than -3.29 are anomalous. Table 4.6 illustrates the outlier examination using the z-score method.

Table 4.6: Outlier Examination Using Z Score Method

Df	N	Minimum	Maximum	Mean
Zscore(SA1)	234	-2.00535	1.12822	.0000000
Zscore(SA2)	234	-2.01600	1.13421	.0000000
Zscore(SA3)	234	-2.06232	1.16566	.0000000
Zscore(SA4)	234	-1.90833	1.16602	.0000000
Zscore(SA5)	234	-1.89924	1.12919	.0000000
Zscore(SA6)	234	-1.90351	1.16307	.0000000
Zscore(SA7)	234	-1.50406	1.42886	.0000000
Zscore(SA8)	234	-1.92005	1.13117	.0000000
Zscore(KF1)	234	-2.38869	1.31299	.0000000
Zscore(KF2)	234	-2.28476	1.21339	.0000000
Zscore(KF3)	234	-2.33154	1.24995	.0000000
Zscore(KF4)	234	-2.35449	1.25042	.0000000
Zscore(KT5)	234	-1.39312	1.32346	.0000000
Zscore(KF6)	234	-2.42736	1.28507	.0000000
Zscore(KF7)	234	-2.46937	1.22679	.0000000
Zscore(EE1)	234	-2.12791	1.30215	.0000000
Zscore(EE2)	234	-2.15517	1.33084	.0000000
Zscore(EE3)	234	-2.12461	1.31197	.0000000
Zscore(EE4)	234	-1.23098	1.35629	.0000000
Zscore(EE5)	234	-2.01614	1.31014	.0000000
Zscore(EE6)	234	-2.04338	1.31599	.0000000
Zscore(EE7)	234	-2.07840	1.38313	.0000000
Zscore(ISM1)	234	-2.15236	1.30917	.0000000
Zscore(ISM2)	234	-2.09485	1.30928	.0000000
Zscore(ISM3)	234	-2.10689	1.30103	.0000000
Zscore(ISM4)	234	-2.05251	1.24466	.0000000

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Zscore(ISM5)	234	-2.02173	1.30205	.0000000
Zscore(ISM6)	**234**	**-4.26271**	**2.06377**	**.0000000**
Zscore(SKD1)	**234**	**-3.37489**	**1.38249**	**.0000000**
Zscore(SKD2)	234	-2.10723	1.42326	.0000000
Zscore(SKD3)	234	-1.82164	1.20509	.0000000
Zscore(SKD4)	234	-1.89715	1.21090	.0000000
Zscore(SKD5)	234	-1.89014	1.19204	.0000000
Zscore(SKD6)	234	-1.87546	1.21872	.0000000
Zscore(SKD7)	234	-1.89316	1.22655	.0000000
Zscore(SHE1)	234	-1.86139	1.47628	.0000000
Zscore(SHE2)	234	-1.82032	1.83281	.0000000
Zscore(SHE3)	234	-1.84331	1.37561	.0000000
Zscore(SHE4)	234	-1.83214	1.37125	.0000000
Zscore(SHE5)	234	-1.77249	1.35779	.0000000
Zscore(SHE6)	234	-1.77873	1.36257	.0000000
Zscore(SHE7)	234	-1.79627	1.39205	.0000000
Zscore(PER1)	234	-2.52837	1.49183	.0000000
Zscore(PER2)	234	-2.58174	1.47735	.0000000
Zscore(PER3)	234	-2.60504	1.40535	.0000000
Zscore(PER4)	234	-2.56136	1.39046	.0000000
Zscore(PER5)	234	-2.49080	1.42970	.0000000
Zscore(PER6)	234	-2.10775	1.96840	.0000000
Zscore(PER7)	234	-2.53425	1.41042	.0000000
Zscore(PER8)	234	-2.49297	1.38744	.0000000
Valid N (listwise)	234			

Two cases were recognized as atypical and not meeting the criteria established by Taabasnick (2013). This method assumes a normal distribution with values within three (3) standard deviations (SDs) of a standardized mean score of 0.

Table 4.7: List of IDs deleted

ID	ISM6	SKD1
10	-4.26271	1.38249
222	-4.26271	-3.37489

Thus, assigning values to extreme outlier cases corresponding to a z-score of 3 incorporates the outliers into the distribution while preserving their contribution to estimate calculation. In this investigation, two cases (ID 10 and 222, Item ISM 6 (-

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4.26271, -4.26271) and SKD 1 (1.38249, -3.37489) are not normally distributed; therefore, they have been eliminated (see table 4.7).

4.2.3 Descriptive Statistics

Any deviation from the normalcy assumption could significantly impact the data analysis technique and the goodness-of-fit indices for the suggested SEM model (Kline, 2011). Maximum likelihood estimation requires that the data are multivariate and regularly distributed when estimating SEM parameters. Univariate normality must be assessed as a prerequisite before assessing multivariate normality. Hence, the normality assumptions can be tested at the univariate (i.e., the distribution of item-level scores) and multivariate levels (i.e., the distribution of scores within a combination of two or more two items). According to Hair et al. (2006), if a variable/item satisfies multivariate normality, it satisfies univariate normality, but the converse is not always true. In other words, univariate normality does not imply that multivariate normality is assumed. Two assumptions determine the degree of non-normality: 1) the form of the non-normal distribution and 2) the sample size (Hair et al., 2006, p. 80). According to Tabashnick and Fidell (2007), a normal distribution's shape can be estimated by either graphical or statistical methods. The normality distribution is one of the most critical assumptions in completing SEM analyses by applying the maximum likelihood estimates. Carrying out this principle as a rule of thumb, Lomax and Schumacker (2004) found that "discrete data (categorical data, ordinal data with <15 values) may be assumed to be normal if skewness is between -2 to +2, and if kurtosis is between -5.0 to +5.0, the data are considered normal" For this investigation, the cutoff point value of +/-2.0 for skewness (maximum value was -1.255, and the lowest value was 0.008) and +/-5 for kurtosis was utilized to evaluate the normal distribution of the data set (highest value was 2.495, and the lowest value was -.219). The results demonstrate that all Skewness and Kurtosis values were found to be within the recommended range of +/- 2.0 and -/+5.0. As a result, this study's data distribution was normal (see Table 4.8).

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Table 4.8: Descriptive Statistics

Descriptive Statistics									
	N	Mini	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
SA1	232	1	5	3.57	1.274	-.514	.160	-.763	.318
SA2	232	1	5	3.57	1.267	-.482	.160	-.823	.318
SA3	232	1	5	3.57	1.236	-.465	.160	-.831	.318
SA4	232	1	5	3.50	1.299	-.432	.160	-.906	.318
SA5	232	1	5	3.53	1.312	-.462	.160	-.919	.318
SA6	232	1	5	3.50	1.303	-.459	.160	-.883	.318
SA7	232	1	5	3.05	1.357	.052	.160	-1.178	.318
SA8	232	1	5	3.53	1.309	-.516	.160	-.858	.318
KF1	232	1	7	4.90	1.603	-.530	.160	-.219	.318
KF2	232	1	7	4.94	1.702	-.521	.160	-.379	.318
KF3	232	1	7	4.93	1.662	-.511	.160	-.308	.318
KF4	232	1	7	4.94	1.647	-.467	.160	-.520	.318
KT5	232	4	7	5.55	1.104	-.082	.160	-1.317	.318
KF6	232	1	7	4.94	1.601	-.412	.160	-.426	.318
KF7	232	1	7	5.03	1.607	-.529	.160	-.303	.318
EE1	232	1	7	4.75	1.738	-.346	.160	-.759	.318
EE2	232	1	7	4.73	1.710	-.206	.160	-1.016	.318
EE3	232	1	7	4.73	1.735	-.349	.160	-.732	.318
EE4	232	4	7	5.43	1.160	.127	.160	-1.437	.318
EE5	232	1	7	4.67	1.779	-.219	.160	-.932	.318
EE6	232	1	7	4.67	1.777	-.327	.160	-.825	.318
EE7	232	1	7	4.63	1.708	-.262	.160	-.899	.318
ISM1	232	1	7	4.76	1.714	-.468	.160	-.645	.318
ISM2	232	1	7	4.72	1.744	-.462	.160	-.736	.318
ISM3	232	1	7	4.74	1.742	-.507	.160	-.639	.318
ISM4	232	1	7	4.76	1.802	-.496	.160	-.758	.318
ISM5	232	1	7	4.68	1.788	-.407	.160	-.796	.318
ISM6	232	3	7	5.08	.874	.201	.160	.108	.318

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SKD1	232	1	7	5.27	1.230	-1.255	.160	2.495	.318
SKD2	232	1	7	4.60	1.695	-.602	.160	-.606	.318
SKD3	232	1	7	4.64	1.969	-.450	.160	-1.088	.318
SKD4	232	1	7	4.69	1.921	-.469	.160	-1.030	.318
SKD5	232	1	7	4.70	1.944	-.471	.160	-1.031	.318
SKD6	232	1	7	4.66	1.937	-.481	.160	-1.009	.318
SKD7	232	1	7	4.66	1.913	-.495	.160	-.921	.318
SHE1	232	1	7	4.37	1.790	.058	.160	-1.164	.318
SHE2	232	2	7	4.51	1.361	.683	.160	-.443	.318
SHE3	232	1	7	4.46	1.858	-.066	.160	-1.191	.318
SHE4	232	1	7	4.45	1.867	-.062	.160	-1.133	.318
SHE5	232	1	7	4.42	1.905	-.059	.160	-1.149	.318
SHE6	232	1	7	4.43	1.892	-.011	.160	-1.154	.318
SHE7	232	1	7	4.40	1.877	-.008	.160	-1.163	.318
PER1	232	1	7	4.78	1.493	-.239	.160	-.631	.318
PER2	232	1	7	4.82	1.483	-.295	.160	-.623	.318
PER3	232	1	7	4.91	1.492	-.269	.160	-.714	.318
PER4	232	1	7	4.90	1.523	-.314	.160	-.726	.318
PER5	232	1	7	4.82	1.531	-.312	.160	-.634	.318
PER6	232	1	8	4.62	1.722	-.587	.160	-.647	.318
PER7	232	1	7	4.87	1.522	-.352	.160	-.578	.318
PER8	232	1	7	4.87	1.543	-.380	.160	-.673	.318
Valid N (listwise)	232								

4.2.4 Normality Test (Skewness and Kurtosis)

The Kolmogorov-Smirnov (KS) goodness-of-fit test can be used to determine multivariate normality; however, large sample numbers produce statistically significant results even when small deviations from normality exist. Kolmogorov-Smirnov and Shapiro-Wilk (K-S) statistics were calculated for each variable (see tables 4.9 and 4.10). The findings indicated that all variables were significant, contrary to the normality assumption. Due to the large sample size, the K-S test's significance was expected (Pallant

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& Manual, 2010). However, according to Field (2013), it is difficult to determine whether K-S results are in the normal distribution when testing a large sample size.

Table 4.9: Normality Test: Skewness and Kurtosis

		Mean SA	Mean_ RKT	Mean EE	Mean_ ISM	Mean_ SKD	Mean_ SHE	Mean_ Per
N	Valid	232	232	232	232	232	232	232
	Missing	0	0	0	0	0	0	0
Skewness		-.109	-.462	-.300	-.522	-.489	.077	-.460
Std. Error of Skewness		.160	.160	.160	.160	.160	.160	.160
Kurtosis		-.560	-.398	-.985	-.523	-.946	-1.191	-.257
Std. Error of Kurtosis		.318	.318	.318	.318	.318	.318	.318

Table 4.10: K-S Test of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
MeanSA	.118	232	.000	.936	232	.000
Mean_KT	.112	232	.000	.950	232	.000
Mean_EE	.141	232	.000	.936	232	.000
Mean_ISM	.102	232	.000	.953	232	.000
Mean_SKD	.146	232	.000	.929	232	.000
Mean_SHE	.096	232	.000	.947	232	.000
Mean_Per	.088	232	.000	.969	232	.000

a. Significance Correction

4.2.5 Test of Multivariate Normality

This study uses three multivariate normality tests to compare and contrast the results. This is necessary to demonstrate whether the data analysis processes and outcomes appear to be free of bias. In addition, the multivariate normality assumption must be verified before employing procedures based on the MVN and common variance assumptions. When assessing data for multivariate normality, it is advisable to use a combination of

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tests, visualization, and more than one test to determine whether the methodologies support (Korkmaz et al., 2014). However, MVN tests are more relevant, and R is an easier-to-use statistical tool. MVN offers a platform for non-R users and other data analysis software programs. This study utilized MVN, Web Power, and SPSS to administer the Mardia test to gain a unique perspective and identify any noteworthy discrepancies in the results. The Mardia test employs skewness and kurtosis statistics.

In the past, the non-normality of univariate data has been widely explored (Cain et al., 2017; Blanca et al., 2013). Even though multivariate analysis is widely used in international business research, little is known about the potential non-normality of multivariate data. In reality, normality measurements such as skewness and kurtosis are rarely published. According to Cain et al. (2017), researchers are unaware of nonnormality's prevalence and significance. Second, not all scholars can differentiate between skewness and kurtosis. Thirdly, calculating skewness and kurtosis is more difficult than computing commonly used summary statistics like means and standard deviations. Researchers may be concerned about the consequences of revealing results with severe skewness and kurtosis. Although there are a number of methods for testing multivariate normality, this study utilized several approaches based on MVN, web power, and SPSS Monte Carlo. According to the MVN test, the Mardia test determines that the data are multivariate normal. The results of the online power and SPSS tests indicate that the data are not multivariate normal. Different statistical tools use different calculating methods, resulting in varying outcomes. According to Kim (2013), the critical value for rejecting the null hypothesis must vary according to sample size. Therefore, If the absolute z-score for skewness or kurtosis is less than 1.96 for samples with ($n<50$) and an alpha level of 0.05, the null hypothesis should not be rejected. It indicates that the sample follows a normal distribution. Other than for a medium-sized sample ($50 \leq n \leq 300$), do

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not reject the null hypothesis at an absolute z value below 3.29, which corresponds to an alpha level of 0.05, and conclude the sample distribution is not normally distributed.

4.2.5.1 MVN: A Web Tool for Assessing Multivariate Normality

It is challenging to determine which of the several analytical approaches proposed to examine the assumption of multivariate normality is appropriate. It might be claimed that there is no ideal way of confirming normality applicable in all cases, as each method may provide different findings under different circumstances. Nonetheless, the highly accessible web-based tool based on the R-MVN package provides a dependable graphical technique for confirming the normality of multivariate data. Farrell et al. (2007) suggest using other techniques in addition to graphical analysis to validate the MVN qualities of a dataset. MVN is a web-based application that features the three most used multivariate normality tests, namely Mardia's, Henze- Zirkler's, and Royston's, and graphical tools like chi-square Q-Q, perspective, and contour plots (Korkmaz et al., 2014). In addition, there are two robust multivariate outlier detection algorithms based on Mahalanobis distances. This tool also offers tests and visualizations for determining the univariate normality of marginal distributions. In addition, this research used a user-friendly web application for non-R users (http://www.biosoft.hacettepe.edu.tr/MVN/). Holgersson (2006) stressed the importance of graphical methods and provided a straightforward graphical tool based on the scatter plot of two correlated variables for detecting if the data adhere to a multivariate normal distribution.

In addition, the authors suggested utilizing Mardia's multivariate skewness and kurtosis statistical test and graphical tools such as the chi-square Q-Q plot to determine the origin of multivariate normality deviations. The Mardia test function statistically computes the multivariate skewness and kurtosis coefficients' significance. This program

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may also calculate the skewness coefficient with an adjusted value for small sample sizes (n < 20).

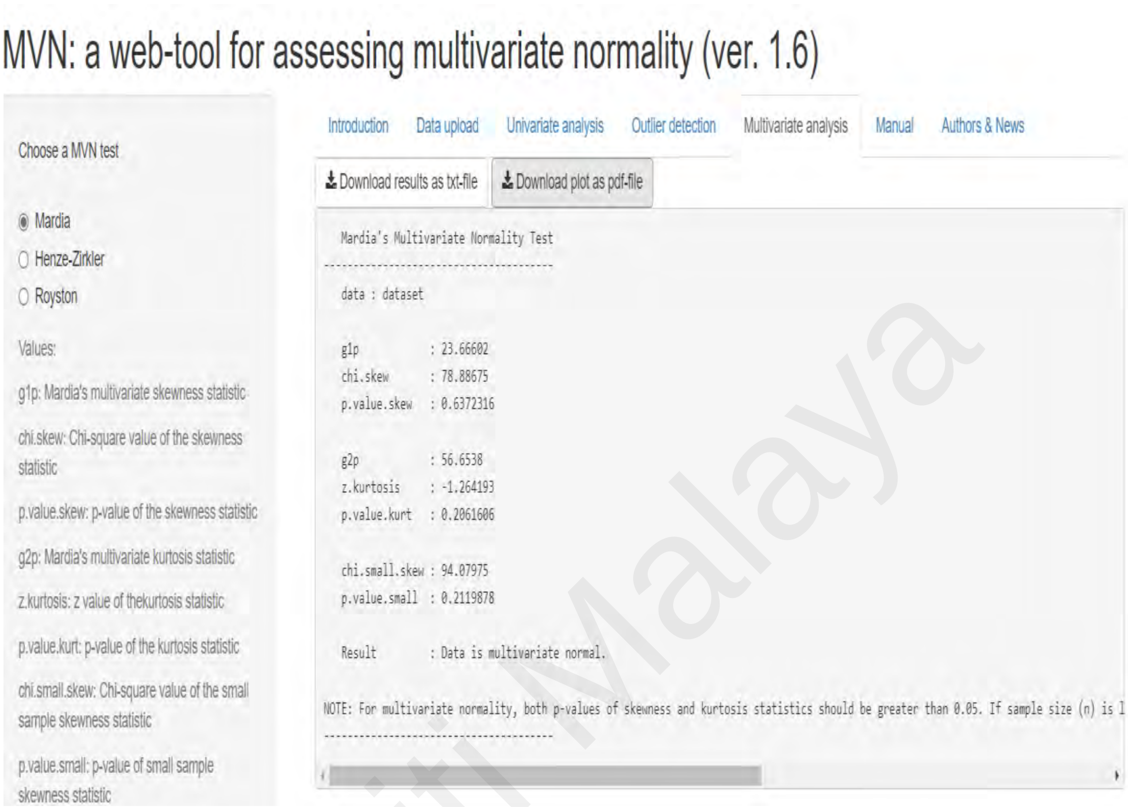

Figure 4.3: Result for Multivariate Normality Using MVN

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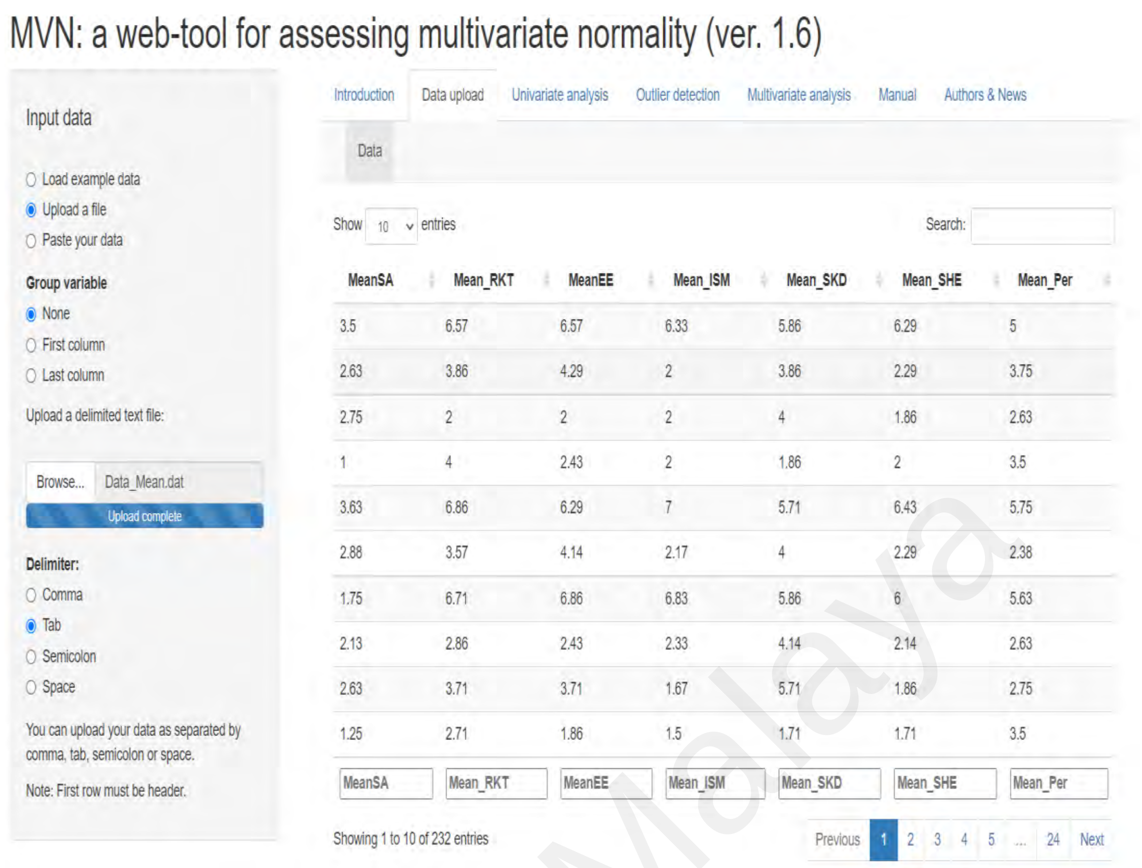

Figure 4.4: Result for Multivariate Normality Using MVN

Table 4.11: Mardia's Multivariate Normality Test

Mardia's Multivariate Normality Test

data : dataM

g1p	: 23.66602	(Mardia's estimate of multivariate skewness, i.e. g1,p from equation 1)
chi.skew	: 78.88675	(chi.skew: test statistic for multivariate skewness)
p.value.skew	: 0.6372316	(significant level of skewness statistics)
g2p	: 56.6538	(g2p: Mardia's estimate of multivariate kurtosis, i.e ˆg2,p given in equation 1)
z.kurtosis	: -1.264193	(test statistic for multivariate kurtosis)
p.value.kurt	: 0.2061606	(significance value of kurtosis statistic)
chi.small.skew	: 94.07975	(multivariate skewness test statistic with small sample correction)
p.value.small	: 0.2119878	(significant value of the skewness statistic for a small sample)

Result: Data is multivariate normal.

NOTE: For multivariate normality, both p-values of skewness and kurtosis statistics should be greater than 0.05. If sample size (n) is less than 20, then 'p.value.small' should be used as the significance value of skewness instead of 'p.value.skew'.

According to the supplied data, both the skewness (g1p = 23.6662, p = 0.6372) and kurtosis (g2p = 56.6538, p = 0.20616) estimates reveal multivariate normality.

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Consequently, this data set exhibits a multivariate normal distribution using Mardia's MVN test.

Figure 4.5: Chi- Square Q-Q Plot for Multivariate Normality Test

The Q-Q plot, where "Q" refers to quantile, is a common graphical tool used to compare two probability distributions. One axis depicts the observed quantiles of the contrasting probability distributions, while the other reflects the theoretical quantiles. If the observed data matches the expected distribution, the points on the Q-Q plot will be near the line y = x. Constructing a chi-square Q-Q plot utilizing the Mardia Test qqplot = TRUE option is possible. This figure can be constructed using the setosa data set to discover multivariate normality deviations. Figure 4.5 illustrates the chi-square Q-Q plot

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of the initial one hundred rows of Iris setosa flower data (translated from the SPSS dataset), which reveals no deviations from the straight line, indicating a multivariate normal distribution.

Given that the chi-square Q-Q plot exhibits multivariate normal distribution, we can conclude that this data set meets the MVN assumption.

4.2.5.2 Multivariate Outlier Detection Through MVN

Using the MVN outlier function, it is possible to detect multivariate outliers. In addition, it returns a new data set from which outliers have been eliminated. Additionally, Q-Q plots for visual examination of possible outliers can be generated by setting plot = TRUE in mvOutlier. Figure 4.6 shows that the Mahalanobis distance identifies two data as multivariate outliers, but the modified Mahalanobis distance identifies none (Filzmoser, 2005).

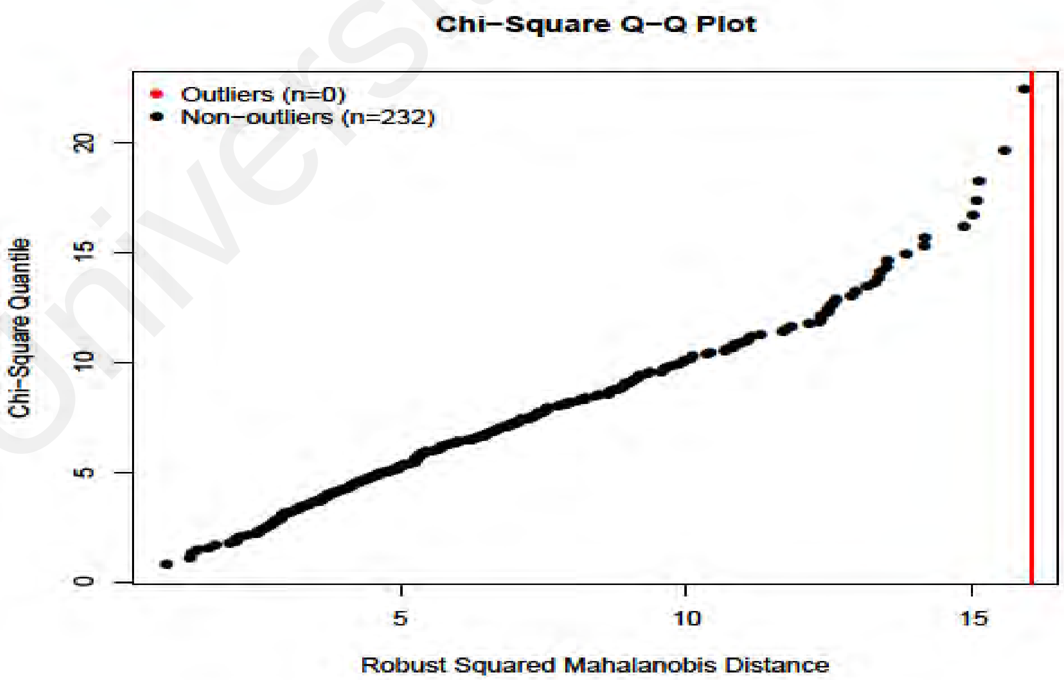

Figure 4.6: Robust Squared Malalanobis Distance

4.2.5.3 Assessing Mardia Test through Web Power

Below, the table shows the result of Mardia's test through an online-based tool based on Web Power.

Table 4.12: Mardia's Multivariate Test Result

Sample size: 232
Number of variables: 50

Univariate skewness and kurtosis

	Skewness	SE_skew	Z_skew	Kurtosis	SE_kurt	Z_kurt
SA1	-0.514	0.16	-3.217	-0.763	0.318	-2.396
SA2	-0.482	0.16	-3.015	-0.823	0.318	-2.585
SA3	-0.465	0.16	-2.910	-0.831	0.318	-2.612
SA4	-0.432	0.16	-2.706	-0.906	0.318	-2.846
SA5	-0.462	0.16	-2.894	-0.919	0.318	-2.887
SA6	-0.459	0.16	-2.870	-0.883	0.318	-2.775
SA7	0.052	0.16	0.328	-0.178	0.318	-3.700
SA8	-0.516	0.16	-3.230	-0.858	0.318	-2.696
RKT1	-0.530	0.16	-3.315	-0.219	0.318	-0.687
RKT2	-0.521	0.16	-3.264	-0.379	0.318	-1.190
RKT3	-0.511	0.16	-3.197	-0.308	0.318	-0.969
RKT4	-0.467	0.16	-2.924	-0.520	0.318	-1.634
RKT5	-0.082	0.16	-0.514	-0.317	0.318	-1.139
RKT6	-0.412	0.16	-2.579	-0.426	0.318	-1.338
RKT7	-0.529	0.16	-3.310	-0.303	0.318	-0.953
EE1	-0.346	0.16	-2.168	-0.759	0.318	-2.386
EE2	-0.206	0.16	-1.290	-0.016	0.318	-1.193
EE3	-0.349	0.16	-2.187	-0.732	0.318	-2.301
EE4	0.127	0.16	0.795	-1.437	0.318	-1.516
EE5	-0.219	0.16	-1.369	-0.932	0.318	-2.928
EE6	-0.327	0.16	-2.043	-0.825	0.318	-2.593
EE7	-0.262	0.16	-1.640	-0.899	0.318	-2.824
ISM1	-0.468	0.16	-2.928	-0.645	0.318	-2.027
ISM2	-0.462	0.16	-2.890	-0.736	0.318	-2.311
ISM3	-0.507	0.16	-3.174	-0.639	0.318	-2.007
ISM4	-0.496	0.16	-3.104	-0.758	0.318	-2.383
ISM5	-0.407	0.16	-2.545	-0.796	0.318	-2.501
ISM6	0.201	0.16	1.259	0.108	0.318	0.340
SKD1	-1.255	0.16	-1.852	1.495	0.318	1.841
SKD2	-0.602	0.16	-3.770	-0.606	0.318	-1.904
SKD3	-0.450	0.16	-2.814	-0.088	0.318	-1.418
SKD4	-0.469	0.16	-2.938	-1.030	0.318	-1.237
SKD5	-0.471	0.16	-2.945	-1.031	0.318	-3.238
SKD6	-0.481	0.16	-3.010	-0.009	0.318	-3.170
SKD7	-0.495	0.16	-3.098	-0.921	0.318	-2.894
SHE1	0.058	0.16	0.364	-1.164	0.318	-3.656
SHE2	0.683	0.16	4.274	-0.443	0.318	-1.393
SHE3	-0.066	0.16	-0.415	-1.191	0.318	-1.743
SHE4	-0.062	0.16	-0.387	-1.133	0.318	-1.561
SHE5	-0.059	0.16	-0.372	-1.149	0.318	-1.612
SHE6	-0.011	0.16	-0.070	-1.154	0.318	-1.626
SHE7	-0.008	0.16	-0.052	-1.163	0.318	-3.654
PER1	-0.239	0.16	-1.498	-0.631	0.318	-1.983

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```
PER2   -0.295    0.16 -1.849   -0.623   0.318 -1.957
PER3   -0.269    0.16 -1.685   -0.714   0.318 -2.243
PER4   -0.314    0.16 -1.963   -0.726   0.318 -2.280
PER5   -0.312    0.16 -1.952   -0.634   0.318 -1.992
PER6   -0.587    0.16 -3.671   -0.647   0.318 -2.033
PER7   -0.352    0.16 -2.203   -0.578   0.318 -1.817
PER8   -0.380    0.16 -2.380   -0.673   0.318 -2.113

Mardia's multivariate skewness and kurtosis
                 b           z p-value
Skewness  710.6413 27478.12953       0
Kurtosis 2778.0698    18.80627       0
```

Before validating the study's theoretical model, the data were assessed for multivariate normal distribution to determine the optimal analysis method. The variables' skewness and kurtosis were calculated using Mardia's Multivariate Normality Test. Multivariate skewness and kurtosis for this data set were calculated to **b** = 710.6413 (p0.01) and **b**= 2778.0698 (p0.01), respectively (Table 4.12). It was determined that the data set lacked a multivariate normal distribution. Consequently, the marginal differences between samples with normal and non-normal distributions can be explained by non-normality.

Henly (1993) examined the effect of sample size, distribution, and non-normality on the chi-square statistic and found that when the sample size was less than 300, the parameter estimates and standard errors were biased, even when the sample was multivariate and normally distributed. The parameter estimates and standard errors were unbiased when the sample size was more than 300; sample sizes should be at least 600 for samples with a multivariate normal distribution to generate unbiased parameter estimates.

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4.2.5.4 Assessing Mardia Test with DE Carlo Method (SPSS)

Table 4.13: De Carlo SPSS Macro Analysis for Multivariate Normality

```
Run MATRIX procedure:

  This macro is the SPD version of DE CARLO' SPS Macro

 'On the Meaning and Use of Kurtosis', Psychological Research Methods
(1997),2(3),292-307

Several observations:
   232

The number of variables:
    50
```

Measures and tests of skew:

	g1	sqrt(b1)	z(b1)	p-value
SA1	-.5140	-.5107	-1.1026	.0059
SA2	-.4818	-.4787	-2.9251	.0064
SA3	-.4650	-.4620	-.8317	.0066
SA4	-.4324	-.4296	-1.6474	.0081
SA5	-.4625	-.4595	-1.8173	.0088
SA6	-.4586	-.4557	-2.7959	.0052
SA7	.0524	.0520	.3330	.7392
SA8	-.5161	-.5128	-1.1142	.0078
KF1	-.5297	-.5262	-1.1879	.0094
KF2	-.5215	-.5181	-3.1435	.0017
KF3	-.5109	-.5076	-1.0856	.0020
KF4	-.4673	-.4642	-2.8442	.0045
KT5	-.0822	-.0816	-.5222	.6076
KF6	-.4120	-.4094	-2.5312	.0114
KF7	-.5290	-.5255	-2.1841	.0045
EE1	-.3464	-.3442	-2.1489	.0316
EE2	-.2062	-.2048	-1.2998	.1937
EE3	-.3495	-.3472	-2.1670	.0302
EE4	.1270	.1261	.8051	.4208
EE5	-.2187	-.2173	-1.3774	.1684
EE6	-.3265	-.3244	-1.0312	.0422
EE7	-.2620	-.2603	-1.6425	.1055
ISM1	-.4679	-.4649	-.8480	.0074
ISM2	-.4618	-.4588	-1.8135	.0059
ISM3	-.5071	-.5038	-1.0649	.0052
ISM4	-.4960	-.4928	-1.0041	.0067
ISM5	-.4067	-.4041	-2.5006	.0124
ISM6	.2011	.1998	1.2684	.2046
SKD1	-1.2547	-1.2466	-1.4158	.0026
SKD2	-.6024	-.5985	-1.5747	.0074
SKD3	-.4497	-.4468	-2.7456	.0060
SKD4	-.4694	-.4664	-1.8562	.0043
SKD5	-.4705	-.4675	-2.8625	.0042
SKD6	-.4810	-.4779	-2.9210	.0065
SKD7	-.4950	-.4918	-1.9981	.0087
SHE1	.0582	.0578	.3700	.7114
SHE2	.6830	.6785	1.9856	.0051
SHE3	-.0663	-.0658	-.4212	.6736
SHE4	-.0618	-.0614	-.3930	.6944
SHE5	-.0595	-.0591	-.3781	.7053
SHE6	-.0112	-.0112	-.0715	.9430

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SHE7	-.0083	-.0082	-.0526	.9581
PER1	-.2393	-.2378	-1.5040	.1326
PER2	-.2955	-.2936	-1.8454	.0650
PER3	-.2693	-.2675	-1.6869	.0916
PER4	-.3137	-.3116	-1.9544	.0507
PER5	-.3118	-.3098	-1.9436	.0519
PER6	-.5866	-.5828	-1.4918	.0095
PER7	-.3520	-.3498	-2.1822	.0291
PER8	-.3803	-.3779	-2.3478	.0189

Measures and tests of kurtosis:

	g2	**b2-3**	**z(b2)**	**p-value**
SA1	-.7626	-.7720	-1.7985	.0091
SA2	-.8226	-.8307	-1.3434	.0080
SA3	-.8313	-.8392	-2.4281	.0050
SA4	-.9059	-.9122	-1.2234	.0115
SA5	-.9189	-.9250	-1.3765	.0060
SA6	-.8833	-.8901	-1.9681	.0151
SA7	**-1.1776**	**-1.1781**	**-10.0122**	**.0000**
SA8	-.2580	-.8654	-.6980	.0415
KF1	-.2186	-.2397	-.6465	.5179
KF2	-.3787	-.3963	-1.3493	.1772
KF3	-.3084	-.3276	-1.0251	.3053
KF4	-.5199	-.5345	-2.0944	.0362
KT5	**-1.3173**	**-1.3148**	**-15.8626**	**.0000**
KF6	-.4258	-.4425	-1.5832	.1134
KF7	-.3032	-.3225	-1.0019	.3164
EE1	-.3594	-.7689	-1.7712	.3152
EE2	-1.0162	-1.0202	-1.6973	.0060
EE3	-.7324	-.7425	-1.5471	.0074
EE4	**-1.4373**	**-1.4323**	**-35.4582**	**.0000**
EE5	-.9318	-.9376	-1.5329	.0590
EE6	-.8253	-.8334	-1.3702	.0510
EE7	-.8987	-.9052	-2.1411	.0060
ISM1	-.6450	-.6569	-2.8892	.0039
ISM2	-.7355	-.7455	-1.5722	.0074
ISM3	-.6386	-.6507	-1.8451	.0054
ISM4	-.7584	-.7679	-1.7630	.0082
ISM5	-.7959	-.8046	-1.0935	.0090
ISM6	.1081	.0800	.4746	.6351
SKD1	**2.4953**	**2.4161**	**4.1653**	.0000
SKD2	-.6059	-.6186	-2.6243	.0087
SKD3	-1.0876	-1.0901	-1.9327	.0156
SKD4	-1.0302	-1.0339	-1.9179	.0060
SKD5	-1.0305	-1.0342	-1.9225	.0070
SKD6	-1.0090	-1.0131	-1.5862	.0080
SKD7	-.9211	-.9271	-1.4024	.0541
SHE1	-1.1636	-1.1644	-1.6358	.0785
SHE2	**-.4433**	**-.4596**	**-1.6736**	**.0942**
SHE3	-1.1912	-1.1915	-1.4015	.0740
SHE4	-1.1333	-1.1348	-1.8961	.0514
SHE5	-1.1495	-1.1506	-1.2803	.0070
SHE6	-1.1540	-1.1550	-1.3912	.0050
SHE7	-1.1630	-1.1638	-1.6207	.0074
PER1	-.6311	-.6433	-2.7933	.0052
PER2	-.6230	-.6354	-2.7382	.0062
PER3	-.7137	-.7242	-1.3980	.0067
PER4	-.7257	-.7359	-1.4929	.0055
PER5	-.6339	-.6460	-2.8123	.0049
PER6	**-.6470**	**-.6589**	**-2.9032**	**.0037**
PER7	-.5782	-.5915	-2.4462	.0144
PER8	-.6726	-.6839	-.0866	.0120

```
Run MATRIX procedure:

Mardia's multivariate skew (small sample adjustment: Mardia 1974
Sankya)
        b1p   Chi(b1p)    p-value    adj-Chi    p-value
   710.6413 27478.1295      .0000 27847.5110      .0000

Mardia's multivariate kurtosis
        b2p     N(b2p)    p-value
  2778.0698    18.8063      .0000

------ END MATRIX -----
```

This study also employs a Monte Carlo simulation MVN test based on multivariate skewness and kurtosis. Mardia offers specific MVN tests for detecting skewness and kurtosis based on the sample analogues of his measurements, b1p, and b2p. The need to identify specific non-MVNs (such as skewness or kurtosis) and the difficulty of establishing a test with high relative power across various non-MVN distributions may indicate that a single perfect technique is not pragmatically sensible nor necessary (Andreas 1983). Based on the underlying assumption, this study demonstrates that data is distinct from multivariate normality. The result shows that Mardia's multivariate skew (B1p 710.6413); Chi (b1p=27478.1295; and p value= .0000). On the other hand, based on Mardia’s multivariate kurtosis (b2p=2778.0698; N (b2p=18.8063) and p-value = 0.0000. This finding may be attributable to the sorts of data being evaluated, as the Monte Carlo Method of evaluating the Mardia MVN test is better appropriate for experimental designs intended to test rare or non-existent data (Bera & John, 1983). Outside of these distributions, the generalizability of the data and results of a Monte Carlo research comparing MVN test powers across various distributions is severely confined. Moreover, this test shows the plot of ordered squared distance in which those extremes can be identified (see Figure 4.7).

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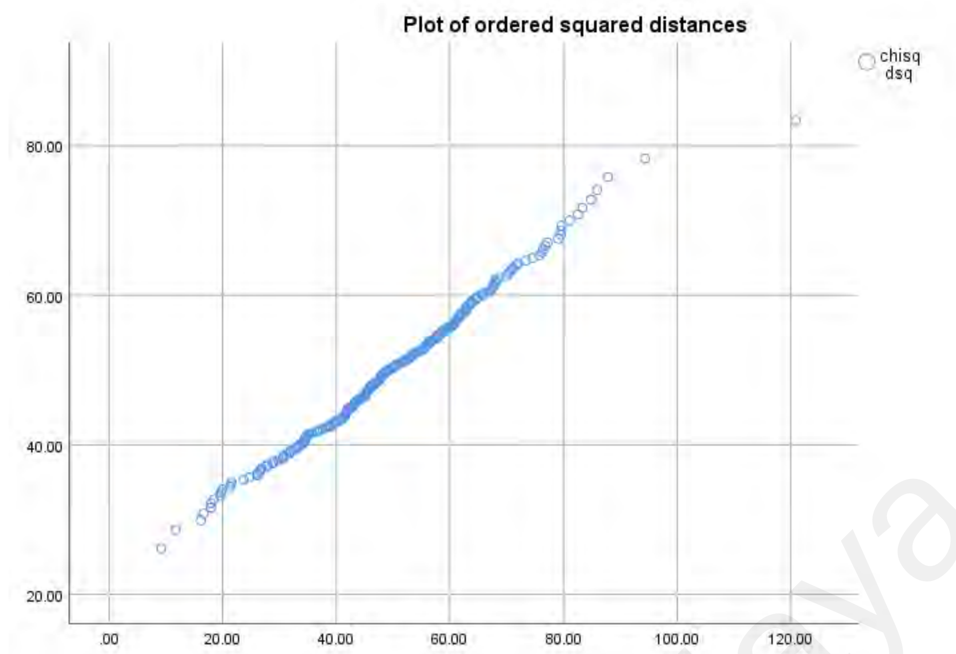

Figure 4.7: Plot of Ordered Squared Distance through Monte Carlo Test.

4.2.6 Inferential Statistics

The statistical analysis findings of the data are presented in this chapter. The study used structural equation modelling (SEM) to perform confirmatory structural model analysis. Based on this approach addresses causal procedures in observations involving numerous components. SEM consists of three steps: a) exploratory factor analysis (EFA), confirmatory factor analysis (CFA) of individual constructs, b) assessment of the measurement model, and c) assessment of the structural model.

This study included exploratory and confirmatory factor analysis (EFA and CFA, respectively) (Byrne, 2016; Tabachnick & Fidell, 2014). The EFA enables researchers to exclude elements with low factor loadings contributing to a complex factor structure. The execution of a CFA followed this. EFA and CFA modelling approaches differ philosophically and statistically. EFA models are utilized when the researcher knows little about the anticipated latent structure underlying a set of observed indicators. EFA is intended to determine whether the variables are associated. It is undertaken without

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knowing the actual number of elements. Therefore, EFA entails identifying the number of factors and the factor-loading pattern.

Consequently, EFA is used to characterize the interactions between factors, and then multivariate approaches are employed to estimate the associations. Therefore, it is regarded as a theory generator rather than a theory building (Finch, 2020; Blunch, 2012). On the other hand, the CFA technique would be utilized when empirical data, typically in the form of several EFA experiments, and solid theoretical anticipation support the expected factor structure. In these instances, CFA is used to (a) establish how well the hypothesized latent variable model fits the observed data and (b) compare a restricted number of models to identify which model best fits the data.

4.2.6.1 Exploratory Factor Analysis (EFA)

Without a precise framework of the relationships between variables and underlying constructs, EFA is the most influential early investigation, according to (Gerbing & Anderson, 1993). In addition, EFA enabled the evaluation of the primary dimensions of each construct to demonstrate their autonomy and that they measured distinct attitudes. In order to evaluate the suitability and factorability of collected data for exploratory factor analysis, it is essential to conduct an assumption analysis to ensure construct validity (Byrne, 2016).

Hair (2009) proposed three primary assumptions to support the factorability of the data to conduct EFA: (1) the correlation matrix must exhibit at least some correlation, $r = 0.30$ or higher; (2) the Kaiser-Meyer-Olkin (KMO) must be 0.60 or higher; and (3) Bartlett's Test of Sphericity must be statistically significant at p(0.05) (Pallant, 2020; Bartlett, 1954). The minimum KMO index value necessary for a successful EFA is 0.6; however, greater values (near one) imply more acceptable sample levels. The significance

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level for Bartlett's test must be set to 0.05 to determine if EFA applies to the data (Pallant, 2020; Field, 2013).

As the authors recommended, the KMO measure of sample adequacy and Bartlett's Test of Sphericity were done before EFA to ensure that the dataset was suitable for EFA. Table 4.14 illustrates that the KMO measure of means adequacy exceeds the minimum permitted value (0.962), indicating that the sample size is adequate. The significance level of Bartlett's test is less than 0.05, meaning that EFA is appropriate for identifying the extracted factor model's structure (Zientek, 2008).

Table 4.14: KMO and Bartlett's Measure for Sampling Adequacy Sphereicity Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.962
Bartlett's Test of Sphericity	Approx. Chi-Square	18223.347
	Df	1225
	Sig.	.000

4.2.6.2 Factor Extraction and Rotation

According to (Pallant, 2016), EFA must adhere to three fundamental steps to reveal a sufficient number of elements composing a construct. These processes involve the extraction, rotation, and analysis of components. Factor extraction is the process of eliminating the shared variation among a group of variables. According to Costello and Osborne (2005), factor analysis is preferable to principal component analysis, a data reduction technique.

The EFA applied for data reduction involved deleting irrelevant items and assured the grouping of study variables as hypothesized. EFA's role was to confirm the groupings made by the researcher of the various measurement items into seven variables and to find solutions in cases where such groups were impossible. Since the measurement scales in the study were primarily comprised of items previously used and validated in different

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studies on technology acceptance, EFA's role was to confirm the researcher's groupings and find solutions in cases where such confirmation was impossible. The principal component analysis (PCA) was conducted with eigenvalues greater than 1 and a maximum of 25 convergence iterations. Table 4.15 displays these results along with the overall variance explained. This led to identifying and validation eight components, accounting for 81.49 percent of the dataset's total variance. PCA's first seven-factor answer appeared when Kaiser's eigenvalue was more significant than one condition. It is also evident that the first element alone contributed 46.72%, while the contributions of the remaining variables ranged from 9.66% for the second factor to only 2.64% for factor seven.

Table 4.15: Percentage of total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	23.361	46.722	46.722	23.361	46.722	46.722	8.093	16.186	16.186
2	4.830	9.660	56.381	4.830	9.660	56.381	7.549	15.099	31.285
3	3.616	7.232	63.614	3.616	7.232	63.614	6.711	13.423	44.707
4	2.921	5.842	69.456	2.921	5.842	69.456	6.525	13.050	57.757
5	2.721	5.441	74.897	2.721	5.441	74.897	5.400	10.800	68.557
6	1.974	3.948	78.845	1.974	3.948	78.845	4.856	9.713	78.270
7	1.323	2.645	81.490	1.323	2.645	81.490	1.610	3.221	81.490
8	.980	2.262	83.753						
9	.970	1.941	85.694						
10	.887	1.774	87.467						
11	.863	1.675	89.143						
12	.806	1.357	90.499						
13	.636	1.272	91.771						
14	.559	1.119	92.889						
15	.421	.842	93.732						
16	.251	.502	94.233						
17	.227	.454	94.688						
18	.206	.412	95.100						
19	.175	.349	95.449						
20	.155	.310	95.759						

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21	.143	.286	96.045
22	.127	.255	96.300
23	.124	.247	96.547
24	.121	.242	96.789
25	.117	.234	97.022
26	.111	.222	97.244
27	.103	.207	97.451
28	.098	.196	97.647
29	.093	.185	97.832
30	.090	.179	98.011
31	.081	.162	98.174
32	.077	.155	98.328
33	.075	.151	98.479
34	.069	.137	98.616
35	.066	.132	98.748
36	.065	.129	98.877
37	.059	.118	98.995
38	.057	.114	99.109
39	.057	.113	99.222
40	.053	.106	99.328
41	.048	.095	99.423
42	.046	.093	99.516
43	.044	.088	99.604
44	.043	.085	99.689
45	.036	.072	99.761
46	.034	.068	99.829
47	.029	.059	99.888
48	.022	.045	99.933
49	.019	.038	99.970
50	.015	.030	100.000

Extraction Method: Principal Component Analysis.

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4.2.6.3 Scree Plot Analysis

The scree plot introduced by Cattell (1966) is a well-established technique for locating the optimal EFA solution. It is a graph of eigenvalues and factor numbers in order of extraction. The plot determines the appropriate number of components for the final solutions. The researcher studies the scatter plot for the point where the line connecting the eigenvalues begins to flatten concerning its rate of decrease (Finch, 2020). This value shows the number of 7 factors retained. Kaiser's criterion is supported by Figure 4.8 of Cattell's scree test plot, demonstrating a major break after the seventh component. In addition, the points on the plot line's curve validate the previously stated criteria "eigenvalue > 1."

k

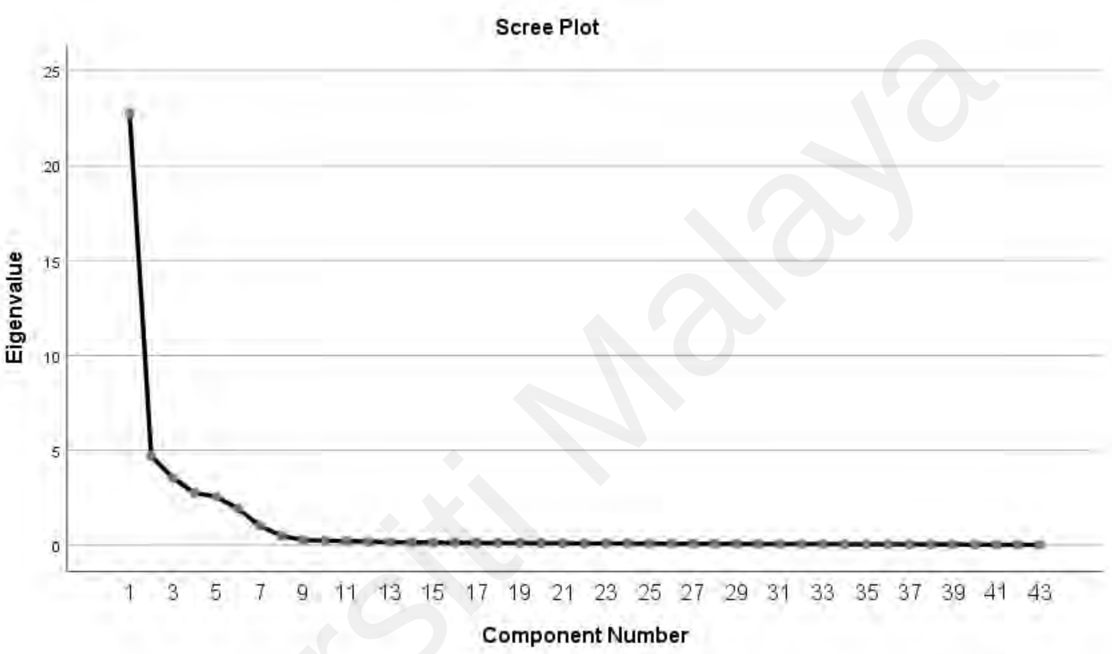

Figure 4.8: Scree plot for the EFA Solutions

4.2.6.4 EFA Final (Rotated Component Matrix)

The rotation method must be used to estimate the variable load on the remaining components following the elimination of components. In PCA/EFA literature, rotation is defined as using mathematics to construct a new set of factor loadings (Yamamoto & Jennrich, 2013). The varimax rotations of orthogonal methods are the most prevalent strategy. Nevertheless, according to Tabachnick and Fidell (2014), multiple extraction strategies offer comparable results when applied to a suitable data set, and diverse rotation methods frequently produce comparable results when the correlation pattern of the data is objectively observable. According to Hair et al. (2014), the goal of the varimax rotation

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is to maximize the variance of factor loading by raising the large factor loadings and decreasing the small factor loadings.

According to Tabachnick and Fidell (2014), cut-offs for factor loadings of 0.50 or greater are noteworthy and can be used for further research. Using principal component analysis, factor loadings for 42 out of 50 items surpassed 0.60 across seven components. However, the factor loading for RKT4 is 0.565, close to 6.0, and is therefore retained. In this initial EFA, (SA7, RKT5, EE4, ISM6, SKD1, SHE2, and PER6) failed to load significantly on any dimension. As illustrated in Table 4.16, the deletion process produced a clean, rotating component matrix with high loadings and fewer elements 43 (see appendix B1).

Nevertheless, as indicated in Table 4.16, 43 items placed into eight categories were subject to further investigation. In addition, these results validated the initial classification of the eight retained criteria. Following the EFA's confirmation of the hypothesized latent variables using the varimax-rotated 7-factor solution, the next logical step was to use confirmatory factor analysis (CFA) to validate the underlying structure of the main constructs in the study, examine the reliability of the measurement scales, and evaluate the factorial validity of the theoretical constructs. The following section discusses the CFA procedure and results.

Table 4.16: EFA Final Matrix after Rotation

Rotated Component Matrix							
	Component						
	1	2	3	4	5	6	7
SA1	.901						
SA2	.899						
SA3	.881						
SA4	.899						

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SA5	.880						
SA6	.888						
SA8	.886						
RKT1							.601
RKT2							.595
RKT3							.611
RKT4							.561
RKT6							.637
RKT7							.608
EE1			.870				
EE2			.847				
EE3			.861				
EE5			.868				
EE6			.859				
EE7			.873				
ISM1						.900	
ISM2						.881	
ISM3						.898	
ISM4						.876	
ISM5						.896	
SKD2				.596			
SKD3				.880			
SKD4				.862			
SKD5				.876			
SKD6				.875			
SKD7				.871			
SHE1					.746		
SHE3					.855		
SHE4					.862		
SHE5					.852		
SHE6					.848		
SHE7					.855		
PER1		.864					
PER2		.843					
PER3		.837					
PER4		.858					
PER5		.824					
PER7		.824					
PER8		.828					

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization. [a]
a. Rotation converged in 7 iterations.

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In addition, these results validated the initial classification of the eight retained criteria. Following the EFA's confirmation of the hypothesized latent variables using the varimax-rotated 7-factor solution, the next logical step was to use confirmatory factor analysis (CFA) to validate the underlying structure of the main constructs in the study, examine the reliability of the measurement scales, and evaluate the factorial validity of the theoretical constructs (see appendix B2). CFA is preferred over EFA when measurement models incorporate a well-developed theory for hypothesized loading patterns. Experiments utilizing EFA would serve as the starting point for a line of inquiry, with additional research demonstrating what can be confirmed. Therefore, a separate CFA was done for each construct in this investigation. CFA guarantees that the researcher assesses data-theory connections and the degree to which each factor represents the data. The following section discusses the CFA procedure and results.

4.2.6.5 Confirmatory Factor Analysis (CFA)

In CFA, the researcher determines in advance the number of factors, the pattern of indicator–factor loadings, and other criteria, such as those about the independence or covariance of the factors and the unique variances of the indicators (Brown, 2015). Unlike EFA, CFA requires a solid empirical or conceptual foundation to guide the specification and evaluation of the factor model. Consequently, EFA is often employed early in scale development and concept validation. In contrast, CFA is typically implemented later, once the underlying structure has been empirically and theoretically established. The following section describes the individual CFA model to validate the underlying structure of the study's main constructs, examine the scales' reliability and assess the construct factorial validity of the theoretical construct.

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All components were investigated in the CFA procedure to validate the measurement model and specify the hypothesized link between observable and latent variables. The CFA method permits the examination of the data sample's congruence with a postulated or prioritized model (Byrne, 2016; Schumacker & Lomax, 2004). Thus, the CFA identifies and clusters indicators (observed variables) inside a pre-specified and hypothesized model based on theory to determine the amount to which gathered data corroborated what is theoretically believed to be its underlying latent variables (Schumacker & Lomax, 2004). CFA was used to assess the measurement model detailing the relationships between the constructs and their indicators at each latent variable level. According to Schumacker and Lomax (2004), the observed variables did not perfectly correspond to the CFA's underlying latent variables. Therefore, CFA examined each latent variable in the measurement model independently and then the entire model. AMOS 25.0 was used for all analyses. Due to the study's high sample size (N=234), the maximum likelihood (ML) methodology was used to assess parameter estimation. The item scales (observed indicators) were continuous in this method, and skewness and kurtosis were employed to test for normal distribution indicators.

4.2.6.6 CFA for Subsidiary Autonomy (SA)

In order to confirm the measurement validity of the employed indicators, an exploratory factor analysis (EFA) was carried out to determine the factor structure. The EFA permits researchers to eliminate offending elements that led to a complex factor structure or had low factor loadings. Then, confirmatory factor analysis was carried out (CFA). As indicated by prior EFA results, the initial model incorporating all measurement items was reevaluated, and as anticipated, all measurement items were included. According to the results of the EFA, subsidiary autonomy (SA), which consists of eight items and Item SA 7 (0.174), had low factor loading and a broad range of values (0.174-0.899). After deleting SA_7 from the EFA indicators and reconstructing the model, table

4.17 displays the CFA results for process quality, with fit indices such as CMIN/DF = 2.439, GFI = 0.963, CFI = 0.994, and RMSEA = 0.079 (See appendix C1). Their loadings ranged from 0.94 to 0.97 to be used to determine the relative significance of the subsidiary autonomy (SA) indicators. The indicator loading values for each factor were greater than 0.60, and the CR value of 0.986 was bigger than the permissible cutoff value of 0.70. (Hair et al., 2019). The AVE score of 0.912 exceeded the suggested value of 0.50 (Hair et al., 2017).

Table 4.17: CFA Results for Subsidiary Autonomy (SA)

Construct	Items	Loading	AVE	CR
Subsidiary Autonomy (SA)	SA1	0.968		
	SA2	0.957		
	SA3	0.963		
	SA4	0.958	0.912	0.986
	SA5	0.950		
	SA6	0.943		
	SA8	0.943		
Goodness-of-fit				
Chi-square/df	2.439			
p-value	0.003			
CFI	.994			
RMSEA	.079			

4.2.6.7 CFA for Reverse Knowledge Transfer (RKT)

Reverse knowledge transfer (RKT) consists of seven items used to quantify RKT. The EFA results from the initial assessment of the reverse knowledge transfer (RKT) construct were unsatisfactory due to a low factor loading on the item RKT 5 (-.025), and the item was subsequently eliminated. After removing the ineffective item RKT5, the following fit indices were calculated in CFA: RMSEA = 0.056 for CMIN/DF = 1,716, GFI = 0.978, and CFI = 0.977 (see appendix C2).

Table 4.18's standardized factor loadings were utilized to determine the relative significance of the RKT indicators and revealed reasonably high loadings. Likewise, loading values were above 0.60, the CR value was above the permissible threshold value of 0.70, and the AVE value was beyond the indicated limit of 0.50 (Hair et al., 2019).

Table 4.18: CFA Results for Reverse Knowledge Transfer (RKT)

Construct	**Items**	**Loading**	**AVE**	**CR**
Reverse Knowledge Transfer	RKT1	.963	**0.924**	**0.986**
	RKT2	.964		
	RKT3	.957		
	RKT4	.961		
	RKT6	.954		
	RKT7	.968		
Goodness-of-fit				
Chi-square/df	1.716			
p-value	0.079			
CFI	.997			
RMSEA	.056			

4.2.6.8 CFA for External Embeddedness (EE)

External embeddedness (EE) comprises seven components labelled EE1, EE2, EE3, EE4, EE5, and EE7. As indicated by prior EFA results, the initial model incorporating all measurement items was re-evaluated, and as anticipated, all measurement items were included. External Embeddedness (EE), which consists of seven items, and Item EE4 (0.101) exhibited low factor loading and a broad range of values, according to the EFA results (0.101-0.842). After deleting EE4 from the EFA indicators and reconstructing the model, table 4.19 displays the CFA results for process quality, with fit indices such as CMIN/DF = 1.612, GFI = 0.981, CFI = 0.998, and RMSEA = 0.051 (see appendix C3).

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Similarly, the loading numbers were larger than the indicated value of 0.60, the CR was greater than the acceptable threshold level of 0.70, and the AVE was greater than 0.5, as recommended, keeping at that level (Hair et al., 2017).

Table 4.19: CFA Results for External Embeddedness (EE)

Construct	Items	Loading	AVE	CR
External Embeddedness	EE1	.971	0.902	0.982
	EE2	.948		
	EE3	.945		
	EE5	.955		
	EE6	.932		
	EE7	.948		
Goodness-of-fit				
Chi-square/df	1.612			
p-value	0.105			
CFI	.998			
RMSEA	.051			

4.2.6.9 CFA for Internal Socialization Mechanism (ISM)

Six (6) unique components quantify the internal socialization mechanism (ISM). The preliminary evaluation of the internal socialization mechanism constructs using EFA was unsatisfactory. After analyzing the factor loadings of 6 items, it was concluded that the remaining 5 items were acceptable, except for Item ISM 6 (0.182). After deleting ISM6 from the EFA indicators and reconstructing the model, CFA findings for process quality were obtained, as shown in Table 4.20, with fit indices including CMIN/DF = 2.115, GFI = 0.983, CFI = 0.997, and RMSEA = 0.069. (see Appendix C4). The outcome reveals the standard factor loadings, which indicate the relative significance of the internal socialization mechanism's indicators and their comparatively high loadings. The loading values were above the recommended value of 0.60, the CR value was over the permissible threshold value of 0.70, and the AVE value was above the recommended value of 0.50 (Hair et al., 2017).

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Table 4.20: CFA Results for Internal Socialization Mechanism (ISM)

Construct	Items	Loading	AVE	CR
Internal Socialization Mechanism	ISM1	.943		
	ISM2	.955		
	ISM3	.960	0.905	0.979
	ISM4	.948		
	ISM5	.951		
Goodness-of-fit				
Chi-square/df	2.115			
p-value	0.060			
CFI	.997			
RMSEA	.069			

4.2.6.10 CFA for Subsidiary Knowledge Development (SKD)

Seven (7) items were used to gauge the development of subsidiary knowledge (SKD). The original model with all measurement items was examined, and, as anticipated by earlier EFA results, all measurement items were incorporated. The EFA results showed that item SKD1 (0.174), which is part of the 7-item subsidiary knowledge development (SKD), had low factor loading and a wide range of values (0.431-0.874). CFA findings for process quality were obtained, as shown in Table 4.21 after SKD_1 was removed from the EFA indicators and the model was rebuilt. Fit indices included CMIN/DF = 2.165, GFI = 0.975, CFI = 0.997, and RMSEA = 0.071 (see appendix C5). The results show the standard factor loadings, which identified the relative importance of the indicators of the subsidiary knowledge development, are relatively high. The loading values exceeded the suggested level of 0.60, the CR value exceeded the recommended threshold value of 0.70, and the AVE value exceeded the suggested level of 0.50 (Hair et al., 2017).

Table 4.21: CFA Results for Subsidiary Knowledge Development (SKD)

Construct	Items	Loading	AVE	CR
Subsidiary Knowledge Development	SKD2	.650	0.879	0.977
	SKD3	.984		
	SKD4	.982		
	SKD5	.985		
	SKD6	.990		
	SKD7	.985		
Goodness-of-fit				
Chi-square/df	2.165			
p-value	0.027			
CFI	.997			
RMSEA	.071			

4.2.6.11 CFA for Subsidiary Headquarter-Embeddedness (SHE)

Subsidiary headquarters embeddedness (SHE) is measured with seven (7) items. The original model with all measurement items was examined, and, as anticipated by earlier EFA results, all measurement items were incorporated. The EFA results showed that item SHE_2 (0.159), which is part of the 7-item subsidiary headquarters embeddedness (SHE), had low factor loading and a wide range of values (0.159-0.851). However, after running EFA with rotated components, matrix factor loading for SHE is 0.744-.860).

In the CFA, findings for process quality were obtained, as shown in table 4.22, after SHE_2 was removed from the EFA indicators and the model was rebuilt (factor loading range (0.744-.860). CFA for process quality, with fit indices, included CMIN/DF = 1.753, GFI = 0.978, CFI = 0.997, and RMSEA = 0.057 (see appendix C6). The results show that the standard factor loadings, which identified the relative importance of the indicators of the subsidiary knowledge development, are relatively high. The loading values exceeded the suggested level of 0.60, the CR value exceeded the recommended threshold value of 0.70, and the AVE value exceeded the suggested level of 0.50 (Hair et al., 2017).

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Table 4.22: CFA Results for Subsidiary-Headquarter Embeddedness (SHE)

Construct	Items	Loading	AVE	CR
Subsidiary	SHE1	.838		
Headquarter	SHE3	.972		
Embeddedness	SHE4	.969	**0.984**	**0.981**
	SHE5	.965		
	SHE6	.961		
	SHE7	.961		
Goodness-of-fit				
Chi-square/df	1.753			
p-value	0.072			
CFI	.997			
RMSEA	.057			

4.2.6.12 CFA for Subsidiary Performance (Per)

The subsidiary's performance consists of eight (8) indicators. Using these metrics, the subsidiary's performance was quantified. As predicted by earlier EFA results, the original model with all measurement items was reviewed, and all measurement items were integrated. The findings of the EFA indicated that item Per_ 6 (0.437), which is part of the 8-item subsidiary performance (Per), had low factor loading and a broad range of values (0.437-0.860). However, after doing EFA with rotating components, the matrix factor loading for subsidiary performance (Per) is between 0.827 and 0.866. Table 4.23 presents the CFA results for process quality, with fit indices such as CMIN/DF = 1.654, GFI = 0.973, CFI = 0.996, and RMSEA = 0.053 (See appendix C7).

Table 4.23 displays the standard factor loadings utilized to determine the relative significance of the subsidiary performance indicators, which revealed relatively significant loadings. The loading values exceeded the advised value of 0.60, the CR value exceeded the indicated threshold of 0.70, and the AVE value exceeded the suggested level of 0.50 (Hair et al., 2017).

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Table 4.23: CFA Results for Subsidiary Performance

Construct	Items	Loading	AVE	CR
Subsidiary Performance	PER1	.927	0.834	0.972
	PER2	.931		
	PER3	.905		
	PER4	.936		
	PER5	.893		
	PER7	.887		
	PER8	.909		
Goodness-of-fit				
Chi-square/df	1.654			
p-value	0.058			
CFI	.996			
RMSEA	.053			

4.2.7 Assessment of Measurement Model

Seven (7) constructs and associated indicators examined how well-observed indicators measured the latent construct. The degree of model fit was determined using a series of fit indices in the structural equation modelling analysis. Three categories of goodness-of-fit indices were used in this study to assess the model's validity: absolute fit indices such as Chi-square/CMIN (with a value of 5.0), RMSEA (with a value of 0.08), and RMR (with a value of 0.08); incremental fit indices such as CFI, TLI, IFI, and NFI (with values >0.9); and parsimony fit indices such as PNFI (with smaller value). Hooper et al. (2008) recommended using at least three indices to ensure that each group was represented by at least one index. Along with establishing the model fit level based on the measurement model's goodness of fit indices, the measuring scale's construct validity was examined in terms of convergent and discriminant validity.

4.2.7.1 Construct Validity

Historically, construct validity has been defined as the experimental demonstration that a test measures the construct it claims to assess. Construct validity and theory validation are conducted concurrently, as is the examination of convergent and

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discriminant validity. Construct validity is "the degree to which a collection of measured items typically reflects the latent theoretical construct for which the items were designed" (Hair et al., 2010, p. 708). One of the primary purposes of the CFA model is to determine the construct's validity. The following procedures are then used to determine the constructions' validity: Validity in two directions: convergent and discriminant.

4.2.7.2 Convergent Validity

Convergent validity requires that the construct indicators cover a substantial percentage of variance in common. In order to determine convergent validity, three items (factor loading, average variance extracted (AVE), and construct reliability) should be examined. Convergent validity refers to the percent of variance shared by the items designed to measure the latent construct's specific latent construct. Convergent validity can be evaluated using the magnitude of the standardized factor loading (at least values more than 0.6), the AVE (values equal to or greater than 0.5 indicate high convergent validity), or the CR (values greater than 0.7 indicate good internal consistency) (Hair et al., 2019) (see table 4.24).

Table 4.24: Reliability and Convergent Validity

Constructs	Items		**Loading**	**CR**	**AVE**
	SA1	Adaptation of existing product/ service	**0.968**		
	SA2	Introducing new product/service development projects for local and foreign markets	**0.957**		
	SA3	Launching new products/services for local and foreign markets	**0.963**		
SA	SA4	The product/service development budget led to collaboration with external partners	**0.958**	**0.986**	**0.912**
	SA5	Definition of Research & Development projects, planning, resources, etc.	**0.950**		
	SA6	Sales and marketing strategy	**0.943**		
	SA8	Personnel policy strategy	**0.943**		
	RKT1	Strategy know-how (knowledge about customers, competitors, and suppliers)	**0.963**		
	RKT2	Service production strategy know-how	**0.964**		
	RKT3	Process design know-how	**0.957**		
RKT	RKT4	Marketing know-how (customer relationship management, customer-led product changes, pricing, and market positioning)	**0.961**	**0.986**	**0.924**
	RKT6	Packaging design/technology know-how	**0.954**		
	RKT7	Management systems and practices know-how	**0.968**		

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Constructs	Items		Loading	CR	AVE
EE	EE1	Strategy know-how (knowledge about customers, competitors, and suppliers)	**0.971**	**0.982**	**0.902**
	EE2	Service production strategy know-how	**0.948**		
	EE3	Process design know-how	**0.945**		
	EE5	Distribution know-how	**0.955**		
	EE6	Packaging design/technology know-how	**0.932**		
	EE7	Management systems and practices know-how	**0.948**		
ISM	ISM1	Participate in corporate inter-unit communication committees/teams/ task force	**0.943**	**0.979**	**0.905**
	ISM2	Constituting project groups to work on headquarters problem	**0.955**		
	ISM3	Movement of personnel between both firms	**0.960**		
	ISM4	Participating in joint training programs	**0.948**		
	ISM5	Visit to parent company/headquarter by your company's top managers	**0.951**		
SKD	SKD2	Service production strategy know-how	**0.650**	**0.977**	**0.879**
	SKD3	Process design know-how	**0.984**		
	SKD4	Marketing know-how (customer relationship management, customer-led product changes, pricing, and market positioning)	**0.982**		
	SKD5	Distribution know-how	**0.985**		
	SKD6	Packaging design/technology know-how	**0.990**		
	SKD7	Management systems and practices know-how	**0.985**		
SHE	SHE1	Strategy know-how (knowledge about customers, competitors, and suppliers)	**0.838**	**0.981**	**0.984**
	SHE3	Process design know-how	**0.972**		
	SHE4	Marketing know-how (customer relationship management, customer-led product changes, pricing, and market positioning)	**0.969**		
	SHE5	Distribution know-how	**0.965**		
	SHE6	Packaging design/technology know-how	**0.961**		
	SHE7	Management systems and practices know-how	**0.961**		
Per	PER1	Our profitability much better than our competitors,	**0.927**	**0.972**	**0.834**
	PER2	Our sales growth has been much higher than our competitors,	**0.931**		
	PER3	Our market share has been higher than our competitors,	**0.905**		
	PER4	Our productivity has been much higher than our competitors	**0.936**		
	PER5	Our customer satisfaction has been much better than our competitors	**0.893**		
	PER7	Our new product/service development is much higher than our competitors	**0.887**		
	PER8	Our quality of product/service is much better than our competitors	**0.909**		

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4.2.7.3 Discriminant Validity

Discriminant validity refers to the degree to which one construct is genuinely distinct from another (Hair et al., 2017). The AVE should be greater than the square of the correlation between the two constructs to demonstrate discriminant validity. The discriminant validity test (table 4.25) revealed that all constructs share more significant variance with their measurements than others. As a result, the constructs were subjected to discrimination, as suggested by (Hair et al., 2017). Likewise, Schumacker and Lomax (2004) revealed that discriminant and convergent validity are used to validate measurement models. Table 4.25 demonstrates that the maximum variance shared (MSV) exceeds the average variance shared (ASV). Thus, additionally, it is a measure of discriminant validity.

Table 4.25: CR, AVE, and Square of Correlation among the Variables

	CR	AVE	MSV	ASV	SA	Per	SHE	ISM	EE	RKT	SKD
SA	**0.986**	**0.912**	0.460	0.241	**0.955**						
Per	**0.972**	**0.834**	0.572	0.283	0.491	**0.913**					
SHE	**0.981**	**0.894**	0.350	0.260	0.392	0.491	**0.946**				
ISM	**0.979**	**0.905**	0.350	0.181	0.359	0.345	0.592	**0.951**			
EE	**0.982**	**0.902**	0.433	0.263	0.415	0.523	0.549	0.453	**0.950**		
RKT	**0.986**	**0.924**	0.572	0.392	0.678	0.756	0.534	0.409	0.658	**0.961**	
SKD	**0.977**	**0.879**	0.436	0.253	0.541	0.501	0.476	0.342	0.439	0.660	**0.938**

4.2.7.4 Assessment of the Model

The measurement model evaluation results were based on the previous CFA, which included 43 indicators to measure seven (7) latent constructs, as shown in Tables 4.24 and 4.25, indicating that the model was modified in response to the CFA result, which fit the data and achieved an acceptable level of fit.

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As illustrated in Figure 4.9, the model fits the data ideally based on most indices, such as the relative Chi-square with a value of 1.292 (smaller than the suggested value of 5) and the CFI with values greater than 0.9 (0. 987). Additionally, the updated model matched the data to an acceptable level based on an RMSEA of 0.036, less than the desired value of 0.08, and the standardized RMR is .0356.

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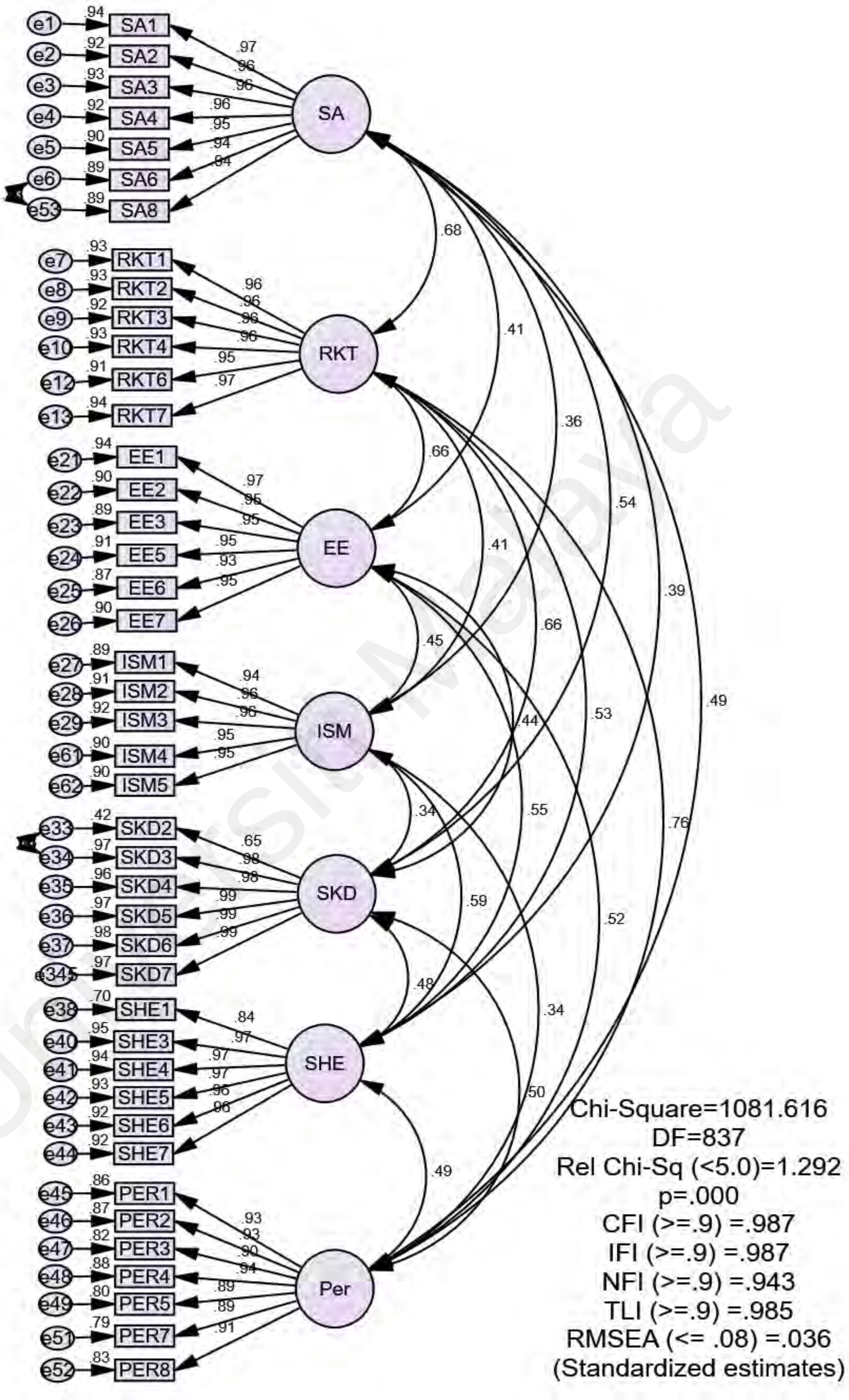

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Figure 4.9: Measurement Model

4.2.7.5 CFA Measurement Model (Correlation with Error Term)

Because SEM is frequently conceived as a theoretical framework, caution must be exercised when incorporating correlated error variables to enhance model fit. In various respects, modifying the model based on modification indices is bad. Based on a comprehensive theoretical model incorporating underlying and measurement theories, the ideal researcher would pre-specify any relationships between error terms (Worrall, 2003). In other words, the model must consider not just the theoretical correlations between latent variables but also measurement error and, most significantly, method variation. Correlated errors may therefore be necessary to account for method covariance in CFA construct validation investigations, such as analysing indicators collected from several assessment modalities (Brown, 2015). This research redefines four correlated errors (e6 and 53 and e33 and e34) as free parameter estimates. Adjusting considerably improves the model fit to the acceptable level following error term correlation (see Figure 4.9).

4.2.7.6 Addressing Common Method Bias (CMB) and Common Method Variance (CMV)

Although independent and dependent variables are frequently measured using the same response method in a single survey, methodological bias can arise in research surveys. The predominant method for evaluating independent and dependent variables contributes to measurement error by distorting the underlying relationships among variables (Bagozzi & Yi, 1990). In addition, while being one of the most widely used techniques in the social sciences, the survey may provide a risk of common method variance (CMV) or common method bias (CMB), which can compromise the validity and reliability of empirical data (Baumgartner & Steenkamp, 2001). Although these terms are commonly interchanged in contemporary writing, they have separate meanings. Common method variance is defined by Podsakoff et al. (2003) as the systematic error variance coming from using a common technique to measure the study's constructs. Common method bias occurs when the relationship between variables is impacted by common method variance (Jakobsen & Jensen, 2015).

According to Podsakoff et al., CMB can significantly affect a study's empirical data and results (2012). Consequently, there have been extensive discussions on how to identify, avoid, and control CMV (MacKenzie & Podsakoff, 2012). Method bias can influence the parameter estimates of hypothesized correlations between constructs, including the correlation coefficient. This effect can inflate or deflate the relationship between variables, causing Type II errors, or I i.e. erroneously rejecting or failing to reject the null hypothesis.

This research used statistical and procedural measures to adjust for prevalent method bias. Before data collection, ex-ante procedural controls are implemented, while ex-post statistical controls are implemented. At various levels of subsidiaries' functional managers (e.g., marketing, HR, operations, finance, and IT), procedural approaches such as data gathering have been implemented, and their perspectives have variedly impacted the outcomes. Second, providing clear instructions, ensuring respondent privacy, eliminating confusing and ambiguous questions, and keeping surveys brief is crucial (Weijters & Baumgartner, 2012). Third, according to the concept proposed by MacKenzie and Podsakoff (2012), "temporal separation" refers to collecting data from the same source at various timeframes. This strategy can help eliminate measurement-related cues and enhance response accuracy.

This study also employed procedural control in the earliest stages of questionnaire design with verification experience in the field of studies to prevent errors in statistical solutions. This study employs a pilot study to prepare for the main investigation, and much pilot study feedback is addressed and afterward applied.

(a) Harman Single Factor Test in SPSS

Harman (1976), a single-factor test is based on the assumption that a single factor will emerge in the presence of a significant CMV and is regarded as the most prevalent method for finding common method bias. Based on these criteria, it is established that one general factor will explain the largest amount of covariance between the predictor and criterion variables (Podsakoff et al., 2003). This test employs exploratory or confirmatory factor analysis to discover common method bias. Harman's exploratory factors analysis test shows common method bias if the un-rotated solution for all measured items provides a single factor that accounts for more than fifty percent of the variance (Fuller et al., 2016; Podsakoff et al., 2012). Following Podsakoff et al. (2003), all items in this study were subjected to principal axis factoring, which was utilized to assess statistical controls. If the total variance extracted by one factor exceeds 50%, common method bias is present in the study. This data has no problem with common method bias since the total variance extracted by one factor is 46.772%, less than the recommended threshold of 50% (Podsakoff et al., 2012). Furthermore, no single factor accounted for the most covariance between the predictor and criterion variables. Consequently, this suggests that common method bias is unlikely to overestimate relationships between variables studied in the present study (see Table 4.26).

Table 4.26: Test of Common Method Variance

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	23.361	46.722	46.722	22.895	46.772	46.772
2	4.830	9.660	56.381			
3	3.616	7.232	63.614			
4	2.921	5.842	69.456			
5	2.721	5.441	74.897			
6	1.974	3.948	78.845			
7	1.323	2.645	81.490			

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8	.980	2.262	83.753
9	.970	1.941	85.694
10	.887	1.774	87.467
11	.863	1.675	89.143
12	.806	1.357	90.499
13	.636	1.272	91.771
14	.559	1.119	92.889
15	.421	.842	93.732
16	.251	.502	94.233
17	.227	.454	94.688
18	.206	.412	95.100
19	.175	.349	95.449
20	.155	.310	95.759
21	.143	.286	96.045
22	.127	.255	96.300
23	.124	.247	96.547
24	.121	.242	96.789
25	.117	.234	97.022
26	.111	.222	97.244
27	.103	.207	97.451
28	.098	.196	97.647
29	.093	.185	97.832
30	.090	.179	98.011
31	.081	.162	98.174
32	.077	.155	98.328
33	.075	.151	98.479
34	.069	.137	98.616
35	.066	.132	98.748
36	.065	.129	98.877
37	.059	.118	98.995
38	.057	.114	99.109
39	.057	.113	99.222
40	.053	.106	99.328
41	.048	.095	99.423
42	.046	.093	99.516
43	.044	.088	99.604
44	.043	.085	99.689
45	.036	.072	99.761
46	.034	.068	99.829
47	.029	.059	99.888
48	.022	.045	99.933
49	.019	.038	99.970
50	.015	.030	100.000

Extraction Method: Principal Axis Factoring.

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(b) Full Collinearity Test

Despite its widespread use, the Harman single-factor test has several limitations. It is improbable that a general-factor model will fit the data. There is no practical guideline for defining the proportion of variation that should be explained by a single element (Change et al., 2010). In addition, Tehseen et al. (2017) noticed that the Harman test could not control or correct any common technique bias present in a study. In order to get thorough protocols for simultaneous evaluation of CMV, this study additionally conducted a comprehensive collinearity test to determine the presence of a VIF effect. A VIF greater than 3.30 indicates anomalous collinearity and suggests a model may be contaminated by a common technique. Consequently, if all VIFs resulting from a full collinearity test are equal to or less than 3.3, the model can be considered free of common method bias. VIFs greater than 3.3 are proposed to indicate collinearity, and a model may be contaminated by common method bias (Kock, 2015; Kock & Lynn, 2012).

Using Random Dummy Variable to conduct the entire collinearity test in SPSS, table 4.27 demonstrates the collinearity test. To conduct this test, three crucial considerations must be taken into account: (i) establish a random dummy variable; (ii) utilize the dummy variables as dependent and regress it on all the variables in the specified model; and (iii) the variance inflation factor (VIF) should not exceed 3.3. Using SPSS 25, the result indicates that none of the model's latent variables' VIF values is more than 3.30. Consequently, based on the results of this test, there is no cause for concern regarding common method variance.

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Table 4.27: Full Collinearity Test using Dummy Variables for CMV Detection Coefficients

Collinearity Test							
	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig	Tolerance	VIF
1 (Constant)	.310	.085		3.647	.000		
MeanSA	-.021	.023	-.085	-.944	.346	.531	1.882
Mean_KT	.005	.016	.075	.195	.445	.560	2.852
Mean_EE	-.018	.018	-.094	-1.009	.314	.496	2.015
Mean_ISM	.025	.016	.129	1.530	.127	.607	1.648
Mean_SKD	.023	.016	.129	1.417	.158	.518	1.929
Mean_SHE	-.012	.017	-.067	-.695	.488	.465	2.150
Mean_Per	.025	.020	.121	1.281	.201	.484	2.064

a. Dependent Variable: Ramdom

(c) Harman Single Factor in Amos (Common Factor Test)

Method bias is typically illustrated by an inflated or, on rare occasions, the deflated correlation between observable variables in a study. Studies indicate that when respondents react simultaneously to survey questions spanning independent and dependent variables, the covariation may be unduly inflated, resulting in erroneous parameter estimations. This study evaluates and manages CMV (Podsakoff et al., 2003; Lindell & Whitney, 2001). When utilizing a CFA, the Harman single-factor test is performed, in which all indications are loaded on purpose onto a single factor to verify model fit. It is termed method bias when a valid model corresponds to a single construct model. Harman's single-factor test for identifying common method bias remains disputed regarding its effectiveness.

On the one hand, experts have questioned this methodology and found that it is insufficient for detecting the presence of method bias (Change et al., 2010; Malhotra et al., 2006). Other authors, Fuller et al. (2016), have argued that the Harman single-factor

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test is sensitive enough to detect the presence of a problem if the common methodology has a sufficient impact on the results. Rather than depending on a single medication to address the many CMV-related issues, it is preferable to combine multiple treatments. The results of the AMOS Harman one-factor test (RMSEA = 0.235, CFI = 0.370, TLI = 0.368, GFI = 0.203, and Chisq/df =13.741, are not satisfactory (see figure 4.10). Therefore, this analysis reveals that a model with a single construct does not produce an acceptable fit. Therefore, it is possible to conclude that CMV is not an issue in this study. CMV is also addressed via effective statistical techniques, such as directly evaluating a latent common method component.

This strategy evaluates the significance of theoretical constructs with or without the common factor method by allowing questionnaires to load on their theoretical constructs and a latent CMV component.

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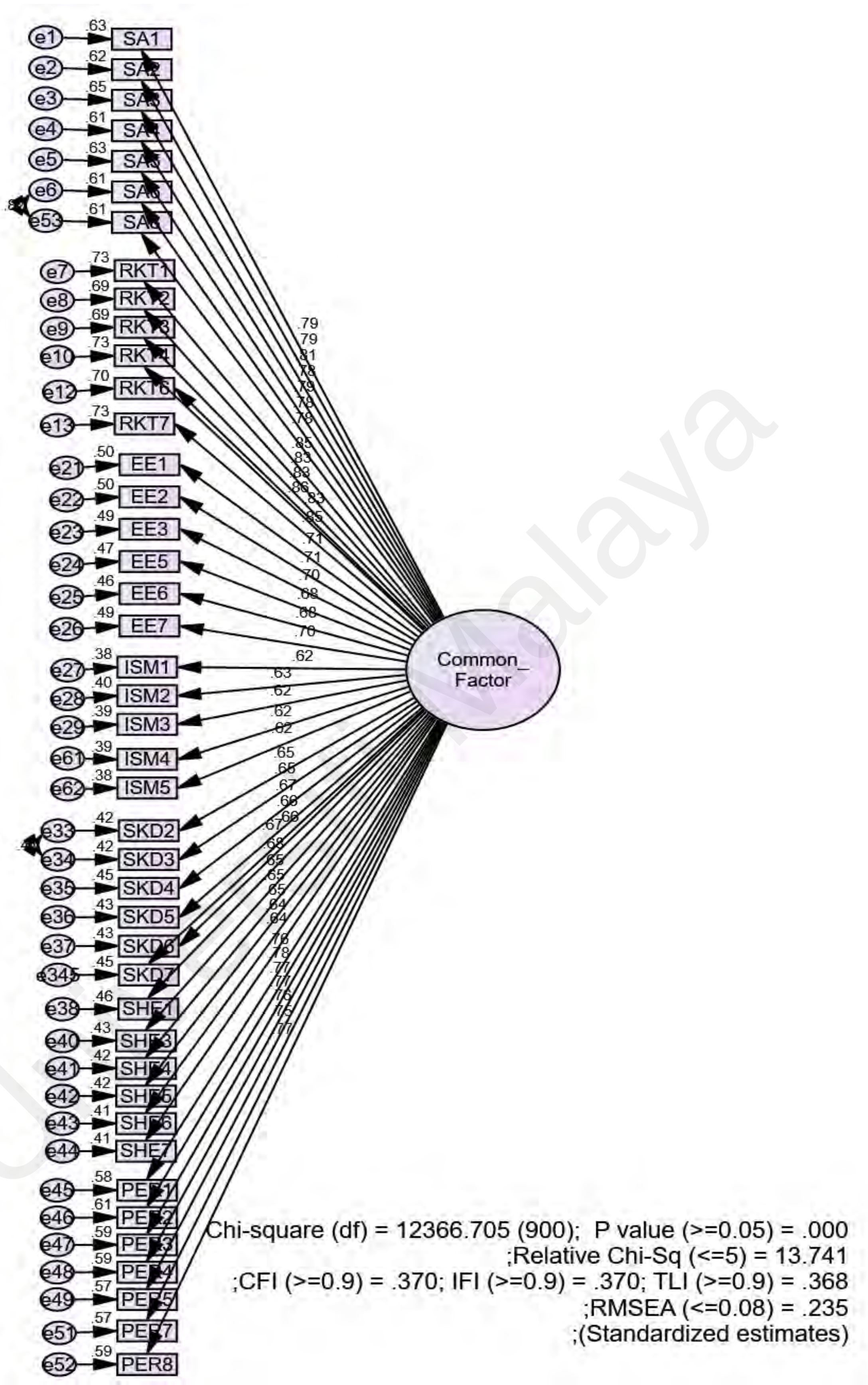

Figure 4.10: Harman Single Factor Test (Common Factor)

(d) Common Latent Factor

Before executing the measurement model, this research conducted the Harman single factor and Multi collinearity tests and established that CMV is not a significant concern for this study because the threshold value was met. After executing the measurement model, this study analyzed CMV using the common latent factor test in AMOS 25 to detect and validate the measurement model's findings and ensure that the measurement model was not affected by method bias. In the measurement model, researchers occasionally must exclude items with factor loadings of less than 0.60. As depicted in Figure 4.11, the process is repeated until the required fitness level is achieved. All fitness indicators, including RMSEA = 0.036, CFI = 0.987, TLI = 0.985, GFI = 0.827, and Chisq/df = 1.292, are satisfactory based on this analysis (see Figure 4.11). However, this result is insufficient to conclude that method bias does not affect this measurement model. Therefore, we utilize the common latent factor test (CLF) and compare the regression weights of all items for models with and without CLF. The minuscule variations in these regression weights (<0.200) indicated that CMV is not a significant concern in this research data (Serrano Archimi et al., 2018; Gaski, 2017).

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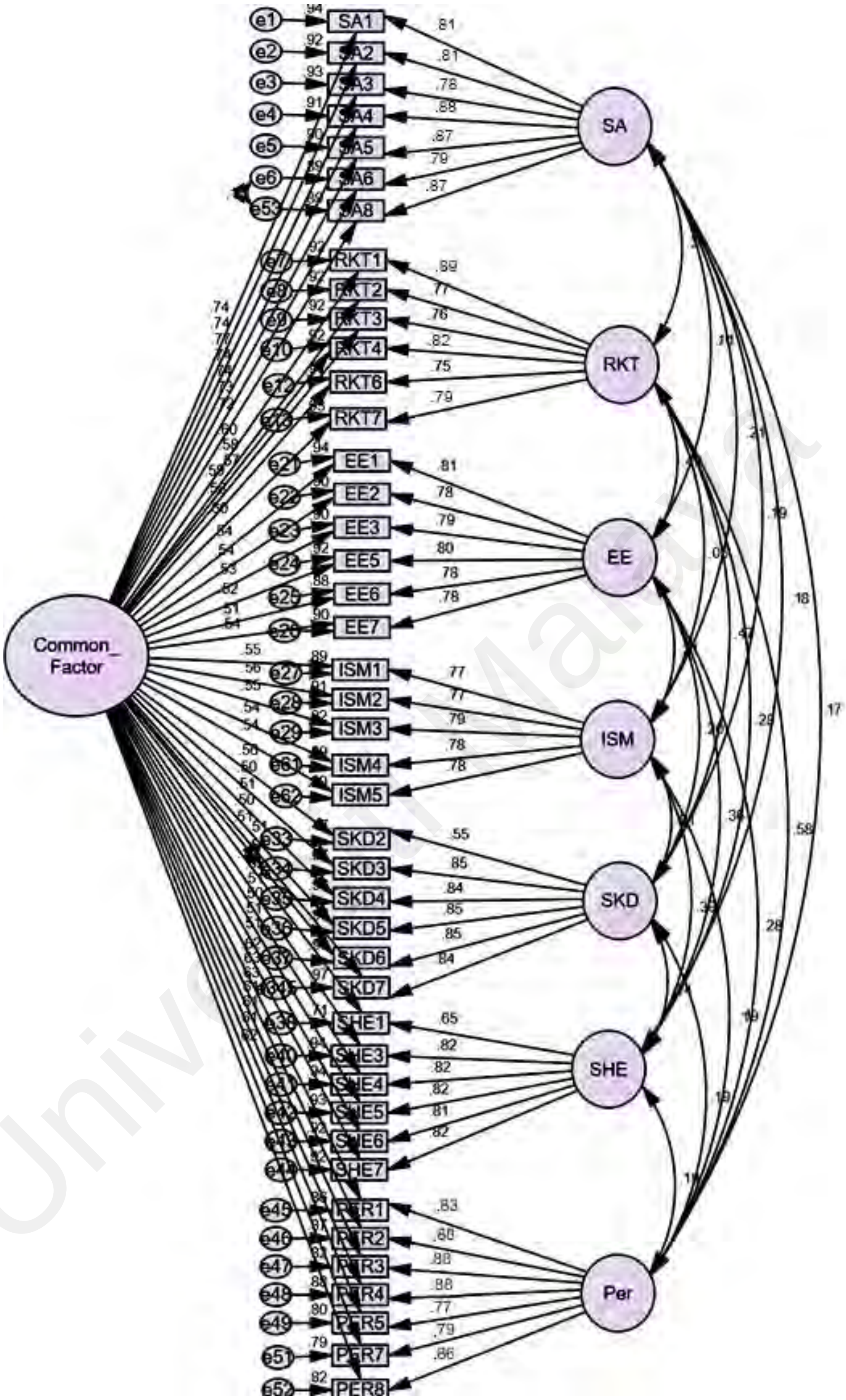

Figure 4.11: Assessment of the CMV with Common Latent Factor Test

As demonstrated in Figure 4.11, all observations are exerted by a single latent construct, CLF. The variance of CLF is limited to one, and the single-headed arrow derived from this construct will be imposed on each model observation. The variance must equal 1, corresponding to one hundred percent of the variance explained by this concept (CLF). Then, applied researchers must compare the standardization of the regression weight between the confined and unconstrained models. According to the Excel calculations (table 4.28), every observation falls below the threshold value; consequently, hypothesis testing can proceed. Although numerous statistical approaches have been used to handle CMV, this study employed three methods to address CMB issues. Each test indicated that CMV is not a major concern for the current investigation.

Table 4.28: Standardized Regression Weights

Standardized Regression Weights: (With CLF)

Total Items	Items Name	Construct	Estimate
1	SA5	SA	0.87
2	SA4	SA	0.882
3	SA3	SA	0.782
4	SA2	SA	0.81
5	SA1	SA	0.819
6	SA6	SA	0.791
7	RKT4	RKT	0.82
8	RKT3	RKT	0.765
9	RKT2	RKT	0.766
10	RKT1	RKT	0.89
11	RKT6	RKT	0.754
12	EE6	EE	0.783
13	EE5	EE	0.804
14	EE3	EE	0.789
14	EE2	EE	0.782
16	EE1	EE	0.81
17	EE7	EE	0.785
18	ISM3	ISM	0.788
19	ISM2	ISM	0.775
20	ISM1	ISM	0.769
21	SKD4	SKD	0.837
22	SKD3	SKD	0.847
23	SKD2	SKD	0.55
24	SKD5	SKD	0.846
25	SKD6	SKD	0.849

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26	SHE5	SHE	0.821
27	SHE4	SHE	0.82
28	SHE3	SHE	0.821
29	SHE1	SHE	0.647
30	SHE6	SHE	0.814
31	SHE7	SHE	0.818
32	PER5	PER	0.77
33	PER4	PER	0.889
34	PER3	PER	0.882
35	PER2	PER	0.889
36	PER1	PER	0.839
37	PER7	PER	0.791
38	PER8	PER	0.869
39	SA8	SA	0.869
40	ISM4	ISM	0.776
41	ISM5	ISM	0.78
42	RKT7	RKT	0.79
43	SKD7	SKD	0.84

Standardized Regression Weights: (Without CLF)

Total Items	Items Name	Estimate	Δ (Delta =D4-J4)
1	SA5	0.951	0.081
2	SA4	0.957	0.075
3	SA3	0.964	0.182
4	SA2	0.957	0.147
5	SA1	0.968	0.149
6	SA6	0.943	0.152
7	RKT4	0.963	0.143
8	RKT3	0.957	0.192
9	RKT2	0.964	0.198
10	RKT1	0.963	0.073
11	RKT6	0.952	0.198
12	EE6	0.931	0.148
13	EE5	0.954	0.15
14	EE3	0.945	0.156
14	EE2	0.949	0.167
16	EE1	0.971	0.161
17	EE7	0.947	0.162
18	ISM3	0.959	0.171
19	ISM2	0.955	0.18
20	ISM1	0.943	0.174
21	SKD4	0.982	0.145
22	SKD3	0.984	0.137
23	SKD2	0.651	0.101
24	SKD5	0.985	0.139
25	SKD6	0.989	0.14
26	SHE5	0.965	0.144
27	SHE4	0.968	0.148
28	SHE3	0.972	0.151

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29	SHE1	0.839	0.192
30	SHE6	0.962	0.148
31	SHE7	0.961	0.143
32	PER5	0.894	0.124
33	PER4	0.936	0.047
34	PER3	0.905	0.023
35	PER2	0.932	0.043
36	PER1	0.925	0.086
37	PER7	0.887	0.096
38	PER8	0.911	0.042
39	SA8	0.943	0.074
40	ISM4	0.949	0.173
41	ISM5	0.95	0.17
42	RKT7	0.968	0.178
43	SKD7	0.985	0.145

Note: estimate row without CLF D4 and with CLF row is J4.

Lindell and Whitney (2001) were the first to discuss using a marker variable (MV) to detect and eliminate method variance from cross-sectional data originating from the same source. Conceptually, the variable of interest, MV, is not immediately observable; instead, a marker indicates the variable's presence or degree. This study concludes that CMV is not a substantial risk using numerous statistical methods to screen for common method biases. In addition, this study cannot determine CMV using marker variable approaches due to the absence of Marker variables. In addition to the justification for excluding the marker variable, Richardson et al. (2009) establish that after assessing the validity of both techniques, it was determined that both had the potential to yield inaccurate results. As long as a variety of CMV assessment methodologies, including procedural and statistical methods, are available and utilized in this investigation, there is no need to justify the inclusion of additional methods.

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4.2.7.7 Assessment of the Normality Test in AMOS for the Dataset

If the sample size is large, SEM using the Maximum Likelihood Estimator (MLE) is equally resistant to kurtosis violations of multivariate normality. A sample size of 200 or above is frequently regarded as appropriate for MLE, even if the data distribution is slightly odd. A researcher may continue analysis with an absolute skewness of up to +/-2 for sample sizes greater than 200. However, other experts advise +/-3 (Kline, 2015). Kurtosis is a different way to assess normality; a value below 3.00 may indicate a variable's normal distribution. However, for kurtosis to be considered regularly distributed, the range between -10 and +10 must fall within the range of -10 to +10 (Collier, 2020). The Mardia's coefficient, a multivariate measure of kurtosis, is calculated as part of the built-in test for normality test n AMOS. The distribution is regularly distributed if the critical ratio is less than 1.96. Examine the distribution of each variable in the dataset using the final measurement model to verify normality. The table below displays the results and an assessment of normality for each measurement model item. Byrne (2016) asserts that a c.r. of -1.96 or >1.96 for a particular test may indicate an outlier assuming the normal alpha value is 0.05.

Table 4.29: Assessment of Normality Test

Variable	Min	Max	skew	c.r.	Kurtosis	c.r.
SKD7	1.000	7.000	-.492	-3.058	-.927	-2.882
RKT7	1.000	7.000	-.526	-3.268	-.322	-1.003
ISM5	1.000	7.000	-.404	-2.513	-.805	-2.502
ISM4	1.000	7.000	-.493	-3.065	-.768	-2.388
SA8	1.000	5.000	-.513	-3.189	-.865	-2.691
PER8	1.000	7.000	-.378	-2.350	-.684	-2.126
PER7	1.000	7.000	-.350	-2.175	-.592	-1.839
PER1	1.000	7.000	-.238	-1.478	-.643	-2.000
PER2	1.000	7.000	-.294	-1.826	-.635	-1.975
PER3	1.000	7.000	-.268	-1.664	-.724	-2.252
PER4	1.000	7.000	-.312	-1.938	-.736	-2.288
PER5	1.000	7.000	-.310	-1.927	-.646	-2.009
SHE7	1.000	7.000	-.008	-.051	-1.164	-3.618
SHE6	1.000	7.000	-.011	-.069	-1.155	-3.591
SHE1	1.000	7.000	.058	.359	-1.164	-3.620

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SHE3	1.000	7.000	-.066	-.409	-1.191	-3.704
SHE4	1.000	7.000	-.061	-.382	-1.135	-3.528
SHE5	1.000	7.000	-.059	-.367	-1.151	-3.577
SKD6	1.000	7.000	-.478	-2.972	-1.013	-3.150
SKD5	1.000	7.000	-.467	-2.907	-1.034	-3.215
SKD2	1.000	7.000	-.598	-3.722	-.619	-1.923
SKD3	1.000	7.000	-.447	-2.778	-1.090	-3.389
SKD4	1.000	7.000	-.466	-2.900	-1.034	-3.215
ISM1	1.000	7.000	-.465	-2.891	-.657	-2.042
ISM2	1.000	7.000	-.459	-2.853	-.746	-2.318
ISM3	1.000	7.000	-.504	-3.133	-.651	-2.023
EE7	1.000	7.000	-.260	-1.619	-.905	-2.814
EE1	1.000	7.000	-.344	-2.140	-.769	-2.391
EE2	1.000	7.000	-.205	-1.274	-1.020	-3.172
EE3	1.000	7.000	-.347	-2.159	-.742	-2.309
EE5	1.000	7.000	-.217	-1.351	-.938	-2.915
EE6	1.000	7.000	-.324	-2.017	-.833	-2.591
RKT6	1.000	7.000	-.409	-2.546	-.442	-1.376
RKT1	1.000	7.000	-.526	-3.272	-.240	-.745
RKT2	1.000	7.000	-.518	-3.222	-.396	-1.232
RKT3	1.000	7.000	-.508	-3.156	-.328	-1.019
RKT4	1.000	7.000	-.464	-2.887	-.535	-1.662
SA6	1.000	5.000	-.456	-2.833	-.890	-2.767
SA1	1.000	5.000	-.511	-3.175	-.772	-2.400
SA2	1.000	5.000	-.479	-2.976	-.831	-2.583
SA3	1.000	5.000	-.462	-2.873	-.839	-2.609
SA4	1.000	5.000	-.430	-2.671	-.912	-2.836
SA5	1.000	5.000	-.459	-2.857	-.925	-2.876
Multivariate					**203.044**	**24.857**

Using the AMOS normality test, this study illustrates that data is still considered normal because skew values range from 2 to +2. In contrast, for kurtosis, the range must be between -10 and +10 for the distribution to be considered normal. Consequently, based on the assumption of skewness and kurtosis, the study's findings imply that both skewness and kurtosis fall within an acceptable range to be considered "Normal" (Collier, 2020; Byrne, 2016). Although the dataset is normally distributed, it is required to examine the Mahalanobis distance to see if the model fit is acceptable. A multivariate outlier is a collection of out-of-the-ordinary or "extreme" values over numerous variables.

4.2.7.8 Assessing the Presence of Multivariate Outliers

Although the skewness and kurtosis findings of the normality test in AMOS indicate that the data is normally distributed, the Mardia test suggests that the data deviates from multivariate normality. Consequently, this study aims to monitor any inconsistencies between the various test findings and determine whether there is an influence on model fit during the structural model assessment phase. Therefore, this study examined if the squared distance from a dataset's centroid had any bearing on the model fit issue**.**

Byrne (2010) adds that a multivariate outlier is identified by a Mahalanobis d-squared value that considerably deviates from the sample mean. For each instance, a squared Mahalanobis distance value and test statistics are generated that can be used to identify whether a case is a multivariate outlier. According to Kline (2011), Mahalanobis d-squared is "distributed as a chi-square statistic with the same number of degrees of freedom as the number of variables" (p. 54). Kline advocates a more conservative p-value for statistical significance testing, such as p.001. The p1 column contains the p-values used to determine whether an observation substantially deviates from the variables' centroid. This study followed the procedures for computing the Mahalanobis distance and identified outliers (cases 111 and 112). This study preserves the outlier despite the recommendation to delete it and then analyses the maximum likelihood estimator. Eliminating the outlier may become troublesome because it artificially increases the model's support.

In contrast, multivariate non-normality becomes problematic when a single case is unduly weighted in calculations. A multivariate outlier, for example, can cause a regression coefficient to depart from the actual estimate more than it usually would (Collier, 2020).

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4.2.8 Strategies for Dealing with Non-Normal Data

It is well established from this body of research that nonnormal data inflates the model test statistic and negatively biases standard errors; parameter estimates are typically unaffected. Survey data must adhere to a normal distribution of structural equation modelling (SEM) since including non-normal data could result in inflated chi-square values, tempting researchers to make unwarranted revisions or modifications to a model detection and management of non-normal data or variables that failed to display univariate normality. However, three advanced techniques are available for addressing non-normality-related issues in structural equation modelling (SEM) (West et al., 1995). These include (a) asymptotically distribution-free (ADF) approaches, (b) rescaling methods that change the ML chi-square and standard errors (e.g., Satorra-Bentler scaled chi-square), and (c) bootstrapping with resampling procedures. ADF estimation methods that do not presume multivariate normality are typically not advised unless the sample size is between 1000 and 5000 (Byrne, 2013).

In contrast, AMOS lacked the Sentorra-Bentler scaled chi-square statistic used for correcting test statistics. Bootstrap is a prevalent method for generating standard errors robust to normality violations (Efron & Tibshirani, 1993). It can use Monte Carlo computer simulation and the Bollen and Stine approach to develop an empirical sampling distribution of each parameter estimate, the standard deviation, and the standard error (Enders, 2022; Hancock & Liu, 2012; Savalei & Yuan, 2009; Bollen & Stine, 1992). The non-normal data in this investigation were treated with a bootstrapping technique with Bollen and Stine approach (Enders, 2002).

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4.2.8.1 Bootstrapping Method for Dealing with Non-Normal Data

According to Collier (2020), it is more typical to use the bootstrap method to adjust for non-normality when the data are not normally distributed. Bootstrapping is resampling the original data to determine if the predicted associations fall within a confidence interval. In other words, bootstrapping employs a random sample with replacement to evaluate if an estimate lies inside a confidence interval. AMOS enables users to specify the number of bootstrap samples to improve estimate precision (the higher, the better). Besides, Collier (2020) suggested that 5,000 samples are sufficient for Bootstrap to generate a reliable result. After verifying normality and the Mahalanobis distance, the current study used bootstrapping to examine the Maximum likelihood estimates and standard errors (SE). The next step is verifying that the SE column contains the bootstrapped standard errors. The table below displays the results of MLE and bootstrapping SE.

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Table 4.30: Maximum Likelihood Estimates and Standard Errors

			Estimate	S.E.	C.R.	P	Label
SHE	<---	ISM	.554	.057	9.738	***	par_45
SKD	<---	SA	.344	.059	5.812	***	par_42
SKD	<---	EE	.095	.043	2.209	.027	par_43
SKD	<---	SHE	.181	.049	3.663	***	par_44
RKT	<---	ISM	-.022	.047	-.477	.633	par_46
RKT	<---	SKD	.395	.074	5.316	***	par_47
RKT	<---	SHE	.088	.055	1.608	.108	par_48
RKT	<---	EE	.322	.044	7.248	***	par_50
RKT	<---	SA	.443	.060	7.428	***	par_51
Per	<---	RKT	.677	.045	14.983	***	par_49
SA5	<---	SA	1.012	.028	35.950	***	par_1
SA4	<---	SA	1.009	.027	37.646	***	par_2
SA3	<---	SA	.967	.024	39.556	***	par_3
SA2	<---	SA	.984	.026	37.660	***	par_4
SA1	<---	SA	1.000				
SA6	<---	SA	.996	.029	34.208	***	par_5
RKT4	<---	RKT	1.027	.027	37.899	***	par_6
RKT3	<---	RKT	1.030	.028	36.358	***	par_7
RKT2	<---	RKT	1.063	.028	38.323	***	par_8
RKT1	<---	RKT	1.000				

			Estimate	S.E.	C.R.	P	Label
RKT6	<---	RKT	.988	.028	35.308	***	par_9
EE6	<---	EE	.981	.030	32.541	***	par_10
EE5	<---	EE	1.006	.027	37.504	***	par_11
EE3	<---	EE	.972	.028	35.298	***	par_12
EE2	<---	EE	.961	.027	36.007	***	par_13
EE1	<---	EE	1.000				
EE7	<---	EE	.959	.027	35.833	***	par_14
ISM3	<---	ISM	1.035	.032	32.380	***	par_15
ISM2	<---	ISM	1.032	.032	31.827	***	par_16
ISM1	<---	ISM	1.000				
SKD4	<---	SKD	1.709	.133	12.804	***	par_17
SKD3	<---	SKD	1.756	.134	13.149	***	par_18
SKD2	<---	SKD	1.000				
SKD5	<---	SKD	1.736	.135	12.836	***	par_19
SKD6	<---	SKD	1.737	.135	12.879	***	par_20
SHE5	<---	SHE	1.225	.057	21.382	***	par_21
SHE4	<---	SHE	1.205	.056	21.531	***	par_22
SHE3	<---	SHE	1.204	.055	21.767	***	par_23
SHE1	<---	SHE	1.000				
SHE6	<---	SHE	1.212	.057	21.236	***	par_24
SHE7	<---	SHE	1.203	.057	21.265	***	par_25
PER5	<---	Per	.990	.043	23.065	***	par_26
PER4	<---	Per	1.030	.038	26.770	***	par_27
PER3	<---	Per	.977	.041	24.013	***	par_28
PER2	<---	Per	.999	.038	26.380	***	par_29
PER1	<---	Per	1.000				
PER7	<---	Per	.976	.043	22.547	***	par_30
PER8	<---	Per	1.016	.042	24.457	***	par_31
SA8	<---	SA	1.002	.029	34.312	***	par_35
ISM4	<---	ISM	1.059	.035	30.640	***	par_36
ISM5	<---	ISM	1.052	.034	30.903	***	par_37
RKT7	<---	RKT	1.008	.026	39.177	***	par_38
SKD7	<---	SKD	1.709	.133	12.842	***	par_39

Note: the p-value is a normal theory test of the null hypothesis

Table 4.31: Bootstrap Standard Error

Parameter			SE	SE-SE	Mean	Bias	SE-Bias
SHE	<---	ISM	.050	.000	.555	.001	.001
SKD	<---	SA	.067	.001	.342	-.003	.001
SKD	<---	EE	.042	.000	.097	.002	.001
SKD	<---	SHE	.050	.001	.179	-.002	.001
RKT	<---	ISM	.053	.001	-.024	-.001	.001
RKT	<---	SKD	.077	.001	.400	.005	.001
RKT	<---	SHE	.056	.001	.090	.002	.001

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Parameter			SE	SE-SE	Mean	Bias	SE-Bias
RKT	<---	EE	.049	.000	.323	.001	.001
RKT	<---	SA	.065	.001	.442	-.001	.001
Per	<---	RKT	.039	.000	.676	-.001	.001
SA5	<---	SA	.016	.000	1.012	.000	.000
SA4	<---	SA	.018	.000	1.009	.000	.000
SA3	<---	SA	.019	.000	.967	.001	.000
SA2	<---	SA	.015	.000	.984	.000	.000
SA1	<---	SA	.000	.000	1.000	.000	.000
SA6	<---	SA	.018	.000	.996	.000	.000
RKT4	<---	RKT	.025	.000	1.028	.001	.000
RKT3	<---	RKT	.026	.000	1.030	.000	.000
RKT2	<---	RKT	.025	.000	1.063	.000	.000
RKT1	<---	RKT	.000	.000	1.000	.000	.000
RKT6	<---	RKT	.023	.000	.987	.000	.000
EE6	<---	EE	.029	.000	.981	.000	.000
EE5	<---	EE	.027	.000	1.007	.000	.000
EE3	<---	EE	.030	.000	.972	-.001	.000
EE2	<---	EE	.027	.000	.961	.000	.000
EE1	<---	EE	.000	.000	1.000	.000	.000
EE7	<---	EE	.027	.000	.960	.000	.000
ISM3	<---	ISM	.018	.000	1.036	.001	.000
ISM2	<---	ISM	.018	.000	1.033	.001	.000
ISM1	<---	ISM	.000	.000	1.000	.000	.000
SKD4	<---	SKD	.172	.002	1.732	.023	.002
SKD3	<---	SKD	.171	.002	1.779	.023	.002
SKD2	<---	SKD	.000	.000	1.000	.000	.000
SKD5	<---	SKD	.173	.002	1.759	.023	.002
SKD6	<---	SKD	.170	.002	1.760	.023	.002
SHE5	<---	SHE	.054	.001	1.228	.002	.001
SHE4	<---	SHE	.055	.001	1.207	.003	.001
SHE3	<---	SHE	.050	.000	1.207	.002	.001
SHE1	<---	SHE	.000	.000	1.000	.000	.000
SHE6	<---	SHE	.053	.001	1.215	.002	.001
SHE7	<---	SHE	.049	.000	1.205	.002	.001
PER5	<---	Per	.037	.000	.991	.001	.001
PER4	<---	Per	.033	.000	1.032	.001	.000
PER3	<---	Per	.032	.000	.977	.000	.000
PER2	<---	Per	.031	.000	.998	.000	.000
PER1	<---	Per	.000	.000	1.000	.000	.000
PER7	<---	Per	.038	.000	.976	.000	.001
PER8	<---	Per	.035	.000	1.017	.000	.000
SA8	<---	SA	.017	.000	1.002	.000	.000
ISM4	<---	ISM	.025	.000	1.060	.001	.000
ISM5	<---	ISM	.022	.000	1.054	.001	.000
RKT7	<---	RKT	.024	.000	1.007	.000	.000

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Parameter			SE	SE-SE	Mean	Bias	SE-Bias
SKD7	<---	SKD	.167	.002	1.732	.023	.002

Tables 4.30 and 4.31 display the calculated regression weights for the full structural model. The authors identified the factors that influence subsidiary knowledge development and RKT, as well as the effect of RKT on the performance of foreign subsidiaries, based on the aim and research questions. Based on this bootstrapping assumption, if the data distribution is not normal. Selecting "Bootstrap errors" and "Bias-corrected percentile approach" displays the unstandardized regression estimates (see table 4.32) and a bootstrap confidence interval for each estimate, respectively. When 5,000 bootstrap samples are employed to "normalize" the data, the estimate can demonstrate that non-standardized values fall within the 95% confidence interval (see Table 4.33).

Table 4.32: Unstandardized Factor Loadings

Parameter			Estimate	Lower	Upper	P
SHE	<---	ISM	.554	.459	.655	.000
SKD	<---	SA	.344	.224	.488	.000
SKD	<---	EE	.095	.019	.183	.014
SKD	<---	SHE	.181	.090	.291	.001
RKT	<---	ISM	-.022	-.123	.084	.674
RKT	<---	SKD	.395	.257	.552	.000
RKT	<---	SHE	.088	-.021	.196	.116
RKT	<---	EE	.322	.229	.422	.000
RKT	<---	SA	.443	.318	.571	.000
Per	<---	RKT	.677	.603	.759	.000
SA5	<---	SA	1.012	.981	1.045	.000
SA4	<---	SA	1.009	.976	1.045	.000
SA3	<---	SA	.967	.928	1.004	.001
SA2	<---	SA	.984	.954	1.014	.000
SA1	<---	SA	1.000	1.000	1.000	...
SA6	<---	SA	.996	.960	1.032	.000
RKT4	<---	RKT	1.027	.977	1.078	.000
RKT3	<---	RKT	1.030	.982	1.085	.000
RKT2	<---	RKT	1.063	1.018	1.116	.000
RKT1	<---	RKT	1.000	1.000	1.000	...
RKT6	<---	RKT	.988	.943	1.033	.000

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Parameter			Estimate	Lower	Upper	P
EE6	<---	EE	.981	.924	1.038	.000
EE5	<---	EE	1.006	.955	1.062	.000
EE3	<---	EE	.972	.916	1.033	.000
EE2	<---	EE	.961	.909	1.015	.000
EE1	<---	EE	1.000	1.000	1.000	...
EE7	<---	EE	.959	.908	1.014	.000
ISM3	<---	ISM	1.035	1.003	1.073	.000
ISM2	<---	ISM	1.032	1.000	1.070	.000
ISM1	<---	ISM	1.000	1.000	1.000	...
SKD4	<---	SKD	1.709	1.437	2.087	.001
SKD3	<---	SKD	1.756	1.489	2.134	.001
SKD2	<---	SKD	1.000	1.000	1.000	...
SKD5	<---	SKD	1.736	1.462	2.110	.001
SKD6	<---	SKD	1.737	1.470	2.116	.001
SHE5	<---	SHE	1.225	1.129	1.341	.000
SHE4	<---	SHE	1.205	1.105	1.322	.000
SHE3	<---	SHE	1.204	1.117	1.310	.000
SHE1	<---	SHE	1.000	1.000	1.000	...
SHE6	<---	SHE	1.212	1.119	1.328	.000
SHE7	<---	SHE	1.203	1.117	1.310	.000
PER5	<---	Per	.990	.921	1.068	.000
PER4	<---	Per	1.030	.971	1.101	.000
PER3	<---	Per	.977	.917	1.041	.000
PER2	<---	Per	.999	.941	1.062	.000
PER1	<---	Per	1.000	1.000	1.000	...
PER7	<---	Per	.976	.902	1.051	.000
PER8	<---	Per	1.016	.953	1.090	.000
SA8	<---	SA	1.002	.970	1.035	.000
ISM4	<---	ISM	1.059	1.015	1.111	.000
ISM5	<---	ISM	1.052	1.013	1.101	.000
RKT7	<---	RKT	1.008	.961	1.057	.000
SKD7	<---	SKD	1.709	1.446	2.077	.001

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Table 4.32 shows that the estimates column contains factor loadings that are not normalized (same as in the previous table with ML estimates). The Lower and Upper columns contain the 95% confidence intervals' lower and upper limits, respectively, as determined by bootstrapping. Using the bootstrapped standard errors, the p-value is a normal theory test of the null hypothesis. The subsequent step is to execute Bootstrap Confidence (bias-corrected percentile method).

4.2.8.2 Bootstrap Confidence (bias-corrected percentile method)

The following table demonstrates that the standardized regression weight is.596 with a lower bound of.508 and an upper bound of.668 with 5000 subsamples, which provides stable results and a 95 percent, bias-corrected confidence interval with the maximum bootstrap likelihood that helps evaluate non-normal data and bootstrap values that fall within the confidence interval and a p-value of 0.001. Consequently, each regression model will provide a bootstrap estimate (Table 4.33).

Table 4.33: Bootstrap Confidence (Bias-Corrected Confidence Method)

Parameter			Estimate	Lower	Upper	P
SHE	<---	ISM	.596	.508	.668	.000
SKD	<---	SA	.395	.260	.519	.000
SKD	<---	EE	.149	.028	.272	.015
SKD	<---	SHE	.253	.120	.387	.001
RKT	<---	ISM	-.024	-.133	.091	.677
RKT	<---	SKD	.283	.193	.363	.001
RKT	<---	SHE	.088	-.021	.200	.117
RKT	<---	EE	.363	.265	.466	.000
RKT	<---	SA	.364	.263	.458	.000
Per	<---	RKT	.747	.692	.796	.000
SA5	<---	SA	.950	.929	.967	.000
SA4	<---	SA	.957	.941	.970	.001
SA3	<---	SA	.964	.948	.976	.001
SA2	<---	SA	.957	.939	.971	.001
SA1	<---	SA	.968	.953	.978	.001
SA6	<---	SA	.942	.917	.961	.000
RKT4	<---	RKT	.961	.943	.974	.001
RKT3	<---	RKT	.954	.938	.968	.000
RKT2	<---	RKT	.962	.948	.972	.001
RKT1	<---	RKT	.961	.945	.973	.001
RKT6	<---	RKT	.949	.928	.966	.000
EE6	<---	EE	.932	.912	.949	.000
EE5	<---	EE	.954	.938	.967	.001
EE3	<---	EE	.946	.927	.960	.000
EE2	<---	EE	.948	.932	.962	.000
EE1	<---	EE	.971	.958	.980	.001
EE7	<---	EE	.948	.933	.961	.001
ISM3	<---	ISM	.959	.940	.974	.000
ISM2	<---	ISM	.956	.937	.970	.000

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Parameter			Estimate	Lower	Upper	P
ISM1	<---	ISM	.942	.916	.962	.000
SKD4	<---	SKD	.981	.970	.988	.001
SKD3	<---	SKD	.983	.973	.990	.001
SKD2	<---	SKD	.641	.542	.733	.000
SKD5	<---	SKD	.984	.976	.990	.001
SKD6	<---	SKD	.989	.981	.993	.001
SHE5	<---	SHE	.965	.950	.975	.001
SHE4	<---	SHE	.968	.956	.977	.001
SHE3	<---	SHE	.972	.961	.981	.001
SHE1	<---	SHE	.838	.788	.879	.000
SHE6	<---	SHE	.962	.946	.973	.001
SHE7	<---	SHE	.962	.947	.974	.000
PER5	<---	Per	.891	.853	.921	.000
PER4	<---	Per	.934	.908	.953	.001
PER3	<---	Per	.903	.868	.930	.000
PER2	<---	Per	.929	.904	.950	.000
PER1	<---	Per	.924	.893	.948	.000
PER7	<---	Per	.884	.845	.915	.000
PER8	<---	Per	.908	.877	.932	.001
SA8	<---	SA	.943	.923	.959	.000
ISM4	<---	ISM	.949	.923	.968	.001
ISM5	<---	ISM	.950	.924	.967	.001
RKT7	<---	RKT	.966	.950	.977	.001
SKD7	<---	SKD	.985	.976	.990	.001

Note: P-value fall within the confidence interval (p-value of 0.01)

4.2.8.3 Model fit Summary

According to the bootstrap model fit report, the bootstrap model also fits the data and has attained an acceptable level of fit.

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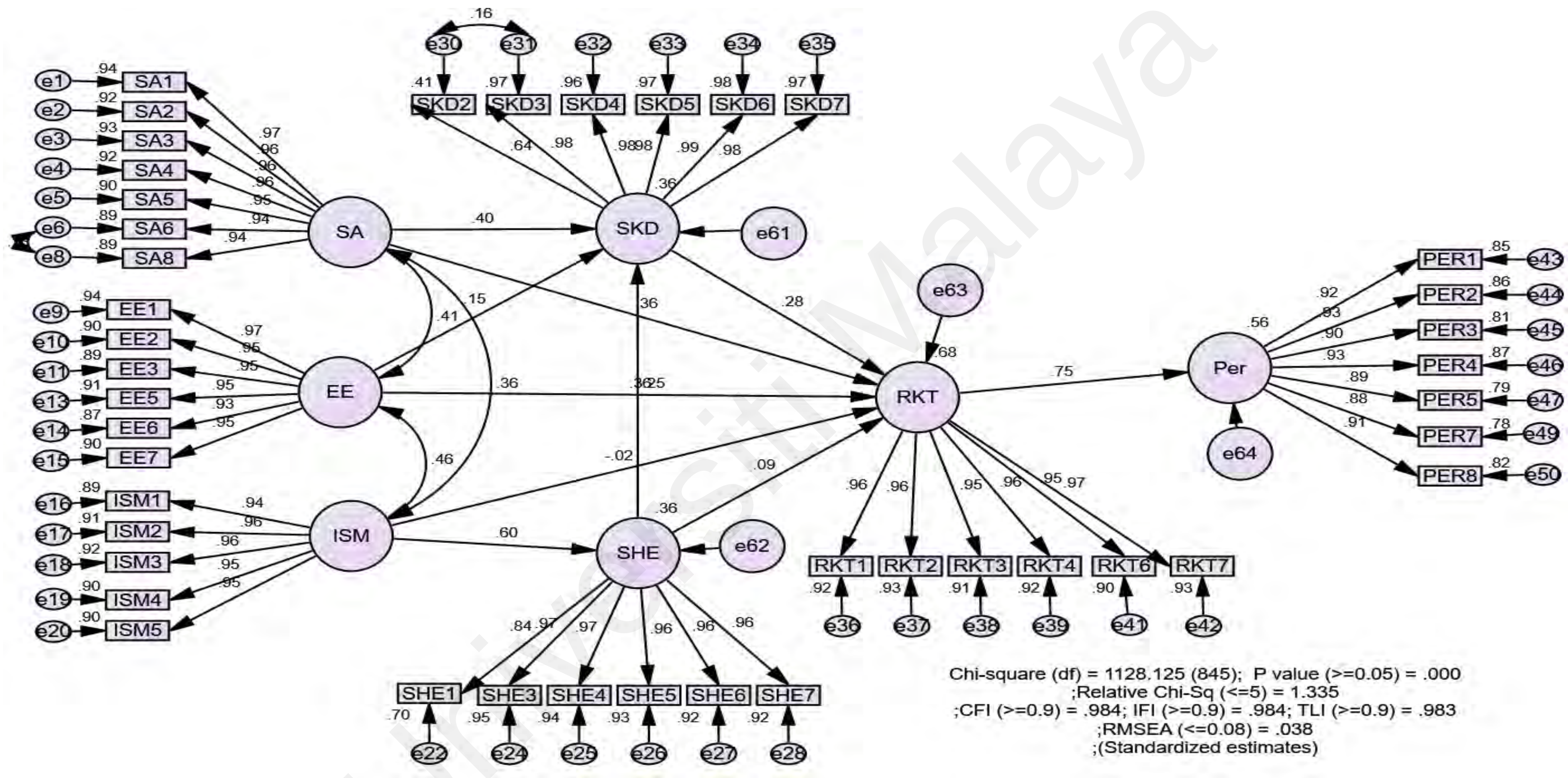

Figure 4.12: Full Structural Model to Test Non-Normal Data

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As depicted in Figure 4.12, most indices, such as the relative Chi-square with a value of 1.335 (less than the desired value of 5) and the CFI with values more than 0.9, indicate that the model best fits the data (0. 984). In addition, the modified model adequately fitted the data based on an RMSEA of 0.038, less than the target value of 0.08, and a standard RMR of.096 (see Table 4.37).

4.2.8.4 Model Fit with a Bootstrap Estimate

The Bollen-Stine Estimate research attempts to estimate model fit throughout all bootstrap samples. The model's fit may be problematic if the study obtains a significant bootstrap estimate. The Bollen and Stine Estimate only considers Chi-square values, which, as we know, can be problematic for large sample sizes. The goodness of fit (CFI, IFI) and badness of fit estimations (RMSEA) should always be used to assess model fit. It appears non-significant that this study's model fit does not produce significantly inferior outcomes. It indicates that the model fit better in 4139 bootstrap samples, fit equally well in 0 bootstrap samples, and fit worse or failed to fit in 861 bootstrap samples. When testing the null hypothesis that the model is correct, Bollen-Stine is non-significant, indicating that the model still fits well (bootstrap p =.172). The following table displays the Bollen-Stine P-value result.

Table 4: 34: Bollen-Stine Bootstrap (Default Model)

The model fit better in 4139 bootstrap samples.
It fits about equally well in 0 bootstrap samples.
It fit worse or failed to fit in 861 bootstrap samples.
Testing the null hypothesis that the model is correct, **Bollen-Stine bootstrap p = .172**

(Note: Bollen-Stine value must be non-significant to an adequate fit of the model)

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4.2.8.5 Summary of Bootstrap Iteration

The following table shows the summary of bootstrap iteration and bootstrap distribution.

Table 4.35: Summary of Bootstrap Iterations (Default Model)

Iterations	Method 0	Method 1	Method 2
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	44	0
9	0	654	0
10	0	1071	0
11	0	1558	0
12	0	756	0
13	0	513	0
14	0	226	0
15	0	118	0
16	0	34	0
17	0	12	0
18	0	10	0
19	0	4	0
Total	0	5000	0

0 bootstrap samples were unused because of a singular covariance matrix.

0 bootstrap samples were unused because a solution was not found.

5000 usable bootstrap samples were obtained.

4.2.8.6 Bootstrap Distribution of Chi-Square Value

If it appears that the chi-square value is 1128.125 and it falls inside the distribution of non-normal data, the h bootstrap process will validate the outcome. Even though the data may be slightly skewed or there may be some kurtosis, offer estimates and bootstrap

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estimates that provide additional prudence in stating that the results still fall within the confidence interval and that we have some confidence in the outcome.

Table: 4.36: ML discrepancy (implied vs. sample) (Default Model)

```
                                      |--------------------
                          655.461     |*
                          717.295     |*
                          779.129     |***
                          840.963     |*********
                          902.796     |***************
                          964.630     |********************
                         1026.464     |********************
N = 5000                 1088.298     |*****************
Mean = 1014.462          1150.131     |***********
S. e. = 1.694            1211.965     |******
                         1273.799     |***
                         1335.633     |*
                         1397.466     |*
                         1459.300     |*
                         1521.134     |*
                                      |--------------------
```

Table 4.37: Model Fit Measures

Measure	**Estimate**	**Threshold**	**Interpretation**
CMIN	1128.125	--	--
DF	845.000	--	--
CMIN/DF	1.335	Between 1 and 3	Excellent
CFI	0.984	>0.95	Excellent
SRMR	0.096	<0.08	Acceptable
RMSEA	0.038	<0.06	Excellent
PClose	1.000	>0.05	Excellent

Congratulations, your model fit is excellent!

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Table 4.38: Cutoff Criteria*

Measure	Terrible	Acceptable	Excellent
CMIN/DF	> 5	> 3	> 1
CFI	<0.90	<0.95	>0.95
SRMR	>0.10	>0.08	<0.08
RMSEA	>0.08	>0.06	<0.06
PClose	<0.01	<0.05	>0.05

*Note: Hu and Bentler (1999, "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives") recommend combinations of measures. The preferred criteria are CFI>0.95 and SRMR<0.08. To further solidify evidence, add the RMSEA<0.06.

Table 4.37 above was generated using the model fit, where the plugin estimates and assesses the model based on the dataset, demonstrating an acceptable degree of model fitness (Gaskin & Lim, 2016). According to Collier (2020), if the Bollen-Stine bootstrap is rejected (i.e., finding a significant result at p<.05), the researcher should halt their investigation because the outcome indicates that the model does not effectively describe the data. Since Bollen-Stine is very sensitive to sample size, it is recommended to test model fit using a variety of goodness and badness of fit indices. Bollen-Stine provides access to chi-square values; however, displaying results using various model fitting options is typically better. The hypothesis can be accepted since the Bollen-Stine Chi-Square value is within the acceptable ranges. No additional tests are necessary to determine whether a model's fit is good or poor.

4.2.9 Full Structural Model Analysis

In the preceding part, this research addresses non-normal data and analyses via multiple processes, including bootstrapping and Bollen-Stine Chi-Square distribution for model fit concern. A structural model is a substantive theory based on empirical data and a hypothesized model. The SEM frequently illustrates a grouping of hypotheses based on

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the association between variables. Typically, the structural model is built to examine the hypothesized link between exogenous and endogenous variables after describing and validating the measurement model. This section analyses and evaluates the respective structural model in light of the objectives and the hypothesized relationship between variables.

4.2.9.1 Results Related to Objectives

To fulfil the study's first objective, namely, to ascertain the direct effect of an exogenous variable on subsidiary performance, the first structural model, depicted in Figure 4.6, was developed. This study examines the effect of exogenous/independent variables such as subsidiary autonomy, internal socialization, mechanism, and external embeddedness on endogenous variables such as subsidiary knowledge development, RKT, subsidiary headquarters embeddedness, and subsidiary performance. The structural model revealed that the model suited the data reasonably well. The results indicated that the relative Chi-square/df value was greater than the five recommended values based on the fit indices. The incremental fit indices TLI, IFI, and CFI, exceeded the suggested value of 0.9 (0.983, 0.984, and 0.984, respectively). As a result, the model exactly suited the data. Additionally, the RMSEA values (0.038) were less than the acceptable range of 0.08 or below, indicating that the model fit was perfect. Three exogenous variables, subsidiary autonomy, external embeddedness, and subsidiary headquarter embeddedness, account for 36.5 percent of the variance in subsidiary knowledge development.

Similarly, one exogenous variable, internal socialization mechanism, could account for 36.7% of the variance in subsidiary headquarter embeddedness; subsidiary autonomy, external embeddedness, subsidiary headquarters embeddedness, internal socialization mechanism, and subsidiary knowledge development could account for 68 % of the variance in RKT. Finally, RKT may account for a difference of 55.7% in subsidiary performance. Table 4.39 demonstrates that RKT contributed the most to subsidiary performance (=0.747).

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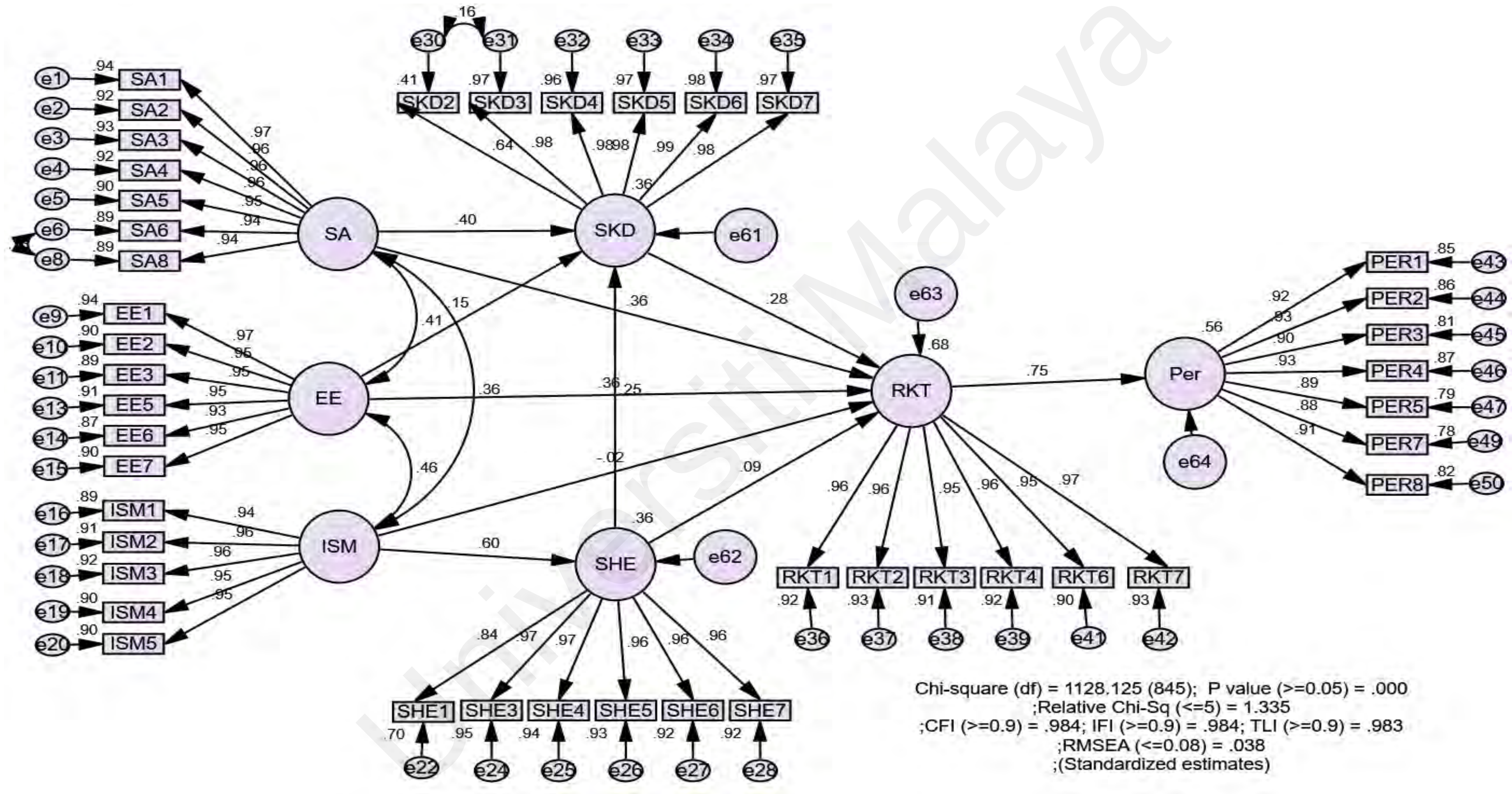

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Figure 4.12: Structural Model

The structural model is based on data whose applicability to the model has been evaluated. This investigation followed various procedures to confirm the normality of the data (i.e., MVN online test, Web Power, and Monte Carlo method in SPSS). This study evaluates the normality of AMOS after analyzing the measurement of the model, which reveals that the data is normally distributed. In contrast, the current work utilized bootstrapping and the Bollen and Stine test to investigate the impact of research data on model fit. This study found no statistically significant difference between bootstrapping and non-bootstrapping model fits. As other MVN tests and the normality test in AMOS indicate that the data have not deviated from normality, it may be inferred that the Mardia test poses no significant issue in running or examining the structural model. Following table 4.39 shows the hypotheses result of the study.

Table 4.39: Regression Weights in the Structural Model and Hypotheses

Hypotheses			Beta	B	S.E.	C.R.	P	Comments
Subsidiary Autonomy	→	Subsidiary Knowledge Development	0.395	0.344	0.59	5.812	***	Supported
External Embeddedness	→	Subsidiary Knowledge Development	0.149	0.095	0.043	2.209	0.027	Supported
Subsidiary Autonomy	→	Reverse Knowledge Transfer	0.364	0.443	0.060	7.428	***	Supported
External Embeddedness	→	Reverse Knowledge Transfer	0.363	0.322	0.044	7.248	***	Supported
Internal Socialization Mechanism	→	Reverse Knowledge Transfer	-.024	-.022	0.047	-0.477	0.633	Not Supported
Internal Socialization Mechanism	→	Subsidiary Headquarter Embeddedness	0.596	0.554	0.057	9.738	***	Supported
Subsidiary Headquarter Embeddedness	→	Reverse Knowledge Transfer	0.088	0.088	0.055	1.608	0.108	Not Supported
Subsidiary Knowledge Development	→	Reverse Knowledge Transfer	0.283	0.395	0.074	5.316	***	Supported
Reverse Knowledge Transfer	→	Subsidiary Performance	0.747	0.677	0.045	14.983	***	Supported
Subsidiary Headquarter Embeddedness	→	Subsidiary Knowledge Development	0.253	0.181	0.049	3.663	***	Supported

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Table 4.39 shows the hypotheses test result. The following section will illustrate the description of each hypothesis.

4.2.9.2 Hypotheses Testing

The hypothesis-testing summary and the clarification of each hypothesis explain explicitly below.

H1: The greater the autonomy of the subsidiary, the more it will produce new knowledge.

The finding showed that C.R. and p-value are 5.812 (> 1.96) and 0.000 ($p < 0.05$), respectively. The hypothesis is supported, meaning that subsidiary autonomy has a positive and significant relationship with subsidiary knowledge development. Subsidiary autonomy affects 0.395 ($\beta = 0.395$) on subsidiary knowledge development.

H2: The more closely subsidiaries' relationships with their local actors are rooted, the more new knowledge is developed.

The finding showed that C.R. and p-value are 2.209 (> 1.96) and 0.027 ($p < 0.05$), respectively. The hypothesis is supported, meaning external embeddedness positively and significantly affects subsidiary knowledge development. External embeddedness affects 0.149 ($\beta = 0.149$) on subsidiary knowledge development.

H3: The higher the degree of subsidiary autonomy, the higher the degree of RKT

The outcomes showed that C.R. and p-value are 7.428 (> 1.96) and 0.000 ($p < 0.05$), respectively. The hypothesis is accepted that it depicted that subsidiary autonomy has a positive and significant relationship with RKT. Subsidiary autonomy affects 0.364 ($\beta = 0.364$) on RKT.

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H4: The stronger the subsidiary is embedded in its local environment, the higher the RKT.

The finding showed that C.R. and p-value are 7.248 (> 1.96) and 0.000 ($p < 0.05$), respectively. The hypothesis is also supported, which means that external embeddedness positively and significantly affects RKT. External embeddedness has an effect of 0.363 ($\beta = 0.363$) on RKT.

H5: The greater the extent to which internal socialization mechanisms are used, the greater the extent to which RKT increases.

The finding showed that C.R. and p-value are -0.477 (<1.96) and 0.633 ($p > 0.05$), respectively. The hypothesis is unaccepted, meaning the internal socialization mechanism does not affect RKT.

H6: The more organizational structures (internal socialization mechanism) are used, the more deeply the subsidiary is intertwined or embedded with its headquarters.

The results showed that C.R. and p-value are 9.738 (>1.96) and 0.000 ($p< 0.05$), respectively. The hypothesis supported that the internal socialization mechanism significantly affects subsidiary headquarters' embeddedness. The internal socialization mechanism affects subsidiary knowledge development by 0.596 ($\beta = 0.596$).

H7: The greater the subsidiary's ties to its parent company, the more it engages in reverse knowledge transfer.

The finding showed that C.R. and p-value are 1.608 (<1.96) and 0.108 ($p > 0.05$), respectively. The hypothesis is not supported, which means that subsidiary headquarters embeddedness does not affect RKT.

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H8: The degree to which subsidiaries develop knowledge, the greater the extent of RKT.

The finding showed that C.R. and p-value are 5.316 (> 1.96) and 0.000 ($p < 0.05$), respectively. The hypothesis is supported, implying that subsidiary knowledge development positively and significantly affects RKT. Moreover, subsidiary knowledge development affects 0.283 ($\beta = 0.283$) on RKT.

H9: The more interconnected or embedded the subsidiary with its headquarters, the more subsidiary knowledge develops.

The finding showed that C.R. and p-value are 3.633 (> 1.96) and 0.000 ($p < 0.05$), respectively. The hypothesis is supported, which shows that subsidiary-headquarters embeddedness significantly affects subsidiary knowledge development. Moreover, subsidiary-headquarters embeddedness affects subsidiary knowledge development by 0.253 ($\beta = 0.253$).

H10: The higher the extent of reverse knowledge transfer, the greater the degree of subsidiary performance.

The finding showed that C.R. and p-value are 14.983 (> 1.96) and 0.000 ($p < 0.05$), respectively. The accepted hypothesis indicated that RKT positively and significantly affects subsidiary performance. Moreover, RKT has an effect of 0.747 ($\beta = 0.747$) on subsidiary performance.

4.2.9.3 Summary of the Direct Effects

The SEM model's output indicated which hypotheses were accepted or rejected. Eight of ten direct hypotheses were supported, while the other two were rejected, as determined using a structural model.

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Table 4.40: Summary of the Results of Hypotheses Testing

Hypothesis 1	The greater the autonomy of the subsidiary, the more it will produce new knowledge.	Supported
Hypothesis 2	The more closely subsidiaries' relationships with their local actors are rooted, the more new knowledge is developed.	Supported
Hypothesis 3	The higher the degree of subsidiary autonomy, the higher the degree of RKT.	Supported
Hypothesis 4	The stronger the subsidiary is embedded in its local environment, the higher the RKT.	Supported
Hypothesis 5	The greater the extent to which internal socialization mechanisms are used, the greater the extent to which RKT increases.	Not Supported
Hypothesis 6	The more organizational structures (internal socialization mechanism) are used, the more deeply the subsidiary is intertwined or embedded with its headquarters.	Supported
Hypothesis 7	The greater the subsidiary's ties to its parent company, the more it engages in reverse knowledge transfer.	Not supported
Hypothesis 8	The degree to which subsidiaries develop knowledge, the greater the extent of RKT.	Supported
Hypothesis 9	The more interconnected or embedded the subsidiary is with its headquarters, the more subsidiary knowledge develops.	Supported
Hypothesis 10	The higher the extent of reverse knowledge transfer, the greater the degree of subsidiary performance.	Supported

4.2.9.4 Mediation Model

The study opted to investigate the mediating roles of SKD and SHE in the relationships among SA, EE, and ISM with RKT. The following section discusses the mediation effect.

4.2.9.5 Assessment of the Mediation Model

The researcher conducted the multi-model analysis to test the mediating impacts of subsidiary knowledge development in the relationship of subsidiary autonomy, external embeddedness, and subsidiary headquarters embeddedness with RKT. As exhibited in 4.13 and 4.14, the model intended to examine the mediating impact of SKD depicted two models: the full mediating model showing the whole identified paths connecting

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variables, and the direct model, which showed the link between SA, EE, and SHE with RKT.

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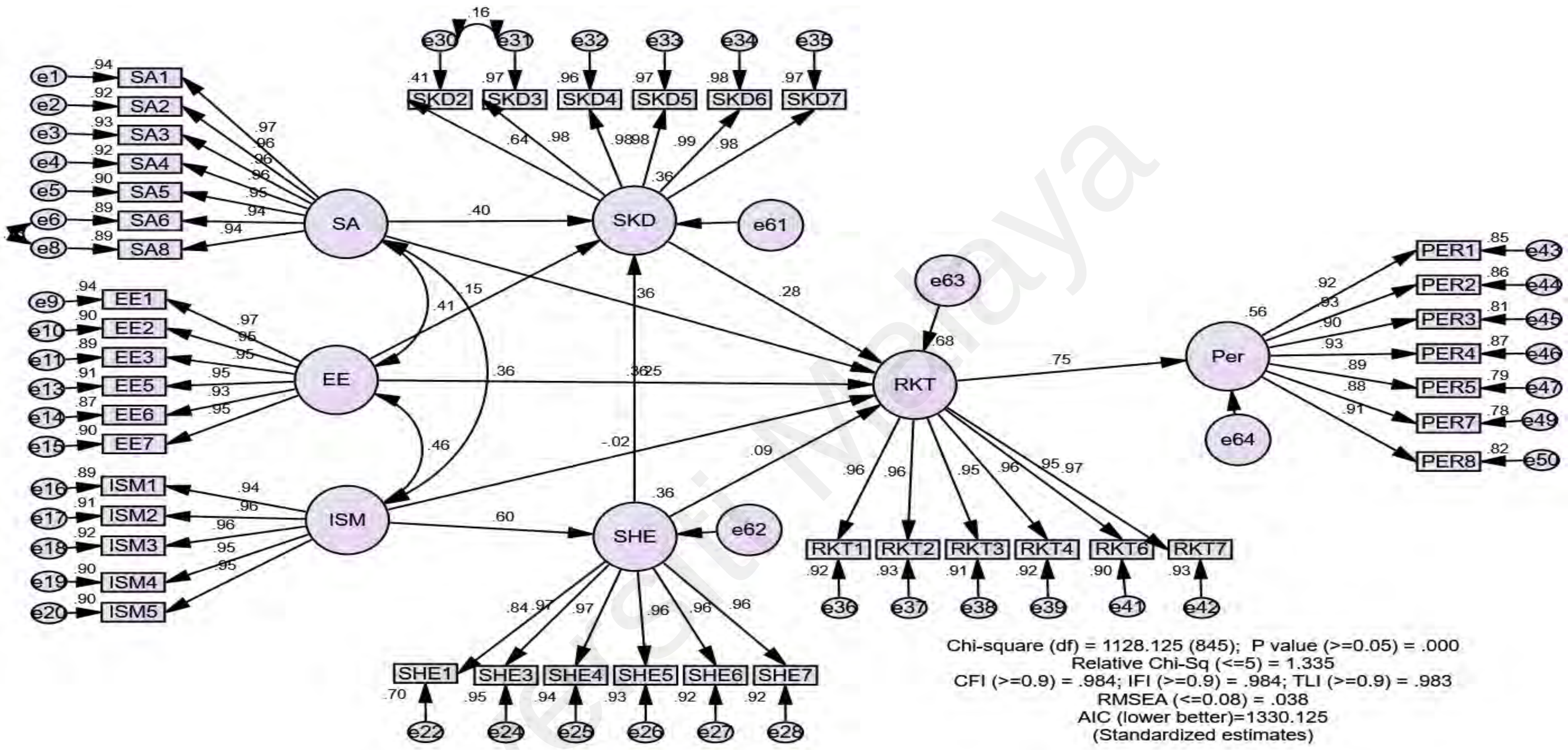

Figure 4.13: Mediation Analysis and Assessment

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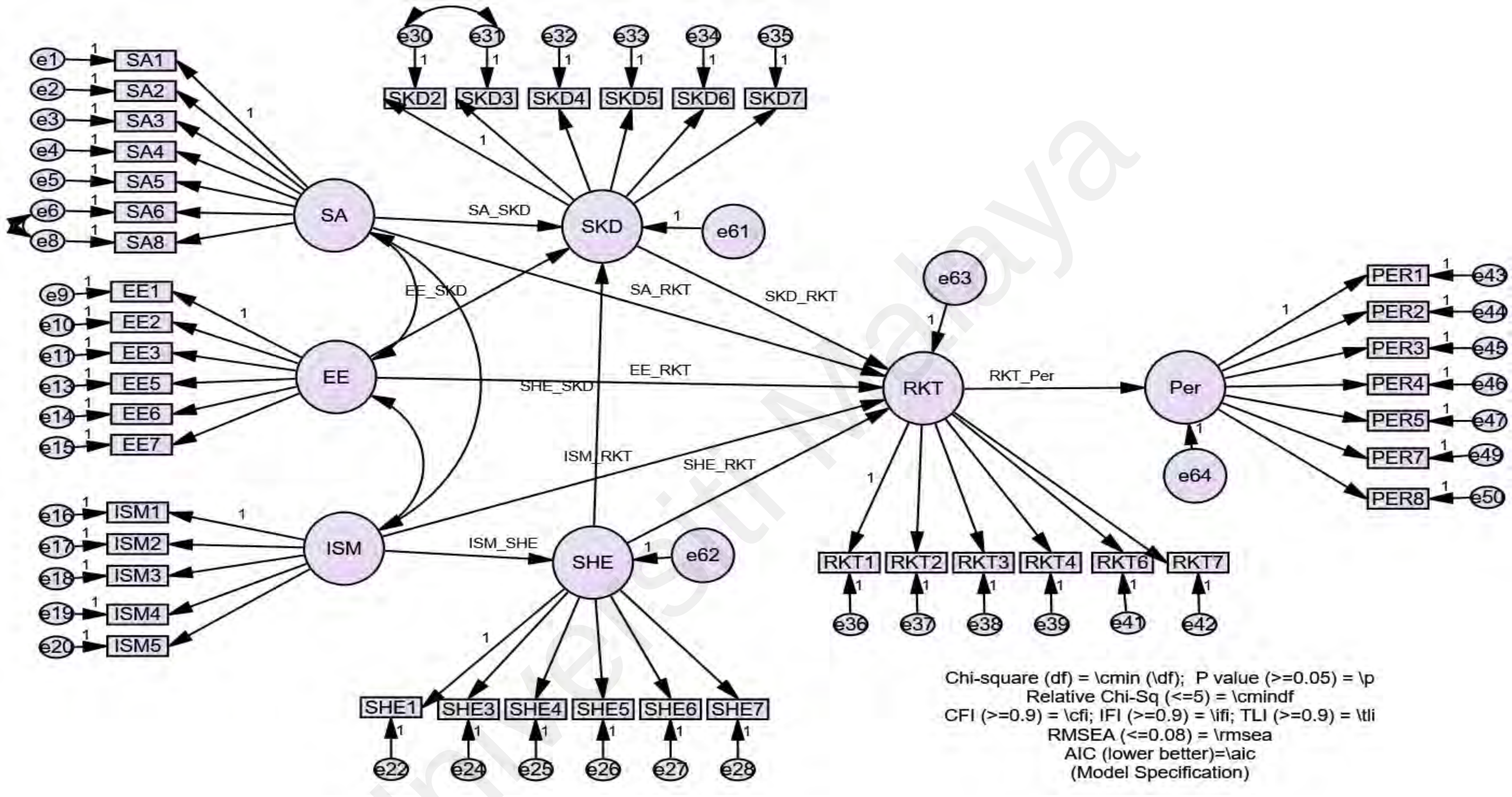

Figure 4.14: Mediation Path Model

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The following Table 4.41 summarizes the goodness-of-fit level determined by the multi-model study. It was determined that when both models were considered, substantial Chi-square/df values indicated an excellent match to the data (1.338 and 1.840, respectively) for the mediating and direct models. Additionally, both models fit the data since their fitness indices were greater than the threshold value (0.90), as measured by IFI (0.985, 0.961) and CFI (0.985, 0.961) for mediating and direct models, respectively. Additionally, both the mediating and direct models had RMSEA values of 0.038 and 0.060, respectively, which were less than the suggested range of 0.08, indicating that the fit of both models could be accepted.

Table 4.41: Model Fit Summary for Mediation Model

Model	NPAR	CMIN	DF	P	CMIN/DF	IFI	CFI	RMSEA
Mediation	101	1128.125	845	0.000	1.335	0.984	0.984	0.038

The mediation model sufficiently fits the data, and the Akaike Information Criterion (AIC) effect for the whole mediation model (1330.125) is acceptable. In addition, the parsimony normed fit index (PNFI) for the mediation model (0.880) was satisfactory. According to Hooper et al. (2008), a smaller value of AIC and a higher value of PNFI indicated a model with a strong fit.

Although both models fitted the data adequately, the full mediation model (1331.104) had a smaller Akaike Information Criterion (AIC) compared to the direct model (1755.347). Moreover, the parsimony normed fit index (PNFI) value for the entire mediation model (0.883) was greater than the PNFI value for the direct model (0.869). Based on Hooper et al. (2008), the smaller value of AIC and a greater value of PNFI suggested a good-fitting model. Therefore, the full mediation model was preferred.

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4.2.9.6 The Mediation Role of SKD

To test the mediating effects of subsidiary knowledge development in the relationship of subsidiary autonomy (SA), external embeddedness (EE), and subsidiary headquarters embeddedness (SHE) with RKT, the standard theory method developed by Baron and Kenny (1986) tested the mediation effects. Based on Baron and Kenny's approach, the mediation is not supported if the relationship between the independent and dependent variables remains significant and unchanged once the mediation variable is included in the model. If the relationship between the independent and dependent variables is reduced but remains substantial when the mediation variable is included as an additional predictor, partial mediation is supported. Suppose the relationship between the independent and dependent variables is reduced to the point that is not significant after the mediation variable is included. In that case, full mediation is supported" (Hair et al., 2007, p. 867). The study utilized Baron and Kenny’s (1986) method, and the necessary prerequisites were considered, among which was a significant relationship between the mediating and dependent variables (Hair et al., 2017). The first place of this method was to appraise the initial model, taking into account only the direct effect between the independent and dependent variables. A second model was calculated through the subsequent stage, wherein the mediating variable could be added to the model while estimating the two additional paths between the independent to mediation variables and mediation to the dependent variable (Hair et al., 2017). According to assumptions by Hair et al. (2017), the mediating effects of subsidiary knowledge development in the relationship of subsidiary autonomy, external embeddedness, and subsidiary headquarters embeddedness with RKT were discussed. As shown in the direct model, SA, EE, and SHE are independent variables that explained 60.30% of the variance of reverse knowledge transfer (RKT). In comparison, in the full mediation model, the variance of RKT was 68.00%. This indicated that SKD had key roles in mediating the relationships between SA, EE, SHE with RKT. Therefore, the hypotheses related to the mediating role of SKD in the relationship between SA, EE, SHE with RKT was discussed in this section. The results of the full mediation, indirect and direct models are displayed in table 4.42.

Table 4.42: The Regression Weight in the Mediation, Indirect, and Direct Model

Relation	Effect of IV on M(a)		Effect of M on DV (b)		Total Effect of IV on DV (c)	Direct Effect of IV on DV (c')		Bootstrap results for indirect effects through a mediator (ab)			Mediation
	B	t	*B*	T	*B*	*B*	t	Standardized Beta	LL 95% CI	UL 95% CI	
EE-SKD-RKT	0.095*	2.209	0.395**	5.316	0.360*	0.322**	7.248	B = 0.038**	0.010	0.080	Yes
SA-SKD-RKT	0.344**	5.812	0.395**	5.316	0.579*	0.443**	7.428	B = 0.136**	0.086	0.227	Yes
SHE-SKD-RKT	0.181**	3.663	0.395**	5.316	0.160*	0.088	1.608	B=0.072**	0.034	0.111	Yes
ISM-SHE-RKT	0.554**	9.738	0.088	1.608	0.066	-0.022	-0.477	B=0.088**	*0.029*	0.165	Yes

H11a: The relationship between subsidiary autonomy and RKT is mediated through subsidiary knowledge development.

According to Table 4.42, mediation analysis was performed to assess the mediation role of SKD in the relationships between SA and RKT. The results (see Table 4.27) revealed a significant link between SA and RKT, and the direct effect is (β=.443, t = 7.428, p <.001). This path was also significant in the mediation model (=0.579, P>0.001). At the 95 percent confidence level for indirect effect, bootstrapping 5000 subsamples with a biased corrected confidence interval (BC CI) revealed that the standardized indirect impact was significant at 0.136; the lower bound (0.086) and upper bound (0.227) both contained non-zero values, and the p-value was 0.000. Therefore, H11a is supported.

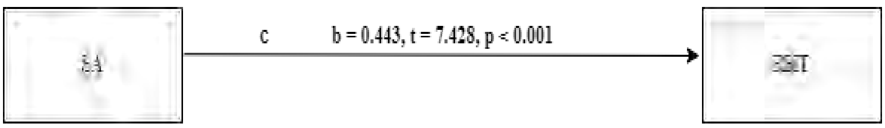

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Figure 4.15: Direct Model without the Mediator

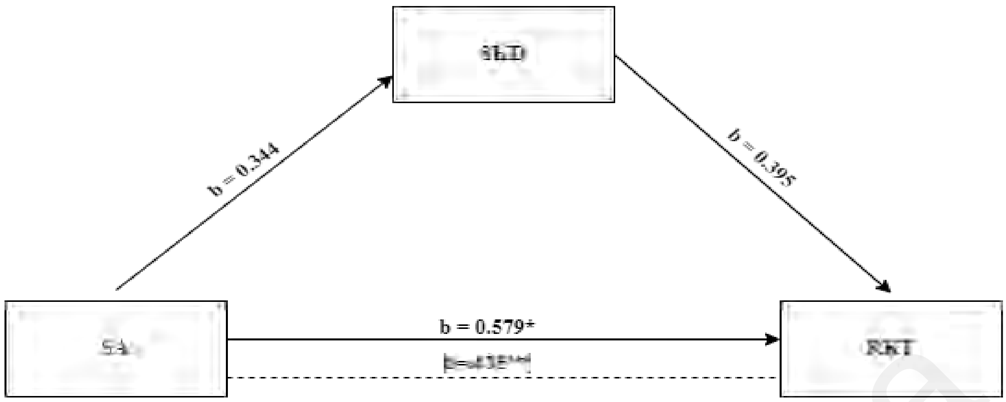

Figure 4.16: Full Mediation Model with the Mediator

The effect of the direct model without a mediator and the full mediation model with a mediator is depicted in Figures 4.15 and 4.16. Indirect is statistically significant, as demonstrated by this result. Due to the magnitude of the direct and indirect effects, SKD acted as a partly mediating factor in the association between SA and RKT.

H11b: The relationship between external embeddedness and RKT is mediated by subsidiary knowledge development.

Table 4.42 shows that there is a substantial association between EE ($\beta = 0.322$, $P < 0.001$) in the direct model, and EE is a significant predictor in the entire mediation model ($\beta = 0.360$, $P > 0.001$). At 95% confidence interval for indirect effect, bootstrapping of 5000 subsamples with a biased corrected confidence interval (BC CI) was performed, and it was found that the standardized indirect effect was significant at the value of the standardized indirect effect coefficient, which was 0.038; lower bound (0.010) and upper bound (0.080) belonged to a non-zero value, and the p-value was 0.020. Hence, mediation is supported.

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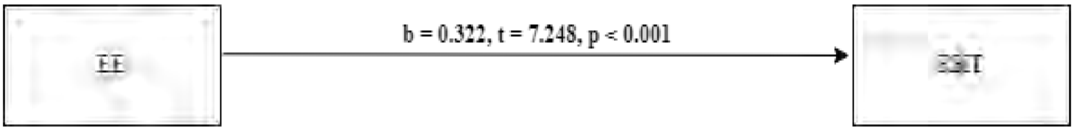

Figure 4.17: Direct Model without the Mediator

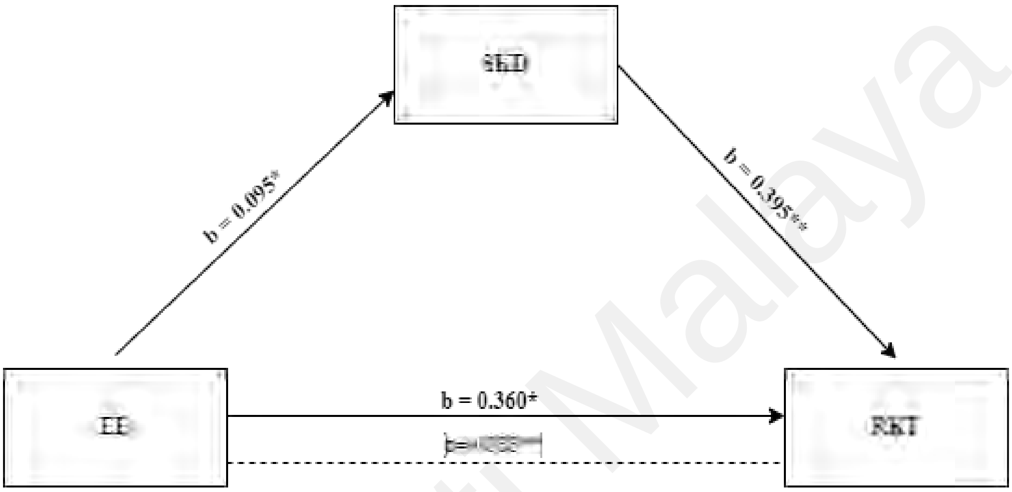

Figure 4.18: Full Mediation Model with the Mediator

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The effects of the direct model without a mediator and the full mediation model with a mediator are depicted in Figures 4.17 and 4.18. The finding, however, indicated that indirect is statistically significant. Since both direct and indirect effects are significant, SKD mediated the relation between EE and RKT partially.

H11c: The relationship between subsidiary headquarters embeddedness and RKT is mediated by subsidiary knowledge development.

According to Table 4.42, there was no significant association between SHE (β =0.088, t=1.608 P<0.108) in the direct model; however, this path is significant in the entire mediation model (β =0.160, P <0.001). Bootstrapping 5000 subsamples with a biased corrected confidence interval (BC CI) at the 95 percent confidence level revealed that the standardized indirect impact was significant at 0.072; both the lower bound (0.034) and upper bound (0.111) belonged to a non-zero value, and the p-value was 0.004. Indirect is statistically significant, as demonstrated by this result. The direct effect is significant, while the indirect influence is significant. As a result, SKD mediates between SHE and RKT.

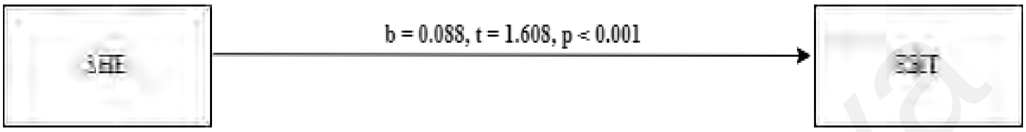

Figure 4.19: Direct Model without the Mediator

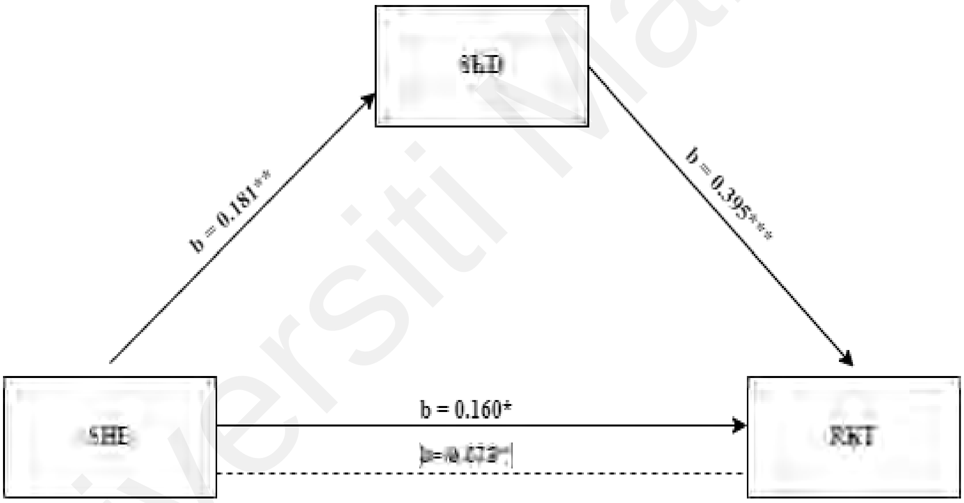

Figure 4.20: Full Mediation Model with the Mediator

Above 4.19 and 4.20 illustrate the direct model's effect in the absence of mediation and the entire mediation test in the presence of a mediator. Because of the analysis, it was determined that indirect is statistically significant. The direct impact is significant, while the indirect impact is significant. As a result, SKD did act as a mediator between SHE and RKT.

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H11d: Subsidiary headquarter embeddedness acts as a mediator between internal socialization mechanisms and RKT.

The figure showed that based on the direct model, there was a not significant relationship between ISM (β= -0.022, t=-0.477 P<0.001); in the full mediation model, this path was not significant (β= 0.066, P = 0.718). At 95% confidence interval for indirect effect, bootstrapping of 5000 subsamples with a biased corrected confidence interval (BC CI) was conducted, and it was found that the standardized indirect effect was significant as the β value was 0.088; lower bound (0.029) and upper bound (0.165) belonged to a non-zero value, and the p-value was 0.007.

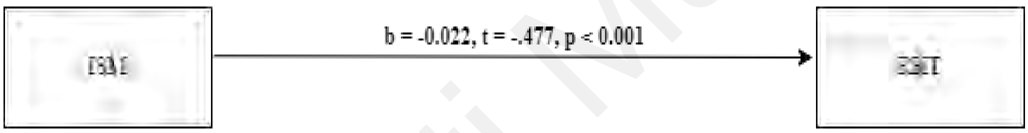

Figure 4.21: Direct Model without Mediator

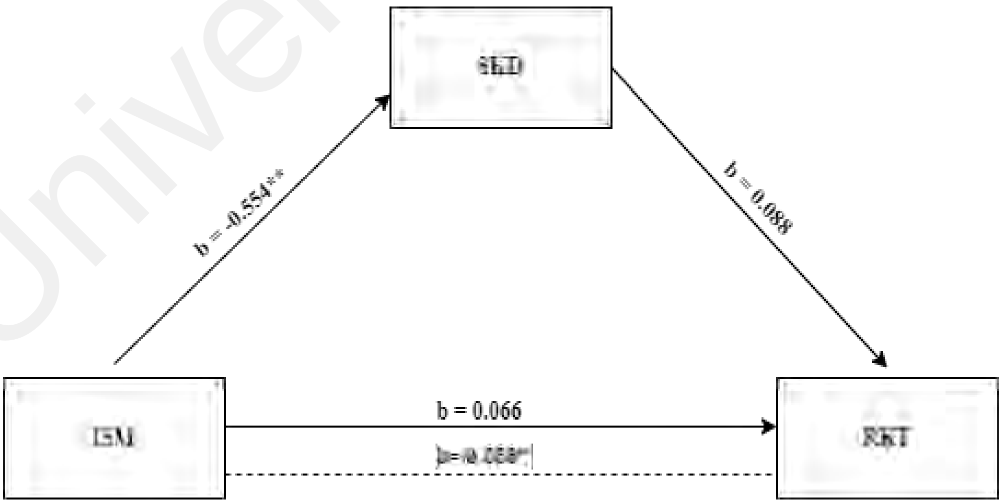

Figure 4.22: Full Mediation Model with the Mediator

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Therefore, Figures 4.21 and 4.22 illustrate the effect of the direct model without mediation and the full mediation model. Therefore, SHE mediates the relationship between ISM and RKT.

4.2.9.7 Summary of the Mediation Effects

The study investigated four mediation roles in the conceptual model. RKT was found to be a partial mediator in three relationships; it is complete mediation in one relationship. Table 4.43 shows the mediation effects of this study.

Table 4.43: Summary of Mediation Effect

Path Coefficient		Mediator	Result
SA	RKT	SKD	Partial Mediation
EE	RKT	SKD	Partial Mediation
SHE	RKT	SKD	Full Mediation
ISM	RKT	SHE	Full Mediation

4.2.9.8 The Limitation of Baron Kenny’s Approach and Reason for Using Hayes Method

The causal-steps technique developed by Baron and Kenny is a well-known method for comprehending the mediation theory. Recent developments in the literature on mediation strongly dissuade researchers from employing Baron Kenny's method due to its substantial limitations (Aguinis et al., 2017). Constraints include insufficient statistical power, difficulty assessing the significance of indirect effects, and the inability to quantify mediation effects (Hayes, 2017). In light of these limitations, it seems likely that adopting Baron and Kenny's methodology will result in erroneous conclusions, the rejection of potentially essential theoretical linkages, and the obstruction of the development of future theories (Rungtusanatham et al., 2014). Besides, Hayes's (2009) approach to mediation analysis may be suitable for achieving a more substantial and accurate result. Therefore, in order to avoid the limitations of the Baron Kenney technique, the mediation impact of the Hayes process macro is examined in this thesis. In addition, the results of the two mediation analysis methods will

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be compared to determine whether there are any significant differences. If sequential mediation is to be analyzed, it is advisable to utilize Hayes's (2009) methodology.

4.2.9.9 Process Macro Analysis Outcomes for Evaluating Research Models/Hypotheses

Despite its prominence in the scientific literature, Baron and Kenny's (1986) technique for testing mediation has two significant flaws. Before testing for mediation, the first error fails to demand a statistically significant overall effect of X on Y. The second refers to the necessity of creating mediation if the introduction of M weakens an X-Y relationship that was previously important. This study used and adhered to Baron and Kenny (1986) and Preacher and Hayes's (2008) strategies. Hayes et al. (2017) claim that Process Macro delivers the same results using observable components instead of latent variables, requiring significantly less time and programming expertise. This study developed a mediation relationship based on the theoretical foundation and the literature gaps. This study developed four simple mediation assumptions, analyzed using PROCESS model 4 to get the intended effect, and explained chronologically.

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H11a: SKD has a mediating role in the relationship between SA and RKT

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.1 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 4
    Y  : Mean_RKT
    X  : MeanSA
    M  : Mean_SKD

Sample
Size:  232
```

Table 4.44: Regression Analysis of Subsidiary Autonomy (SA) on Subsidiary Knowledge Development (SKD)

```
**************************************************************************
OUTCOME VARIABLE:
 Mean_SKD

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .5332      .2843     1.8331    91.3488     1.0000   230.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     2.0955      .2910     7.2019      .0000     1.5222     2.6689
MeanSA        .7611      .0796     9.5577      .0000      .6042      .9180

Standardized coefficients
            coeff
MeanSA      .5332

Covariance matrix of regression parameter estimates:
           constant     MeanSA
constant      .0847     -.0221
MeanSA       -.0221      .0063
**************************************************************************
```

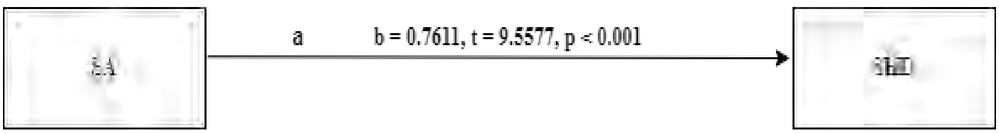

Figure 4.23: Simple Linear Regression X (SA) on M (SKD)-Path a

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The model's R value, R-Square, F, and P values are listed in Table 4.44 and Figure 4.23. It demonstrates the coefficients for the impact of subsidiary autonomy (SA) on subsidiary knowledge development (SKD). In the first basic regression (path a), subsidiary autonomy (SA) is a significant (positive) predictor of subsidiary knowledge development (SKD) (b=.7611, t=9.5577, s.e.=.0796, p<.001). This coefficient within the path model demonstrates the direct effect of SA on SKD. The path coefficient's standard deviation is 0.5332.

Table 4.45: Regression analysis of Subsidiary Autonomy and Subsidiary Knowledge Development on Reverse Knowledge Transfer (RKT)

```
**************************************************************************
OUTCOME VARIABLE:
 Mean_RKT

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .7515      .5647      .8270   148.5370     2.0000   229.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.4485      .2164     6.6946      .0000     1.0222     1.8748
MeanSA        .5482      .0632     8.6712      .0000      .4237      .6728
Mean_SKD      .3534      .0443     7.9788      .0000      .2661      .4407

Standardized coefficients
              coeff
MeanSA        .4469
Mean_SKD      .4112

Covariance matrix of regression parameter estimates:
           constant     MeanSA   Mean_SKD
constant      .0468     -.0068     -.0041
MeanSA       -.0068      .0040     -.0015
Mean_SKD     -.0041     -.0015      .0020
**************************************************************************
```


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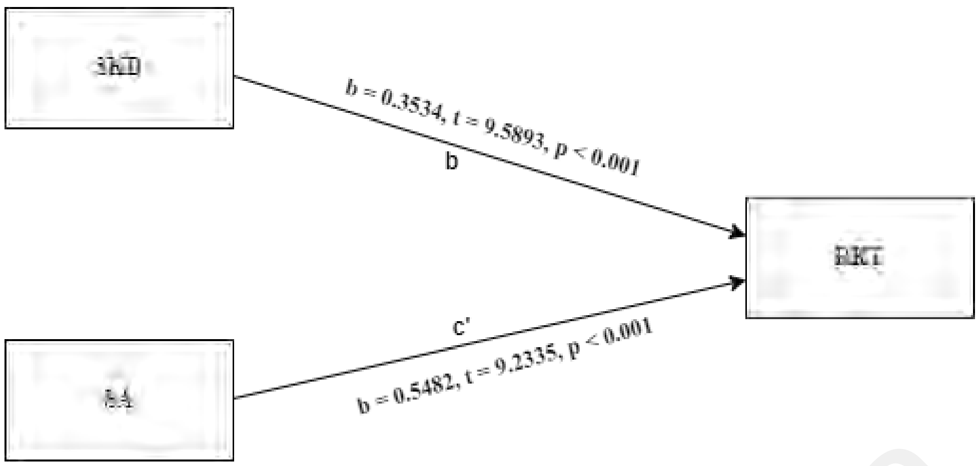

Figure 4.24: Multiple Linear Regression X (SA) and M (SKD) on Y (RKT) -Path b

Table 4.45 and diagram 4.24 depict the antecedent for the RKT outcome. Both SA, which is path c (b=.5482, s.e.=.0632, p.001 p<.001), and SKD, which is path b (b=.3534, s.e.=.0443, p=.0000), are significant, positive predictors of RKT in the second regression. Within the path model, these coefficients represent the direct effects of both SA and SKD on RKT. The standardized path coefficients for this model component are 0.4469 for SA and 0.4112 for SKD.

Table 4.46: Total Effect Model-sum of Indirect Effect (a*b) and Direct (c) Effects

```
************************** TOTAL EFFECT MODEL***************************
OUTCOME VARIABLE:
 Mean_RKT

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6661      .4437     1.0523   183.4374     1.0000   230.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     2.1890      .2205     9.9289      .0000     1.7546     2.6234
MeanSA        .8172      .0603    13.5439      .0000      .6983      .9361

Standardized coefficients
            coeff
MeanSA      .6661
```

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```
Covariance matrix of regression parameter estimates:
             constant     MeanSA
constant        .0486     -.0127
MeanSA         -.0127      .0036
************************************************************************
```

The above table (4.46) shows that the indirect effect of SKD (.2690) is determined by multiplying paths a (.7611) and b (.3534) from previous regression models.

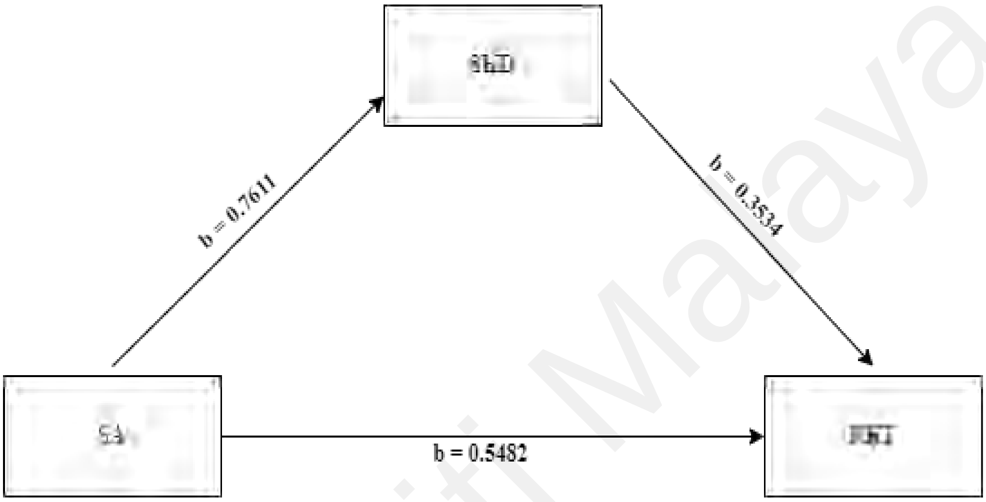

Figure 4.25: Total Effect Diagram (Results of the Path a, b, and c)

Table 4.47: Bootstrap Estimates of Direct, Indirect, and Total Effects of SKD on RKT

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_cs
      .8172      .0603    13.5439      .0000      .6983      .9361      .6661
Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_cs
      .5482      .0632     8.6712      .0000      .4237      .6728      .4469

Indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
Mean_SKD      .2690      .0391      .1980      .3509

Completely standardized indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
Mean_SKD      .2192      .0291      .1629      .2788

********************** ANALYSIS NOTES AND ERRORS ************************
```

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Utilizing a process macro, this study assessed multiple mediations and examined the role of subsidiary knowledge development (SKD) as a mediator using bootstrapping with bias-corrected confidence estimations (Hayes & Preacher, 2014). Therefore, the lower and upper limit confidence intervals (LLCI and ULCI) for the indirect effect of SKD on RKT were calculated. After 5000 bootstrap resamples, the confidence interval for the indirect effect of SKD on RKT [LLCI 0.1629 and ULCI 0.2788] did not include zero. In the bootstrapped confidence interval method, the absence of zero in the confidence interval for the unstandardized indirect impact suggests mediation. Since the upper and lower limit confidence intervals do not contain zero in this instance, it may be argued that the indirect impact is substantially different from zero at $p < 0.05$, suggesting that SKD mediates the links between subsidiary autonomy and RKT (see Table 4.47). This demonstrates the presence of total mediation and verifies the earlier results obtained using the Baron and Kenny (1986) method.

H11b: SKD is mediating the relationship between EE and RKT.

```
***********************************************************************
Model  : 4
    Y  : Mean_RKT
    X  : MeanEE
    M  : Mean_SKD

Sample
Size:  232
```

Table 4.48: Regression Analysis of External Embeddedness (EE) on Subsidiary Knowledge Development (SKD)

****

OUTCOME VARIABLE:

Mean_SKD

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4374	.1913	2.0712	54.4013	1.0000	230.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.4098	.3302	7.2977	.0000	1.7592	3.0605
MeanEE	.4860	.0659	7.3757	.0000	.3561	.6158

Standardized coefficients

	coeff
MeanEE	.4374

Covariance matrix of regression parameter estimates:

	constant	MeanEE
constant	.1090	-.0208
MeanEE	-.0208	.0043

****

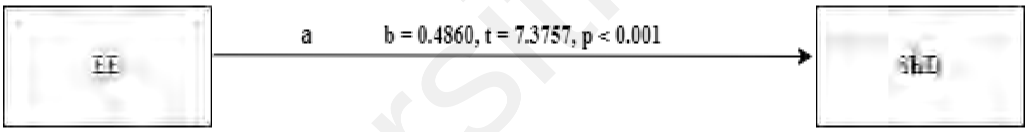

Figure 4.24: Simple Linear Regression X (EE) on M (SKD) - Path a

Figure 4.24 and Table 4.48 display the coefficients for the influence of external embeddedness on subsidiary knowledge development (SKD). External embeddedness is a

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significant (positive) predictor of subsidiary knowledge development (SKD) in the first basic regression (path a) (b=.4860, t=7.3757, s.e.=.0659, p<.001). This coefficient within the path model illustrates the direct relationship between EE and SKD. The standard deviation of the route coefficient is 0.4374.

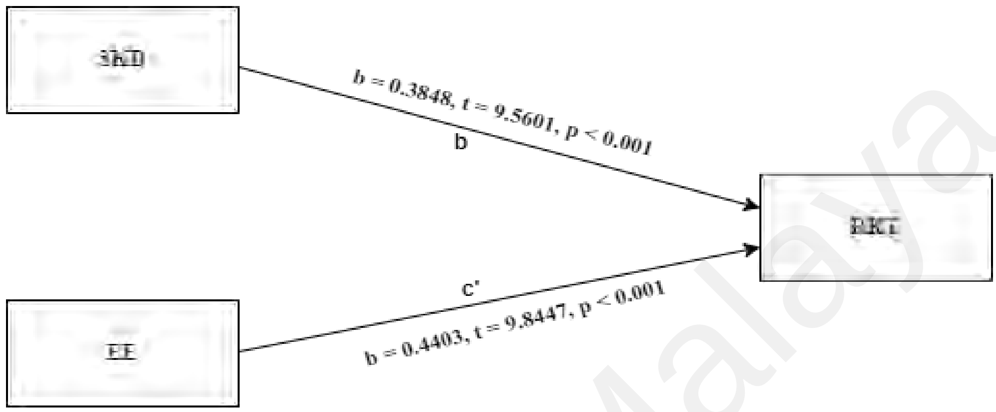

Figure 4.25: Multiple Linear Regression X (EE) and M (SKD) on Y (RKT) - Path b

Table 4.49: Regression analysis of External Embeddedness and Subsidiary Knowledge Development on Reverse Knowledge Transfer (RKT)

```
**************************************************************************
OUTCOME VARIABLE:
 Mean_RKT

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .7705      .5937      .7719   167.3254     2.0000   229.0000      .0000

Model
    4          coeff         se          t          p       LLCI       ULCI
constant      1.0922      .2237     4.8819      .0000      .6514     1.5330
MeanEE         .4403      .0447     9.8447      .0000      .3522      .5284
Mean_SKD       .3848      .0403     9.5601      .0000      .3055      .4641

Standardized coefficients
              coeff
MeanEE        .4611
Mean_SKD      .4478

Covariance matrix of regression parameter estimates:
           constant     MeanEE   Mean_SKD
constant      .0500     -.0059     -.0039
MeanEE       -.0059      .0020     -.0008
Mean_SKD     -.0039     -.0008      .0016
**************************************************************************
```

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The following Diagram 4.25 and Table 4.49 illustrate the RKT result's cause. In the second regression, EE, which is path c (b=.4403, s.e.=.0447, p<.001), and SKD, which is path b (b=.3848, s.e.=.0403, p=.0000), are both significant, positive predictors of RKT. These coefficients indicate the direct effects of EE and SKD on RKT within the path model. This component of standardized path coefficients of 0.4611 for EE and 0.4478 for SKD.

Table 4.50: Total Effect Model-sum of Indirect Effect (a*b) and Direct (c) Effects

```
************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 Mean_RKT

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6569      .4316     1.0753   174.6245     1.0000   230.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     2.0195      .2379     8.4879      .0000     1.5507     2.4883
MeanEE        .6273      .0475    13.2146      .0000      .5338      .7209

Standardized coefficients
            coeff
MeanEE      .6569

Covariance matrix of regression parameter estimates:
           constant     MeanEE
constant      .0566     -.0108
MeanEE       -.0108      .0023
**************************************************************************
```

The below table shows that the indirect effect of SKD (.1870) is determined by multiplying paths a (.4860) and b (.3848) from previous regression models.

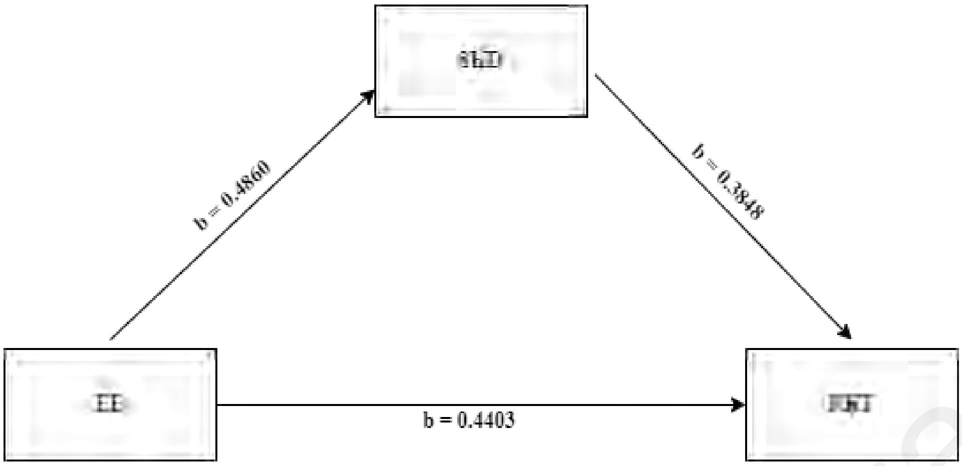

Figure 4.26: Total Effect Diagram (results of the paths a, b, and c)

Table 4.51: Bootstrap Estimates of Direct, Indirect, and Total Effects of SKD on RKT

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_cs
      .6273      .0475    13.2146      .0000      .5338      .7209      .6569

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_cs
      .4403      .0447     9.8447      .0000      .3522      .5284      .4611

Indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
Mean_SKD      .1870      .0296      .1325      .2474

Completely standardized indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
Mean_SKD      .1958      .0273      .1445      .2503

********************** ANALYSIS NOTES AND ERRORS ************************
```

SKD mediates the relationship between EE and RKT in the second mediation relationship described in hypothesis H11b. Lower and upper limit confidence intervals (LLCI and ULCI) for the indirect influence of SKD on RKT were determined, as indicated by the results. The confidence range for the indirect effect of SKD on RKT [LLCI 0.1445 and ULCI 0.2503] did not include zero after 5000 bootstrap resamples. In the bootstrapped confidence interval

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method, the absence of zero in the confidence interval for the non-standardized indirect influence is indicative of mediation. Since the upper and lower limit confidence intervals do not contain zero in this instance, it is possible to argue that the indirect effect is significantly different from zero at p 0.05, indicating that SKD mediates the relationships between subsidiary autonomy and RKT (see Table 4.51). This confirms the presence of total mediation and verifies the results obtained previously using the Baron and Kenny (1986) technique.

H11c: SKD mediates the relationship between SHE and RKT.

```
**************************************************************************
Model  : 4
    Y  : Mean_KT
    X  : Mean_SHE
    M  : Mean_SKD

Sample
Size:  232
```

Table 4.52: Regression Analysis of Subsidiary-Headquarters Embeddedness (SHE) on Subsidiary Knowledge Development (SKD)

```
**************************************************************************
OUTCOME VARIABLE:
 Mean_SKD

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .5387      .2901     1.8180    94.0109     1.0000   230.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     2.3717      .2602     9.1167      .0000     1.8591     2.8843
Mean_SHE      .5350      .0552     9.6959      .0000      .4263      .6437

Standardized coefficients
              coeff
Mean_SHE      .5387

Covariance matrix of regression parameter estimates:
           constant   Mean_SHE
constant      .0677     -.0135
Mean_SHE     -.0135      .0030
**************************************************************************
```

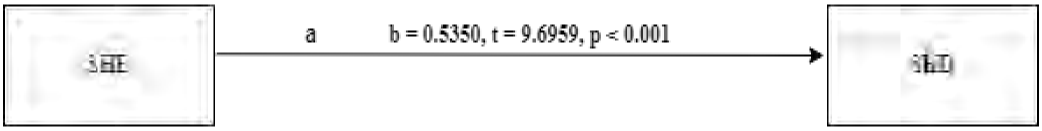

Figure 4.27: Simple Linear Regression X (SHE) on M (SKD) -Path a

Table 4.52 and Figure 4.12 illustrate the coefficients for the impact of subsidiary headquarters embeddedness (SHE) on subsidiary knowledge development (SKD). SHE is a significant (positive) predictor of subsidiary knowledge development (SKD) in the first basic regression (path a) (b=.5350, t=9.6959, s.e.=.0552, p<.001). This coefficient inside the path model depicts the direct connection between SHE and SKD. The path coefficient's standard deviation is 0.5387.

Table 4.53: Regression Analysis of Subsidiary-Headquarters Embeddedness (SHE) and Subsidiary Knowledge Development on Reverse Knowledge Transfer (RKT)

```
**************************************************************************
OUTCOME VARIABLE:
 Mean_RKT

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6967      .4855      .9776   108.0282     2.0000   229.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.9088      .2226     8.5758      .0000     1.4703     2.3474
Mean_SHE      .2557      .0480     5.3238      .0000      .1610      .3503
Mean_SKD      .4195      .0484     8.6756      .0000      .3242      .5148

Standardized coefficients
              coeff
Mean_SHE      .2995
Mean_SKD      .4881

Covariance matrix of regression parameter estimates:
           constant   Mean_SHE   Mean_SKD
constant      .0495     -.0043     -.0055
Mean_SHE     -.0043      .0023     -.0013
Mean_SKD     -.0055     -.0013      .0023
*************************************************************************
```

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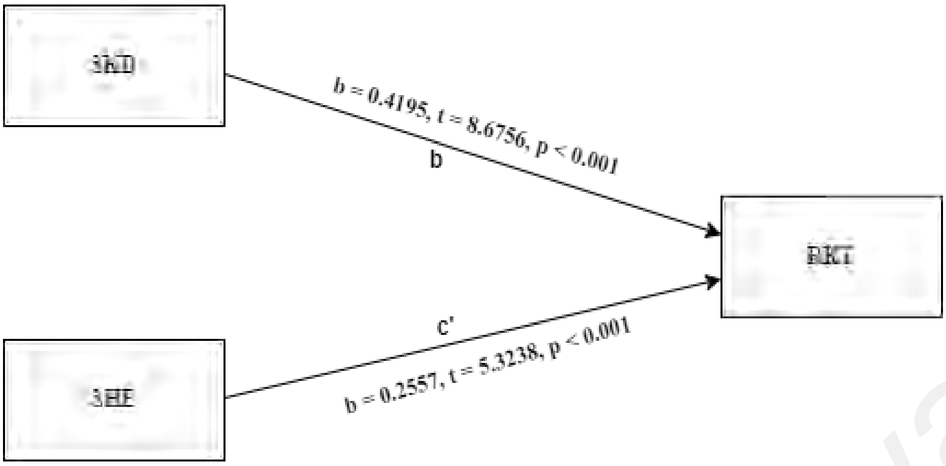

Figure 4.28: Multiple Linear Regression X (SHE) and M (SKD) on Y (RKT) - Path b

The following Figure 4.28 and Table 4.53 illustrate the RKT result's cause. SHE, which is path c (b=.2557, s.e.=.0480, p.001), and SKD, which is path b (b=.4195, s.e.=.0484, p<.001), are significant, positive predictors of RKT in the second regression. Within the route model, these coefficients represent the direct impacts of SHE and SKD on RKT. This component has standardized path coefficients of 0.2995 for SHE and 0.4881 for SKD.

Table 4.54: Total Effect Model-sum of Indirect Effect (a*b) and Direct (c) Effects

```
************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 Mean_RKT

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .5624      .3163     1.2932   106.4251     1.0000   230.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     2.9037      .2194    13.2339      .0000     2.4714     3.3361
Mean_SHE      .4801      .0465    10.3163      .0000      .3884      .5718

Standardized coefficients
              coeff
Mean_SHE      .5624

Covariance matrix of regression parameter estimates:
           constant   Mean_SHE
```

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```
constant      .0481     -.0096
Mean_SHE     -.0096      .0022
*************************************************************************
```

The below table shows the indirect effect of SKD (.2244) is determined by multiplying paths a (.5350) and b (.4195) from previous regression models.

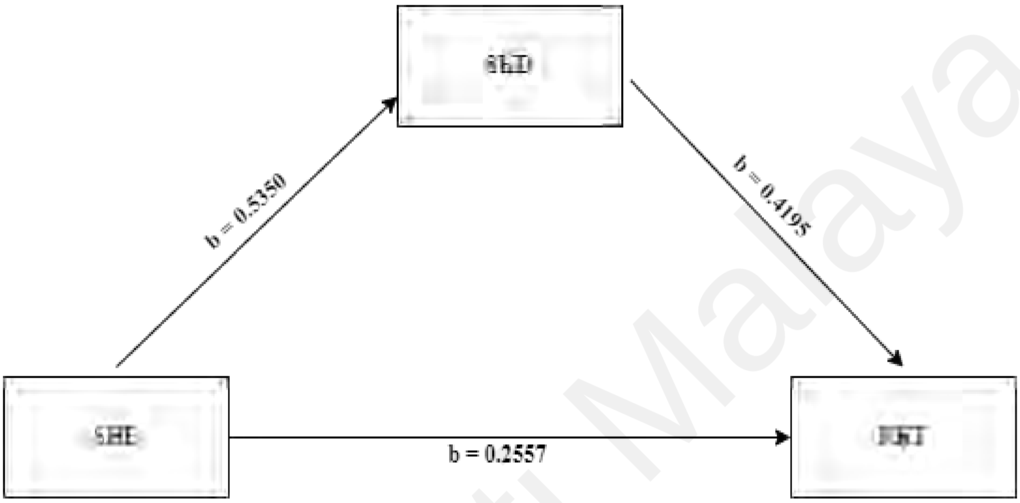

Figure 4.29: Total Effect Diagram (results of the paths a, b, and c)

Table 4.55: Bootstrap Estimates of Direct, Indirect, and Total Effects of SKD on RKT

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_cs
      .4801      .0465    10.3163      .0000      .3884      .5718
.5624
```

```
Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_cs
      .2557      .0480     5.3238      .0000      .1610      .3503      .2995

Indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
Mean_SKD      .2244      .0324      .1659      .2926

Completely standardized indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
Mean_SKD      .2629      .0331      .2011      .3316

********************** ANALYSIS NOTES AND ERRORS ***********************
```

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In the third mediation relationship outlined in hypothesis H11c, SKD mediates the relationship between subsidiary headquarters embeddedness (SHE) and RKT. As demonstrated by the results, lower and upper limit confidence intervals (LLCI and ULCI) for the indirect effect of SKD on RKT were calculated. After 5000 bootstrap resamples, the confidence interval for the indirect effect of SKD on RKT [LLCI 0.2011 and ULCI 0.3316] did not include zero. In the bootstrapped confidence interval method, mediation is shown by the lack of zero in the confidence interval for the non-standardized indirect influence. Since the upper and lower limit confidence intervals in this instance do not contain zero, it is possible to argue that the indirect effect is statistically different from zero at p 0.05, showing that SKD mediates the interactions between SHE and RKT (see Table 4.55). This indicates the presence of the entire mediation and verifies the results obtained earlier using the technique used by Baron and Kenny (1986).

H11d: SHE is mediating the relationship between ISM and RKT.

```
**************************************************************************
Model  : 4
    Y  : Mean_RKT
    X  : Mean_ISM
    M  : Mean_SHE

Sample
Size:  232
```

Table 4.56: Regression Analysis of Internal Socialization Mechanism (ISM) on Subsidiary-Headquarters Embeddedness (SHE)

```
**************************************************************************
OUTCOME VARIABLE:
 Mean_SHE

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .5943      .3532     1.6791   125.6210     1.0000   230.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.3080      .2915     4.4864      .0000      .7336     1.8824
Mean_ISM      .6527      .0582    11.2081      .0000      .5379      .7674
```

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```
Standardized coefficients
              coeff
Mean_ISM      .5943

Covariance matrix of regression parameter estimates:
           constant   Mean_ISM
constant      .0850     -.0162
Mean_ISM     -.0162      .0034
*************************************************************************
```

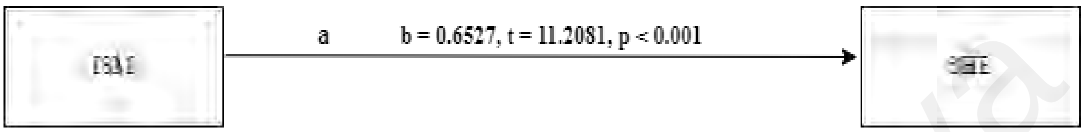

Figure 4.30: Simple Linear Regression X (ISM) on M (SHE)-Path a

The coefficients for the impact of the internal socialization mechanism (ISM) on subsidiary headquarters embeddedness (SHE) are shown in Table 4.56 and Figure 4.30. In the first basic regression (path a), ISM is a significant (positive) predictor of SHE (b=.6527, t=11.2081, s.e.=.0582, p<.001). This coefficient within the path model illustrates the direct relationship between ISM and SHE. The standard deviation of the path coefficient is 0.5943.

Table 4.57: Regression Analysis of ISM and SHE on Reverse Knowledge Transfer (RKT)

```
*************************************************************************
OUTCOME VARIABLE:
 Mean_RKT

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .5724      .3277     1.2774    55.8024     2.0000   229.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     2.6074      .2652     9.8324      .0000     2.0849     3.1299
Mean_ISM      .1240      .0632     1.9640      .0507     -.0004      .2485
Mean_SHE      .4130      .0575     7.1805      .0000      .2996      .5263

Standardized coefficients
              coeff
Mean_ISM      .1323
Mean_SHE      .4838
```

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```
Covariance matrix of regression parameter estimates:
             constant   Mean_ISM   Mean_SHE
constant        .0703     -.0095     -.0043
Mean_ISM       -.0095      .0040     -.0022
Mean_SHE       -.0043     -.0022      .0033
*************************************************************************
```

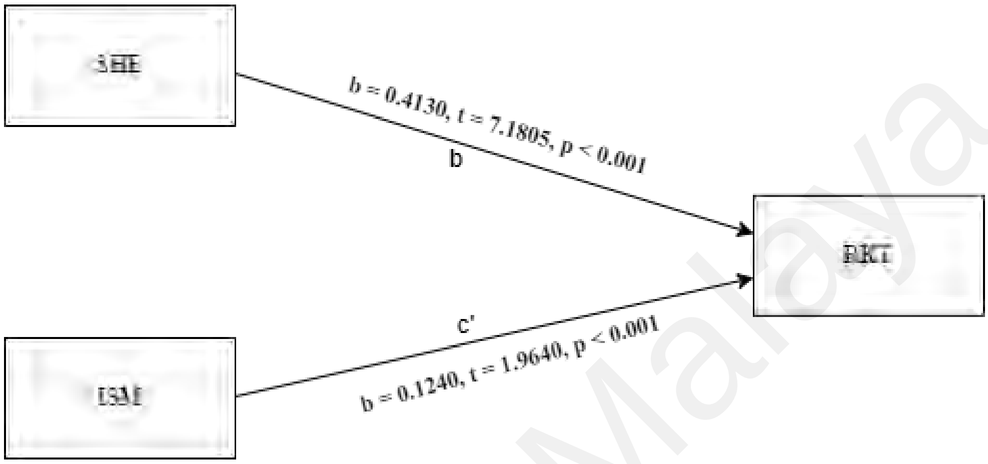

Figure 4.31: Multiple Linear Regression X (ISM) and M (SHE) on Y (RKT) - Path b

The explanation of the RKT result is illustrated in the following Figure 4.31 and Table 4.57. In the second regression SHE, which is path b (b=.4130, s.e.=.0575,p<.001), there are significant, positive predictors of RKT. However, Path c (b=.1240, s.e.=.0632, p<.001) in the case of ISM is not significant for direct links. These path model parameters show the direct effects of ISM and SHE on RKT. These parameters in the path model indicate the effects of ISM and SHE on RKT directly. Standardized path coefficients for this component are 0.1323 for ISM and 0.4838 for SHE.

Table 4.58: Total Effect Model-sum of Indirect Effect (a*b) and Direct (c) Effects

```
************************** TOTAL EFFECT MODEL ***************************
OUTCOME VARIABLE:
 Mean_RKT

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .4199      .1763     1.5582    49.2244     1.0000   230.0000      .0000
```

```
Model
                coeff         se          t          p       LLCI       ULCI
constant       3.1475      .2809    11.2071      .0000     2.5942     3.7009
Mean_ISM        .3936      .0561     7.0160      .0000      .2830      .5041

Standardized coefficients
                coeff
Mean_ISM        .4199

Covariance matrix of regression parameter estimates:
             constant   Mean_ISM
constant        .0789     -.0151
Mean_ISM       -.0151      .0031
*************************************************************************
```

Table 4.59 below demonstrates that multiplying paths a (.6527) and b (.4130) from earlier regression models yields the indirect effect of ISM (.2695).

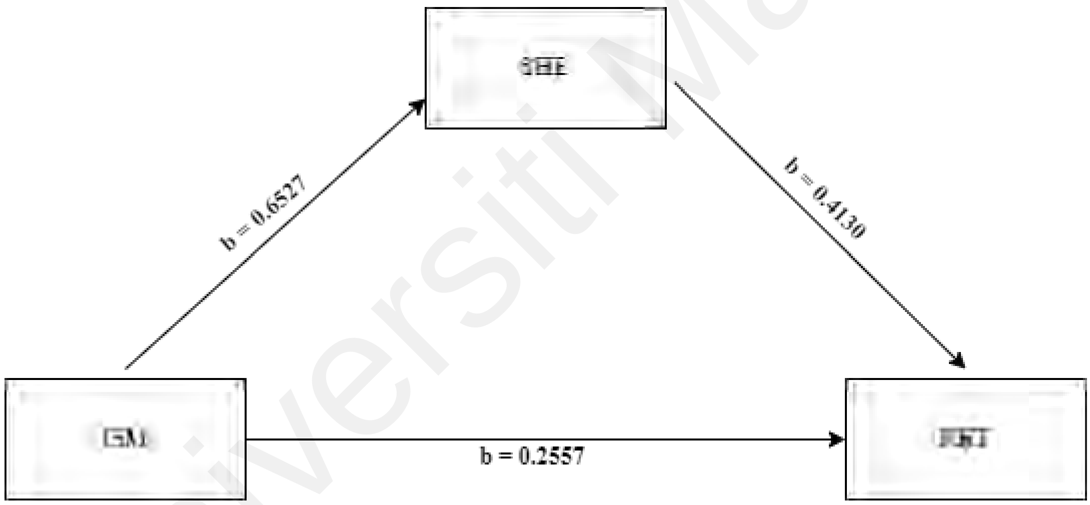

Figure 4.32: Total Effect Diagram (Results of the Path a, b, and c)

Table 4.59: Bootstrap Estimates of Direct, Indirect, and Total Effects of SKD on RKT

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_cs
      .3936      .0561     7.0160      .0000      .2830      .5041
.4199

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_cs
```

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```
      .1240     .0632     1.9640      .0507     -.0004      .2485      .1323

Indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
Mean_SHE      .2695      .0439      .1903      .3625

Completely standardized indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
Mean_SHE      .2875      .0447      .2068      .3829

********************** ANALYSIS NOTES AND ERRORS ************************


Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

************** END MATRIX **************
```

In the fourth mediation relationship described in hypothesis H11d, subsidiary headquarters (SHE) mediates between internal socialization mechanism (ISM) and reverse knowledge transfer (RKT). Lower and upper limit confidence intervals (LLCI and ULCI) for the indirect effect of SHE on RKT were determined, as evidenced by the results. The confidence intervals for the indirect effect of SHE on RKT [LLCI 0.2088 and ULCI 0.3747] did not include zero after 5000 bootstrap resamples. In the bootstrapped confidence interval approach, the absence of zero in the confidence interval for the non-standardized indirect influence indicates mediation. Since the upper and lower limit confidence intervals do not contain zero in this instance, it is possible to argue that the indirect impact is statistically distinct from zero at $p < 0.05$, demonstrating that SHE mediates the interactions between ISM and RKT (see Table 4.59). This confirms the presence of complete mediation and validates the earlier results obtained by Baron and Kenny (1986) method. Below, table 4.60 shows the summary of the Hayes Model 4 results.

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Table 4.60: Summary of the Hayes Model Results

Relationship	Effect of IV on M(a)		Effect of M on DV (b)		Total Effect of IV on DV (c)		Direct Effect of IV on DV (c')		Bootstrap results for indirect effects through a mediator (ab)		
	B	T	*B*	T	*B*	t	*B*	t	Standardized Beta	LL 95% CI	UL 95% CI
EE-SKD-RKT	0.4860**	7.3757	0.3848**	9.5601	0.6273**	13.2146	0.4403**	9.8447	*B* = 0.1958	0.1445	0.2503
SA-SKD-RKT	0.7611**	9.5577	0.3534	7.9788	0.8172**	13.5439	0.5482**	8.6712	(*B* = 0.2192)	0.1629	0.2788
SHE-SKD-RKT	0.5350**	9.6969	0.4195**	8.6756	0.4801**	10.3163	0.2557**	5.3238	(B=0.2629)	0.2068	0.3829
ISM-SHE-RKT	0.6527**	11.2081	0.4130**	7.1805	0.3936**	7.0160	0.1240	1.9640	*(B=0.2875)*	*0.2088*	0.3747

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In mediation studies, it is common for researchers to categorize a mediation process as either partial or comprehensive (Igartua & Hayes, 2021; Hayes & Rockwood, 2020). Partial mediation is a pattern of findings that occurs when mediation is discovered with a statistically significant overall effect of X, and the direct effect of X (c') is statistically distinct from zero. Hayes and Preacher (2014) assert that the ideas of complete and partial mediation have limited applicability and should be dismissed in favour of total mediation and reported based on this.

4.2.9.10 Control Variable Assessment

The study assessed three control variables: subsidiary size based on employees, the subsidiary experience of the working period (age), and entry mode, i.e., Greenfield and acquired access.

Subsidiary sizes included several employees from 1 to 600. A structural model, including the control variables size of a subsidiary, showed that size did not significantly affect RKT but subsidiary performance.

4.2.9.11 Model Assessment with Control Variables

Table 4.61 shows that Chi-square/df is 1.340, and the p-value is 0.000, indicating that the model fits significantly. The badness of the model is assessed with RMSEA. As RMSEA is, less than 0.08 model is also approved for fitness. CFI, IFI, NFI, and TLI; also, these indices proved model fitness.

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Table 4.61: Model Assessment with Control Variables

Chi-square/df	p-value	CFI	IFI	NFI	TLI	RMSEA
1.340	0.000	0.982	.982	0.934	0.981	0.038

4.2.9.12 Structural Model Assessment for Control Variable

Table 4.62 shows that the subsidiary's size as a control variable is insignificant on reverse knowledge transfer as the p-value is 0.05 (0.050), and the beta value is -0.090. Similarly, the size of a subsidiary is significant in the subsidiary's performance. Here p-value is less than 0.05 (0.030), and the beta value is 0.098. It implies that size is an essential factor for subsidiary performance.

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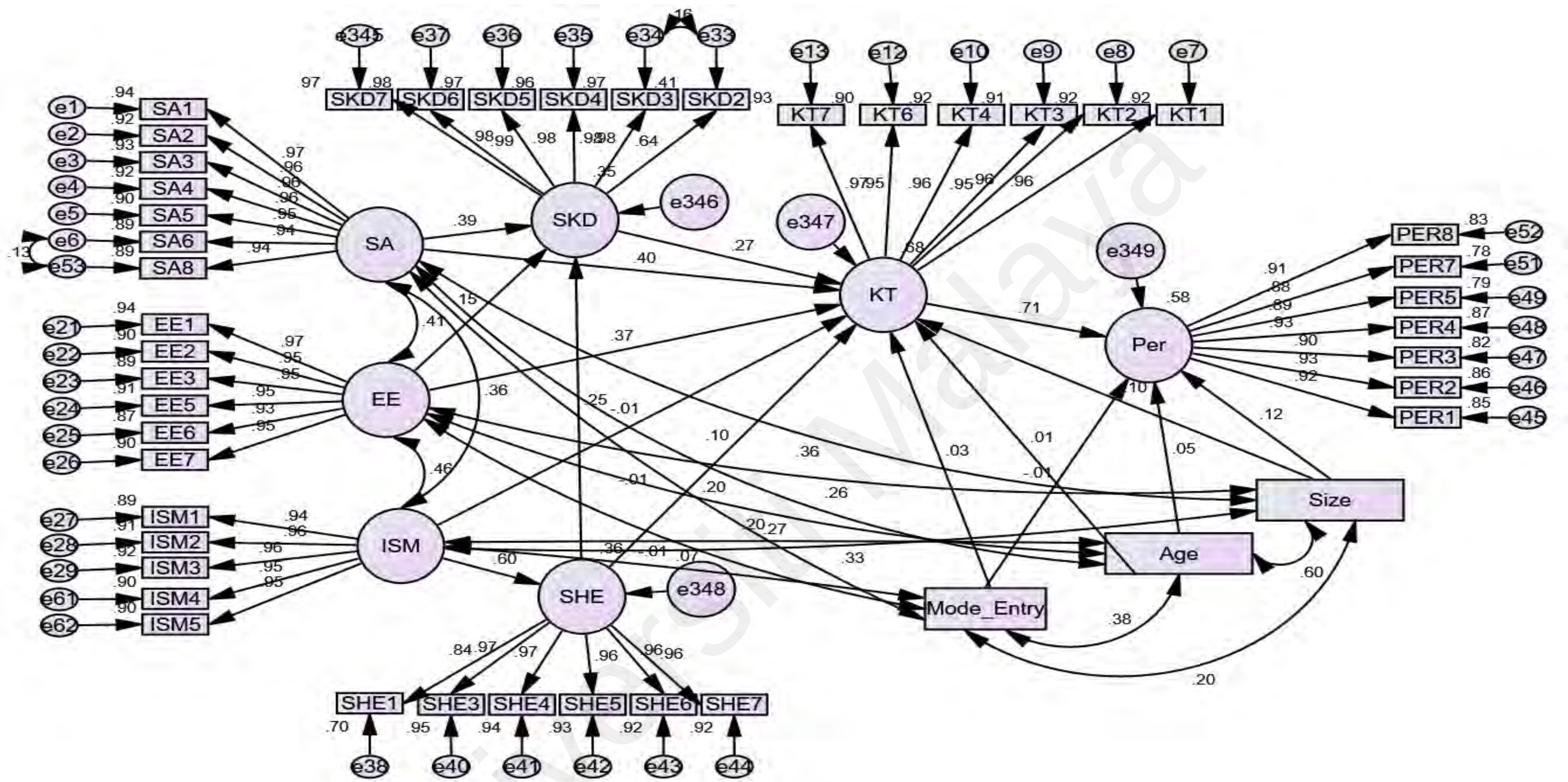

Figure 4.33: Structural Model with Control Variables

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On the other hand, the subsidiary's age (Beta value: 0.011 and p-value: 0.839) and mode of entry (Beta value: 0.099 and p-value: 0.431) are not significant with reverse knowledge transfer. Similarly, the age of the subsidiary (Beta value: 0.011 and p-value: 0.839) and mode of entry (Beta value: -0.033 and p-value: 0.803) are not significant in subsidiary performance.

Table 4.62: Regression Weights in the Structural Model and Hypotheses with Control Variables

Hypotheses			Beta	B	S.E.	C.R.	P	Comments
ISM	→	SHE	0.554	0.671	0.057	9.740	***	Supported
SA	→	SKD	0.344	0.350	0.059	5.800	***	Supported
EE	→	SKD	0.095	0.098	0.043	2.209	0.027	Supported
SHE	→	SKD	0.181	0.154	0.050	3.663	***	Supported
SKD	→	RKT	0.370	0.486	0.074	4.986	***	Supported
SA	→	RKT	0.484	0.077	0.062	7.748	***	Supported
EE	→	RKT	0.330	-0.004	0.044	7.449	***	Supported
ISM	→	RKT	-0.009	0.368	0.047	0.199	0.843	Not Supported
SHE	→	RKT	0.095	0.331	0.054	1.739	0.082	Not Supported
RKT	→	Per	0.648	0.643	0.045	14.479	***	Supported
Size		RKT	-0.90	0.007	0.046	1.963	0.050	Not Supported
Mode of Entry		RKT	0.099	-0.097	0.125	0.788	0.431	Not Supported
Sub. Age		RKT	0.011	0.089	0.055	0.203	0.839	Not Supported
Size		Per	0.098	0.052	0.045	2.169	0.030	Supported
Mode of Entry		Per	-0.033	0.102	0.132	0.249	0.803	Not Supported
Sub. Age		Per	0.052	-0.003	0.058	0.892	0.373	Not Supported

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4.3 Summary of the Chapter

This section focused on the face-to-face interaction data obtained during the data collection procedure. The study population was examined to identify demographics, followed by a missing data treatment, outlier inspection, descriptive study, data normality with the assessment of Mardia's coefficient measures, data non-response bias, and common method variance assessment. This study also runs a bootstrapping approach to run the non-normal data. Later the study used SEM to perform three steps of structural equation modelling: (1) factor analysis, (2) measurement model assessment, and (3) structural model assessment. Several goodness-of-fit measures were applied to determine the results' goodness of fit, and discriminant validity, convergent validity, and confirmatory factor analysis were inspected. This section demonstrated the testing of research hypotheses by looking into the relationship between exogenous and endogenous variables and the involvement of various mediating variables by utilizing a wide range of specialized statistical approaches. A test run was completed with the SEM 25-edition package, which verified the hypothesis-based research model. The proposed model provided satisfactory data fit according to the calculated model-specific fit indices.

Using structural equation modelling and hypothesis testing on the suggested model, 10 of the 8 hypothesized associations (hypotheses 1, 2, 3, 4, 6, 8, 9, and 10) were significant. On the other hand, two hypotheses were not significantly supported (hypotheses 5 and 8). Numerous mediation effects were examined, and two partial mediations were discovered in this research model: SKD mediates SA-EE correlations with RKT findings. Additionally, full significant mediation interaction existed between SKD, RKT, and SHE or between SHE, RKT, and ISM. Further, this chapter explored the role of numerous control variables that fit the model significantly.

However, the following chapter will discuss the findings from the literature-based data analysis, including their implications, drawbacks, and potential research avenues.

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CHAPTER 5: DISCUSSION, CONCLUSION, AND RESEARCH FINDINGS

5.1 Introduction

This chapter explores the SEM model's outcome and group comparison related to subsidiary knowledge development (e.g., subsidiary autonomy, external embeddedness) and its antecedents.

Developing subsidiary knowledge also meant that the sender and the recipient would become more physically and socially embedded. Therefore, the inference mentioned above, the internal socialization mechanism, and the subsidiary-headquarter embeddedness have been clearly illustrated. The research findings would also benefit the relationships between subsidiaries and headquarters embeddedness, improving subsidiary knowledge development and increasing RKT. The following section explored an integrated framework of reverse knowledge transfer and how it affects subsidiary performance. The findings indicated that SEM procedures substantiated the conceptual structure. While some of the model's relationships tend to be essential, others do not. This chapter also illustrated the (i) summary of the research findings, (ii) implications and reflections of the research conducted and how this research could help both parents and subsidiaries, (iii) contribution of the study, and (iv) a discussion of limitations and potential future research avenues.

5.2 External Relationship Characteristics, Subsidiary Knowledge Development, and Reverse Knowledge Transfer

This research is focused on two types of characteristics explaining external and internal network relationships. First, subsidiary autonomy and external embeddedness are the constructs of external relations, and theoretically, these two are the key determinants of subsidiary knowledge development.

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5.2.1 Determinants of Subsidiary Knowledge Development

5.2.1.1 Subsidiary Autonomy

Based on hypothesis 1, subsidiary autonomy significantly affects the development of subsidiary knowledge. Results empirically support this study's hypotheses derived from the theoretical context. This study's perspective of subsidiary autonomy embraced decision-making power or practices in strategic, functional, and organizational operations (Kawai & Strange, 2014). The previous study highlighted the subsidiary autonomy literature significantly in the subsidiary autonomy literature (Najafi-Tavani et al., 2012a; Cantwell et al., 2010; Gupta & Govindarajan, 1991). Such studies established that low autonomy impedes subsidiaries' autonomous decision-making, ultimately blocking the knowledge development process. However, later research shows that subsidiaries' autonomous practices with external players improve the flow of knowledge in subsidiaries and benefit parents and subsidiaries (Perri & Andersson, 2014).

Subsidiaries' ability to reach external local networks depends mainly on the degree of autonomy within MNEs (Hoenen & Kostova, 2015). The Decision-making autonomy of subsidiaries may accelerate the development of new products or performance at a subsidiary level (Beugelsdijk & Jindra, 2018). The firm should establish and maintain embedded relationships with local players (suppliers, competitors, and customers) to capture, generate, and build new knowledge throughout the KIBS sector. The impact could be either new product development or functional areas such as increased revenue, strategic business decision, or supplier selection (Beugelsdijk & Jindra, 2018). Furthermore, a high degree of control prevents closeness between external partners. The capability of subsidiaries to generate new knowledge through embeddedness ensures knowledge acquisitions when subsidiary autonomy is high (Michailova & Zhan, 2015).

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While subsidiaries' external embeddedness assists in developing new knowledge by maintaining network relationships, subsidiary decision-making autonomy optimizes the circumstance under which subsidiaries produce new knowledge (Beugelsdijk & Jindra, 2018).

However, the subsidiary's autonomous power is a strategic and practical learning pattern for the MNEs. Therefore, older subsidiaries maintain embedded relationships to create trust and decrease the low level of autonomy. Besides, the high level of control precludes close ties with external partners that restrict subsidiary knowledge development. A high degree of autonomy allows access to local know-how (knowledge about the client, the rivals, etc.). It enables the team to build more capacity to improve its unique expertise in designing and practising know-how, processes, and management practices.

This research examined the effect of entry mode on reverse knowledge transfer (RKT) and subsidiary performance regarding group comparison in the entry mode. Najafi-Tavani et al. (2012a) demonstrate that acquiring subsidiaries' shared knowledge from subsidiary to headquarters is highly beneficial. External business partnerships are required due to the numerous advantageous business partnerships with acquired subsidiaries. The establishment mode affects network relationships developed by local subsidiaries (Valentino et al., 2018). Moreover, the Geenfield subsidiaries' structure is aligned with the parent firm's structure and relies heavily on parent knowledge rather than local market and business knowledge (Håkanson & Nobel, 2001). In this research context, entry mode (used as a control variable) does not affect knowledge transfer and subsidiary performance. Data from top management and senior managers from foreign subsidiaries find no different connotation on acquired or greenfield subsidiaries.

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However, in terms of subsidiary knowledge development, entry mode may have a significant impact, which may further investigate.

By comparison, acquired subsidiaries are less integrated into the MNEs network than Greenfield subsidiaries. This parent company exerts greater control over its acquired subsidiaries due to the uncertainty of the subsidiary's initiative (Najafi-Tavani et al., 2012a). Consequently, this high control level protects network relationships and knowledge development.

5.2.1.2 External Embeddedness

As hypothesis 2 reveals, the link involving external embeddedness with subsidiary knowledge development is considered beneficial. Externally embedded subsidiaries can generate new knowledge and ensure knowledge acquisition at the subsidiary level (Michailova & Zhan, 2015). Furthermore, the embedded relationship acts as a knowledge-gathering device and creates the ability to acquire new knowledge, and earlier research confirms this finding (Andersson et al., 2003; Birkinshaw, 1996). Active interaction with actors in the domestic market builds trust and credibility; therefore, the subsidiary retains the relationships. It facilitates more straightforward access to domestic resources, and later MNE can use these resources (Lin et al., 2019). The overwhelming majority of competitors within an industry benefit from those already in the market, and locally embedded subsidiaries provide competitive advantages to subsidiaries (Birkinshaw, 1996). Based on the cross-border corporate embedded network, the subsidiaries are interlinked with suppliers, customers, competitors, research bodies, or other organizations that enable businesses to access products, labels, or technical information.

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Consequently, the high level of engagement with local actors encouraged reciprocal relationships (Ratajczak-Mrozek, 2017; Phillips et al., 2013). A high level of local engagement builds and maintains the embedded relationships in the network. Lin et al. (2019) assert that a high level of embeddedness facilitates information and reverse knowledge transfer. Additionally, the study demonstrated through a social lens that domestic resource acquisition is a source of network embeddedness, enabling a firm to perform better.

In addition, this study illustrates domestic resource evolution or growth as a potential success pathway for firms that use embedded networks to the degree they must expand the boundaries of their business networks. Usually, subsidiary embeddedness is linked to internal and external MNE networks, with more critical and older subsidiaries profoundly embedded in the external market network (Andersson et al., 2015c,2006). External network relations effectively influence subsidiaries' embeddedness strategy to the relevance of intense local and international market competition.

Knowledge development is valuable to maintaining business performance in the KIBS sectoral Study. It is well known that KIBS significantly affects the growth and exchange of knowledge (Ronnie et al., 2019; Chichkanov et al., 2019; Kohtamäki & Partanen, 2016; Miles et al., 1995). Local actors are the key source of specialized knowledge in the services industry literature focusing on the KIBS market. Businesses involved in KIBS must access cutting-edge domain knowledge (Chichkanov et al., 2019; Koch & Strotmann, 2006). Additionally, KIBS assists in creating a creative method that delivers unique knowledge to customers and generates an innovative solution (Miles et al., 2018; Miles, 2008). Finally, KIBS ensures the exchange of best practices and reverse knowledge transfer in service companies (Doloreux & Porto Gomez, 2017).

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Furthermore, KIBS companies are known as knowledge carriers, facilitating unique knowledge development and innovation processes (Horváth & Rabetino, 2019). KIBS companies are co-creators or co-producers of knowledge due to their integration with external factors such as consumers and competitors. Thus, KIBS firms' performance is contingent on the engagement of external actors. Therefore, it could be emphasized that gaining or developing new knowledge and KIBS subsidiaries must be more interlinked with the local environment.

5.2.1.3 Subsidiary-Headquarters Embeddedness

Subsidiaries have historically been assigned to adapt existing products or source new knowledge from headquarters. Later, due to the competitive world market challenge, many subsidiaries started sourcing knowledge from external sources to meet the location-specific demand (Asakawa et al., 2018). However, subsidiaries have started to source knowledge from everywhere, recognized as rare or non-duplicable, to increase global innovation engagement (Doz et al., 2001). Therefore, this research integrated internal and external embeddedness, which is substantially associated with subsidiary knowledge development.

Previous studies indicate that the exchange of internal knowledge sharing affects innovation in general (Mudambi & Navarra, 2015, 2004). Foreign subsidiaries are integrated into their host country environments and are connected to headquarters via an internal network (Nell & Ambos, 2013). Besides, Uzzi (1997) found that embeddedness is inconsistent and can have either positive or adverse effects. However, there is evidence of subsidiary-headquarters embeddedness consistent with subsidiary knowledge development, and this study supports the hypothesis derived from the extant literature (H9). KIBS-based subsidiaries' context identified that subsidiary embeddedness with headquarters influences knowledge development. Therefore, subsidiaries and headquarters can eventually benefit from developing subsidiary knowledge. Besides evaluating the development of subsidiary knowledge, this study also needs to determine how subsidiary knowledge development affects headquarters performance.

Due to the clear concept of embeddedness, subsidiaries are concurrently linked to business networks, including buyers, suppliers, competitors, and the government body that shares and exchanges their knowledge with headquarters. In particular, through the network of ties, subsidiary headquarters are embedded. Subsidiaries are linked across the network with external players as well. Therefore, network embeddedness provides unique opportunities and network connectivity for subsidiaries. According to Gupta and Govindarajan (2000), if a subsidiary can acquire unique and non-duplicable knowledge, it can contribute to the headquarters and other units. This type of knowledge may create in KIBS-based subsidiaries.

Table 5. 1: The Significant Findings Regarding the Determinants of the Development of Subsidiary Knowledge

Key concepts	Near ties between subsidiaries, external networks, and organizational frameworks foster the development of subsidiary knowledge.
Key studies	Subsidiary Autonomy, Andersson et al. (2003); Birkinshaw (1996); Cantwell et al. (2010);(Gupta & Govindarajan, 1991); Najafi-Tavani et al. (2012a); (Gupta & Govindarajan, 2000);Hoenen and Kostova (2015);Michailova and Zhan (2015);Mudambi et al. (2014a); Ghoshal and Bartlett (1988);(Ghoshal & Nohria, 1989). EE and Subsidiary-Headquarters Embeddedness Mudambi and Navarra (2004); Nell and Ambos (2013); Uzzi (1997); Andersson et al. (2005); Andersson et al. (2002);(Lin et al., 2019) SKD Yang et al. (2008);(Revilla et al., 2010)
Key Findings	The primary facilitators of subsidiary knowledge development are subsidiary autonomy, external embeddedness, and subsidiary headquarters embeddedness.

According to Table 5.1, emphasizing research addressing subsidiary autonomy and the impact of knowledge development and involvement in RKT, autonomy refers to the decision-making authority granted by the headquarters. Numerous empirical studies demonstrate that subsidiary autonomy improves the performance of foreign subsidiaries (Beugelsdijk & Jindra, 2018; Gammelgaard et al., 2012). Access to local external networks and product innovation in MNE subsidiaries are connected with autonomy in decision-making (Hoenen & Kostova, 2015).

However, for subsidiaries to exercise autonomy, they must become rooted in the local milieu (Najafi-Tavani et al., 2015b). Second, based on Beugelsdijk and Jindra's view (2018), the degree to which a subsidiary is anchored in its local environment is highly correlated with the level of strategic decision-making entrusted to the subsidiary. Without autonomy, managers cannot implement their own unit's growth objectives or determine its fate, discouraging local adaptation (Birkinshaw et al., 1998). In addition, Beugelsdijk and Jindra (2018) discovered that when MNE subsidiaries lack autonomy in decision-making, they cannot develop innovations. This study shows that subsidiaries cannot engage in innovative processes, product innovation, or overall performance without knowledge development and knowledge transfer in reverse.

In his earlier research on external and subsidiary headquarters embeddedness, (Birkinshaw et al., 1998) discovered that a high degree of shared values between the headquarters and subsidiaries is one method for controlling headquarters-subsidiary relations that enhances the performance of an MNE. In contrast, Ciabuschi et al. (2014) research reveals that organizational embeddedness frequently emphasizes the diffusion of innovations and the efficacy of a network position, as opposed to the profit from the exchange in individual encounters (Granovetter, 1992). According to Granovetter, this study stresses the incorporation of economic behaviour into networks of inter-

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organizational linkages (1985). Therefore, embeddedness facilitates the development of new knowledge that can benefit both the subsidiary and the multinational enterprise. The concept of embeddedness has been included in the study of innovation and performance as an explanatory variable. Embeddedness pertains to organizational links and focuses on the creativity generated due to these interactions. Current research frequently distinguishes embeddedness based on characteristics and processes, e.g., Heidenreich (2012).

Based on prior research by Bresciani and Ferraris (2016) and the research aims, a quantitative method was used to explore the link between internal and external relational embeddedness (independent variables) and their interaction on the level of knowledge transmission (dependent variable). Ferraris et al. (2018) found an association between the degree of internal and external embeddedness of subsidiaries and the extent of knowledge transfer. A recent study has recommended both external and internal embeddedness to highlight the significance of subsidiaries as nodes in the knowledge network of a multinational firm (Ferraris et al., 2018; Najafi-Tavani et al., 2015a; Achcaoucaou et al., 2014; Ciabuschi et al., 2014). In addition, this study underlined the impact of subsidiary-to-headquarters knowledge transfer and MNE innovation (Jiménez et al., 2014).

This research expands the findings of Doloreux et al. (2008) and Najafi-Tavani et al. (2015a) by revealing that KIBS clients are considered "co-producers" and "co-creators" of new information. Other studies have demonstrated that consumers, suppliers, rivals, universities, and other research organizations are crucial to the growth of KIBS professional knowledge development initiatives (Doloreux et al., 2008). There is a requirement for cross-sectoral distinctions to comprehend inventiveness in KIBS since KIBS demonstrates various traits and behaviours across sectors. This finding is corroborated by previous research (Najafi-Tavani et al., 2015a; Ciabuschi et al., 2014;

Almeida & Phene, 2004). For example, Ciabuschi et al. (2014) show that the degree of embeddedness with local actors is positively affects subsidiary innovativeness. Moreover, this study demonstrates that corporate embeddedness has no direct effect on the innovation-related success of companies. It shows that corporate embeddedness is predictive of subsidiary impact, favourably connected with business performance.

Later in Najafi-Tavani et al. (2015a) research, external embeddedness emerges as the most influential factor in knowledge development. This indicates that the more a subsidiary's local presence, the greater its capacity to produce new knowledge. In addition, this study provides substantial support for the connection between subsidiary-headquarters embeddedness and subsidiary-level knowledge development. However, this research expands on previous research. It identifies the limitations of past studies, namely that they did not explore the characteristics pertinent to RKT and its positive influence on headquarters. It is undeniable that headquarters benefit from subsidiary knowledge. However, based on the network of relationships and prevalent existing theory that emphasizes the nested relations among the network partners subsidiaries linked with an external network, autonomous practice granted by headquarters and embeddedness with headquarters are the primary sources of subsidiary knowledge development and knowledge transfer in reverse. Subsidiaries' knowledge development and RKT aid HQ and contribute to the subsidiaries' innovative capacity. In addition, subsidiaries' innovative capacity and strategic knowledge resources contribute to the network strength of MNEs. Based on the preceding discussion with several researchers, it appears that subsidiary autonomy has a mixed effect on subsidiary innovation, external embeddedness has a varied effect on subsidiary knowledge development, and subsidiary headquarters embeddedness has a mixed effect on subsidiary knowledge development. However, most studies fail to address or disregard the primary role of these three determinants in fostering the development of subsidiary knowledge. This study identified that subsidiary

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autonomy, external embeddedness, and subsidiary headquarters embeddedness are the primary drivers of subsidiary knowledge development. Therefore, this research contributes to the literature by demonstrating that these three factors are essential for developing strategic knowledge.

5.2.2 Determinants of Reverse Knowledge Transfer

5.2.2.1 Subsidiary Autonomy and Reverse Knowledge Transfer (RKT)

The relevance of subsidiary autonomy, which was hypothesized to influence reverse knowledge transfer, was beneficial, and the hypothesis (H3) is significant in this study. The earlier study shows that decision-making autonomy significantly impacts subsidiary knowledge development, increasing reverse knowledge transfer. Research also investigated that while subsidiary autonomy is high, subsidiary knowledge development and reverse knowledge transfer are high. Subsidiaries can actively develop and increase reverse knowledge transfer (Frost, 2001). While it is assumed that a high degree of autonomy benefits reverse knowledge transfer, this research reveals that a high degree of autonomy is significantly more beneficial than a low degree.

In the MNE's context, opportunities and resources are often located in different countries. Therefore, MNEs must be consistently integrated with global and local responsiveness (Bartlett & Ghoshal, 1989). Furthermore, the source of domestic market resources, including foreign subsidiarity activities and the association between local actors, recognizes global opportunities and challenges and can leverage new ideas (Bartlett & Ghoshal, 1989). Nevertheless, the autonomous subsidiary must be integrated with the parent, primarily involved in decision-making. Hence, global subsidiaries can easily facilitate parent-subsidiary integration (Song et al., 2018). Moreover, more ties to local knowledge sources strengthen subsidiary bargaining power with parents. Once subsidiaries increase their bargaining power with parents, they may exercise greater autonomy for further development.

According to a previous study by Najafi-Tavani et al. (2015a), subsidiary autonomy is directly related to subsidiary knowledge flow (e.g., RKT that directs to HQ). This study shows that decision-making power increases subsidiaries' knowledge development and reverses knowledge transfer. However, subsidiaries' knowledge development through autonomy may be productive while participating in knowledge transfer. Thus, it concludes that RKT will thrive if the resources and skills of subsidiaries increase by autonomy.

5.2.2.2 External Embeddedness and Reverse Knowledge Transfer (RKT)

External embeddedness and reverse knowledge transfer have been demonstrated in hypothesis 4. The role of external and internal embeddedness has been consistently highlighted in the extant literature (Figueiredo, 2011; Mowery, 2005; Almeida & Phene, 2004; Håkanson & Nobel, 2001). Although external embeddedness significantly impacts subsidiary knowledge development and reverse knowledge transfer, a recent study shows the negative effects on the extent of reverse knowledge transfer (Najafi-Tavani et al., 2012bp.481). In explaining the negative repercussions of external embeddedness on reverse knowledge transfer, one possibility is that the study participants may be apprehensive due to tensions between subsidiaries' and headquarters' attempts to gain greater autonomy and control of their respective information.

Moreover, the country-specific context may change the outcome, perception of knowledge sharing, and knowledge development. For example, in contrast to Najafi-Tavani et al. (2012a), the current study found that external embeddedness had a considerable positive impact on reverse knowledge transfer. However, a more empirical look at the results of studies on subsidiaries' external embeddedness and subsidiary

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knowledge revealed that the findings did not align with the prior studies (Andersson et al., 2007a; Andersson & Forsgren, 2000).

External knowledge resources are crucial in subsidiary knowledge development (Inemek & Matthyssens, 2013; Almeida & Phene, 2004). This knowledge is particularly context-specific in KIBS-based subsidiaries, and subsidiaries must be thoroughly entrenched in the market to obtain it (Andersson et al., 2015c, 2007a). Birkinshaw (1996) likewise concluded that local players were one of the firm's essential sources of competitive advantages. The importance of subsidiaries' expertise cannot be overstated. It is vital to the parent company's knowledge transfer, and if that process is disrupted, the subsidiary's capability serves little use (Kogut & Mello, 2018).

Consequently, headquarters must know that the parent company benefits from the subsidiary knowledge. As a result, the KIBS-based subsidiaries are deeply integrated into their local context. Greater local network integration increases access to essential services such as new knowledge, key suppliers, and consumer or competitor knowledge.

The findings presented by Barney (1991) indicate that scarce, unique, and challenging to replicate firm-specific strategic resources such as capital, organizational capabilities, and technological know-how contribute to creating new levels of technical and managerial reverse knowledge transfer associated with improving technology, company practices, product innovation, marketing, and production capacities for subsidiaries and headquarters. Thus, this study proves that strategic, rare, and non-duplicable knowledge is the source of competitive advantages for Malaysia's foreign subsidiaries. However, these resources can be transferred from one location to another for further use.

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5.2.2.3 Internal Socialization Mechanism and Reverse Knowledge Transfer

In prior studies, the internal socialization mechanism was significant in international knowledge transfer (Williams & Lee, 2016; Bresman et al., 2010). In the participatory atmosphere between subsidiaries and headquarters, the socialization mechanism strengthens the inflow and outflow of knowledge (Williams & Lee, 2016). Furthermore, Noorderhaven and Harzing's (2009) study shows that the socialization mechanism facilitated subsidiary knowledge outflow. On the other hand, Gupta and Govindarajan (2000) show that socialization is vital in the inflow and outflow of subsidiary knowledge. Furthermore, it is against these several considerations that hypothesis 5 claims that while the socialization mechanism and subsidiary inflow and outflow have a significant positive effect, this study reveals adverse effects on the socialization mechanism and reverse knowledge transfer. It may be deduced from the statistics that the internal socialization mechanism does not impede reverse knowledge transfer from the Malaysian-based subsidiaries. The adverse consequence may be the knowledge culture and characteristics of KIBS firms, as knowledge is tacit in nature. Thus, interpersonal connection and socialization mechanisms are the primary means through which tacit knowledge is transferred or exchanged between professional service firms (Beaverstock, 2004).

Although earlier research focuses on highly tangible manufacturing companies (Noorderhaven & Harzing, 2009; Gupta & Govindarajan, 2000), there has been very little work in the services sector. The research is focused on knowledge transfer or reverse knowledge transfer in their socialization processes (in interchangeable applications) (Najafi-Tavani et al., 2014; Segarra & Teruel, 2014). This current study has shown significant findings on the transfer of knowledge and its effect on the internal socialization mechanism, in contrast to the studies by Najafi-Tavani et al. (2012a).

5.2.2.4 Subsidiary-Headquarters Embeddedness and Reverse Knowledge Transfer

A knowledge-creating subsidiary has several unique features. However, several factors have allowed the organization to consistently reach an enhanced competency level over time, such as constant learning from multiple sources (Minin & Bianchi, 2011). Additionally, some distinctive qualities of knowledge-generating subsidiaries are not present in other subsidiaries: headquarters' acknowledgment of a knowledge-generating mandate (Birkinshaw & Hood, 1998). Only subsidiaries primarily aiming to promote knowledge development have superior cooperation between headquarters and subsidiaries. As a result, the interdependence between the parent company and its subsidiaries directly affects the knowledge exchanged between headquarters and their subsidiaries. The outcome of hypothesis 7 indicates no substantial relationship between the subsidiary and headquarters embeddedness associated with the reverse knowledge transfer. This latest study has significant findings in common with earlier studies. Both subsidiary and parent-company integration are related to increased reverse knowledge transfer and emphasize the importance of embeddedness and knowledge transfer (Najafi-Tavani et al., 2012b; Håkanson & Nobel, 2001).

5.2.2.5 Subsidiary Knowledge Development and Reverse Knowledge Transfer

Subsidiaries extensively source knowledge from the host country (Awate et al., 2015; Colakoglu et al., 2014). However, acquiring knowledge from the external environment is not automated; preferably, it must be linked inter-firm and interpersonal through consistent interaction between subsidiaries and headquarters (Almeida & Phene, 2004). Furthermore, from a strategic perspective, subsidiaries should collaborate with headquarters for technological development (Alexy et al., 2013). Hence, the subsidiary extensively develops knowledge by associating externally embedded network partners and competitors. Through this linkage, subsidiaries can create specific knowledge resources, form professional and technical knowledge networks, research and

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development, etc. The findings indicate that subsidiary knowledge development is critical for the flow of subsidiary knowledge, resulting in subsidiary performance.

Earlier research revealed that the potential of a subsidiary to acquire cross-border market knowledge is contingent upon its networking activities (Andersson et al., 2001). This network includes external as well as internal MNEs networks. Subsidiaries are externally embedded through the network. Thus network embeddedness may offer substantial two significant advantages (i) sharing of tacit knowledge and (ii) valuable resources through mutual trust and the social tie to build a coherent norm (Uzzi, 1996). Relationships with the local market externally and with headquarters are significant phenomena of subsidiary knowledge development and increase the flow of knowledge. Therefore, MNEs manager may directly influence their value better to understand the subsidiary knowledge through external and subsidiary-headquarters embeddedness. In addition, subsidiary managers recognize and understand the advantages of knowledge resources embedded in their headquarters (Najafi-Tavani et al., 2015a). Study shows that subsidiaries embedded in external and internal contexts enhance new technology development in the subsidiary and headquarters (Phene & Tallman, 2018).

Table 5. 2: Key Findings of the Determinants of Reverse Knowledge Transfer

Key concepts	The proximity of subsidiaries to the external and internal networks and an effective socialization process are the primary factors of reverse knowledge transfer.
Key studies	SA Bartlett and Ghoshal (1989), Gupta and Govindarajan (2000); Björkman et al. (2004); Håkanson and Nobel (2001); SKD and reverse knowledge transfer Alexy et al. (2013);Almeida and Phene (2004); Najafi-Tavani et al. (2015a)
Key Findings	1. External embeddedness is positively associated with subsidiary knowledge development and reverse knowledge transfer 2. Subsidiary autonomy is a significant factor in reverse knowledge transfer.

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	3. The internal socialization mechanism does not have any direct impact on reverse knowledge transfer 4. Subsidiary-headquarter also does not affect reverse knowledge transfer. However, the relationship between sub-HQ contributes effectively to subsidiary knowledge development. 5. Internal socialization mechanism influences subsidiary-parent firm embeddedness. The primary facilitators of reverse knowledge transfer are subsidiary autonomy, external embeddedness, internal socialization mechanisms, and subsidiary-headquarters embeddedness.

An earlier study found mixed results regarding the role of the socialization mechanism and subsidiary headquarters embeddedness, subsidiary autonomy, and external embeddedness on subsidiary knowledge development and RKT influence. Theoretically, conventional knowledge transfers from multinational enterprises to their subsidiaries and reverse knowledge transfers from subsidiaries to multinational enterprises are formed on the distinct transfer logics (Yang et al., 2008). However, earlier research did not highlight that RKT could be helpful for subsidiaries because it preserves both external and internal network relationship structures, focusing instead on transferring knowledge from the subsidiary to headquarters or vice versa. Due to the network's complex and profound relationship structure and the subsidiary's knowledge development, the third element lacks both external and internal sources of knowledge. Subsidiaries transfer knowledge to headquarters, but evaluating both subsidiaries and headquarters is challenging due to the complex nature of their network relationships. Even though some research has established the effect of RKT on the innovative capacities of the parent firm, it is essential to explore the impact of external knowledge on subsidiary performance. In addition, the significance of subsidiaries' external embeddedness as an innovation performance output (i.e., SKD and RKT) cannot be distinguished from the notion of subsidiary autonomy, which is defined as the amount to which a subsidiary has decision-making authority in

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managerial, administrative, and operational domains through its parent company (Taggart & Hood, 1999).

Consequently, the outcomes of this study suggest that in the context of the KIBS business, developing and maintaining interdependent links with the local community is one of the most critical factors for expanding knowledge. The relationship between knowledge development and external embeddedness, subsidiary-headquarters embeddedness, subsidiary autonomy, and internal socialization mechanism was examined.

Even though a prior study identifies the socialization mechanism and the embeddedness of subsidiaries-headquarters managers as the most significant predictors of RKT (Najafi-Tavani et al., 2015a), contradictory results exist, and the idea was analyzed from a different angle. Vega-Jurado et al. (2008), for instance, view socialization mechanisms as a formalization integration that refers to the degree to which headquarters interactions are associated with their institutional business activities utilizing official organizational procedures and directives. Compared to formalization assimilation, socialization mechanism include shared practices, communication, and interactions that can lower formal or informal knowledge flow barriers between headquarters and subsidiaries.

In addition, Stea et al. (2015) propose that headquarters engagement, as seen by subsidiary managers, is likely to constrain entrepreneurial and proactive activity by pinpointing socialization mechanisms as boundary conditions for this relationship. The research reveals that socialization mechanisms can be employed to manage subordinate behaviour gently. Moreover, it has been established that the socialization mechanism and SHE allows the exchange and combination of inter-unit resources and shape inter-unit strategic partnerships (Tsai, 2000; Tsai & Ghoshal, 1998). In contrast to earlier studies

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demonstrating the effect of socialization mechanisms and SHE on RKT, the result in this study were not statistically significant. However, it has been discovered that the socialization mechanism strengthens ties between subsidiaries and headquarters.

In contrast, subsidiary headquarters embeddedness promotes subsidiary knowledge. Following intra-MNE knowledge transfer, the socialization mechanism shape enter-unit strategic linkages (Yang et al., 2008; Tsai, 2000) and reduces tension between subsidiaries and headquarters (Decreton et al., 2019). Based on the empirical research undertaken for this study, it has been concluded that the socialization mechanism has a statistically significant impact on the interaction between subsidiaries and headquarters. The socialization mechanism does not entail knowledge transfer to foster a close relationship between subsidiaries and headquarters. This research confirms the findings of Decreton et al. (2019) and Vega-Jurado et al. (2008), namely that shared interaction, communication methods, and guided interaction procedures can reduce the barrier to maintaining close links between subsidiaries and headquarters.

In contrast, subsidiary headquarters embeddedness enhances subsidiary knowledge but excludes the knowledge transfer process, resulting in a statistically insignificant result. This is since the concept of subsidiary-headquarter embeddedness may encourage the development of new knowledge that can enhance subsidiary performance. While evaluating the knowledge management process within the network of MNEs, this study proposes the knowledge anchoring mechanisms that allow subsidiaries to integrate both external and internal knowledge from the external and internal environment (Ferraris et al., 2018; Ciabuschi et al., 2014). Therefore, this study proposed an initial knowledge management strategy for the subsidiary in which the subsidiary must identify and successfully absorb useful new knowledge as a knowledge acquirer and utilizer.

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5.3 Internal Relationship Characteristics, Subsidiary Knowledge Development, and Reverse Knowledge Transfer

This study indicates that the crucial internal relationship between headquarters and subsidiary managers is significant for subsidiary knowledge development and reverse knowledge transfer. Apart from the organizational collaboration between headquarters and subsidiary managers, increasing the time spent on joint training programs and other activities assigned by headquarters is critical for developing internal relationships between subsidiaries and headquarters. Furthermore, the socialization mechanism will be effective if both managers exchange their knowledge for further development. This section explains the impact of internal socialization mechanisms and subsidiary headquarters embeddedness.

5.3.1 Subsidiary Knowledge Development and Reverse Knowledge Transfer

Like external relationship characteristics where external embeddedness and subsidiary autonomy are the primary determinants of subsidiary knowledge development, the internal socialization mechanism is a significant factor for internal knowledge exchange between subsidiaries and headquarters and subsidiary manager assistance in developing subsidiary knowledge. The section describes the factor associated with internal knowledge development (i.e., through subsidiary-headquarters embeddedness and internal socialization mechanism).

5.3.1.1 Internal Socialization Mechanism and Subsidiary-Headquarters Embeddedness

Prior research demonstrated that certain companies' internal socialization mechanisms given the most attention to subsidiary-headquarters embeddedness issues. Internal socialization mechanisms strengthened the parent firms' and subsidiaries' relationships (Bresman et al., 2010). In another study conducted by Najafi-Tavani et al. (2012a), the

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internal socialization mechanism contributes to the growth in subsidiary-parent relations. Similarly, this study discovered that the internal socialization mechanism benefits the subsidiary-headquarters embeddedness measured by hypothesis 6. The socialization mechanism has a particular trait that ensures face-to-face interaction impacts tacit knowledge (Bartlett & Ghoshal, 1989). Consequently, the geographical distance between the two countries may be hampered knowledge transfer. As a result, it is feasible that using socialization mechanism will help to alleviate the partner's motivational and ability concerns (Schreiner et al., 2009).

The definition of internal embeddedness is often referred to as the subsidiary headquarters embeddedness in which business relationships are typically maintained. The internal network is the firms' internal production network, part of the inter-organizational network between subsidiaries and headquarters (Andersson et al., 2015a).

This network is often called the internal social network, which develops knowledge through subsidiaries and headquarters managers. On the other hand, internal embeddedness is often referred to as headquarters being embedded with subsidiaries within the parent company (Oehmichen & Puck, 2016). A subsidiary close to the headquarters would likely need to have "interdependence business-like relationships" with other subsidiaries to avoid complexity and rivalry (Andersson & Holm, 2002, p. 361). However, internal ties can grow powerful if network members correctly reach the internal socialization mechanism.

The socialization mechanism includes formal or informal features of specific knowledge transfer routines, processes, events, scheduled planned visits, systematic sharing of technological designs, and personnel movement between technical training, ad hoc committees, joint training, and task force. Socialization mechanisms are to be used to facilitate multiple goals (Maanen & Schein, 1977). According to the KIBS industry's

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study, socialization is essential for knowledge diffusion and new knowledge development within the intra-firm network (Tsai, 2001; Tsai & Ghoshal, 1998; Szulanski, 1996). Thus, KIBS ensures reverse knowledge transfer and the exchange of best practices through the socialization mechanism.

Table 5. 3: Key Findings of the Determinants of Internal Relationships Characteristics, Subsidiary Knowledge Development, and Reverse Knowledge Transfer

Key concepts	Key studies	Key findings
Internal socialization mechanism positively influences subsidiary-headquarters embeddedness and enhances the ability of subsidiaries to develop new knowledge.	Noorderhaven and Harzing (2009);Szulanski (1996);Tsai and Ghoshal (1998);Tsai (2001);Najafi-Tavani et al. (2012a);	1. Internal socialization mechanism positively contributed to building an embedded relationship between subsidiaries and the parent firm.
	ISM	
Embedded relations	Oehmichen and Puck (2016); Andersson et al. (2015a);	2. Subsidiaries' embedded relations positively affect subsidiary knowledge development.

5.4 Mediation Relations and Their Impact

The section below demonstrates the several mediation relationships from the literature gap and theory.

5.4.1 Several Mediating Impacts on Reverse Knowledge Transfer

This study examines the mediating role of subsidiary knowledge development (SKD) and subsidiary-headquarters embeddedness (SHE) in the relationships between subsidiary autonomy, external embeddedness, and internal socialization mechanism (ISM) to examine the mediation relations with reverse knowledge transfer (RKT). As RKT is not theoretically related to mediation interactions, the inquiry was followed by a multi-model

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analysis utilizing a single mediator model. This study used Baron Kenny's mediation approach to finding the relationships and Hayes process Macro to validate Baron Kenny's approach and determine whether discrepancies persisted in the analysis. Based on Baron Kenny's and Hayes' analyses of mediation, no substantial inconsistencies were detected; instead, the technique yields identical results. This research defined and contributed to the body of knowledge by examining four types of mediation with influence.

There is a significant direct relationship between subsidiary autonomy (SA) and RKT, as well as indirect or mediating interactions between RKT, SA, and SKD. Since the direct and indirect correlations are significant, as indicated in H11a, SKD partially mediated the connection between SA and RKT. Based on the result, this study confirms with earlier studies that to exercise autonomy, subsidiaries must establish a presence in the local context (Najafi-Tavani et al., 2015b). Hence subsidiaries' external embeddedness as a subsidiary knowledge development insight could be separated from either the discourse of subsidiary autonomy, which would be defined as the extent to which a subsidiary has decision-making power over its parent corporation in pursuit of management, operational, and organizational areas (O'Donnell, 2000), and thus can develop subsidiary knowledge. In contrast, a (2014) and (2015b) study by Najafi reveals that subsidiary autonomy increases the flow of reverse knowledge and maintains the correlation between reverse knowledge transfer and subsidiary autonomy. However, this study has studied the underlying processes of this correlation. As long as SA continues to improve its subsidiary's knowledge of and participation in RKT, it is predicted that RKT will be reinforced through SKD's tie to SA. In the context of reverse knowledge transfer with external embeddedness, subsidiary knowledge development (SKD) is partially mediated.

Regarding reverse knowledge transfer with subsidiary-headquarter embeddedness (SHE), the mediator SKD is similarly statistically significant, demonstrating mediation.

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SKD mediates external embedding and RKT, according to hypothesis H11b. In addition, the research indicates that both direct and indirect impacts are statistically significant. Therefore, it is asserted that SKD partially mediates between EE and RKT.

In hypothesis H11c, it is proposed that SKD will facilitate the interaction between SHE and RKT. Statistical research suggests, however, that while the direct association is insignificant, the indirect influence is significant. Consequently, SKD mediated the relationships between SHE and RKT. The results of H11d, the fourth mediation hypothesis, are identical to those of H11c, demonstrating that SHE mediates the associations between ISM and RKT.

In addition, this study provides substantial support for the connection between subsidiary-parent firm embeddedness and knowledge development. This study expands on earlier research and exposes the limitations of previous studies; specifically, they did not investigate the qualities pertinent to RKT and its beneficial effect on subsidiaries. Ferraris et al. (2020) demonstrate that the relational embeddedness of subsidiaries into the external local network is crucial for knowledge development. This study also revealed that reverse knowledge transfer necessitates internal embeddedness, a precondition for the leap from local creativity to the global invention. Consequently, it is assumed that SKD mediates between SHE and RKT.

Headquarters benefit undeniably from subsidiary knowledge, but autonomous practice granted by headquarters and embeddedness with headquarters are the primary sources of subsidiary knowledge development and reverse knowledge transfer. RKT and subsidiary knowledge development assist not only headquarters but also subsidiary innovatiness. Moreover, the subsidiary's innovative capabilities and strategic knowledge resources provide a footing in the MNEs' network.

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Using socialization mechanisms, which also significantly impact RKT, it is possible to enhance the ties between the subsidiary and the parent firm. Moreover, the embeddedness of the subsidiary headquarters is crucial for RKT and needs further examination. A recent study discovered that headquarters participation had a detrimental effect on subsidiary management actions (Decreton et al., 2019). Nevertheless, according to network theory, the close interaction between subsidiaries and headquarters increases knowledge transfer within the subsidiary, which is vital for both. On the other hand, embeddedness between subsidiary headquarters increases subsidiary knowledge. In addition, due to the proximity of formal and informal socialization mechanisms and the interaction between subsidiaries- and headquarters-level managers, unusual and non-replicable knowledge that is crucial for subsidiaries is exchanged. As long as both ISM and SHE participate in RKT, the framework illustrates that SHE mediates the relationships between ISM and RKT.

5.4.2 Effects on Control Variables

Additionally, several variables were considered to account for additional determinants of reverse knowledge transfer and subsidiary efficiency. First, since this research uses a sample of subsidiaries established by MNEs, it captures the entry mode. Data collected in this study are primarily from foreign subsidiaries located in Malaysia. This study controls entry mode, greenfield, or acquisition (Mudambi & Piscitello 2014). However, this research accounted for entry mode, age, and size in unique subsidiary characteristics. Acquired subsidiaries are typically more rooted in the local knowledge network than Greenfield subsidiaries (Santangelo et al., 2019; Erramilli & Rao, 1990). Hence, it is predicted that while subsidiaries might be uncertain in local embeddedness, headquarters acquire them and may lack reliable and strong market knowledge.

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However, it is assumed that the local subsidiaries initiate a more efficient local embedded network to compute entry mode (Andersson, Johanson, & Vahlne, 1997). Nevertheless, the local subsidiaries initiate a more efficient local embedded network (Andersson, Johanson, & Vahlne, 1997). Thus, this research uses a binary variable to acquire entry mode to compute the mode of entry. No effect on the mode of entry was found in this investigation based on the measured data.

Additionally, the age of the subsidiary can affect reverse knowledge transfer and performance. Older subsidiaries may have an advantage over younger subsidiaries (Rabbiosi & Santangelo, 2013). The structural model operationalizes subsidiary age as the period since the subsidiary's inception.

The study assessed three control variables: subsidiary size based on employees, the working period of subsidiary experience (age), and entry mode, i.e., Greenfield and acquired subsidiaries.

Subsidiary sizes included several employees from 1 to 600. A structural model that incorporated the size of the subsidiary as a control variable indicated that size had no discernible effect on reverse knowledge transfer but had an impact on subsidiary performance.

Besides, it is argued that subsidiary size might significantly impact reverse knowledge transfer and subsidiaries' performance because reverse knowledge transfer requires vast resources to be performed and contribute to the MNE knowledge. More significant subsidiaries are better positioned and more likely to provide a knowledge base for developing local embeddedness. As to their ability to see new opportunities and responsibilities, larger subsidiaries are more inclined to participate than smaller ones

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(Santangelo et al., 2019; Andersson et al., 2003). This research produced a positive result with the perception that more significant subsidiaries perform better than smaller ones.

5.4.3 An Integrated View of Reverse Knowledge Transfer and Subsidiary Performance

Based on the network-based and through the lens of resource-based framework and combined efforts with reverse knowledge transfer and subsidiary performance, several factors have been established that lead to the principal conclusions. These include (i) subsidiary knowledge development characteristics maintaining an external relationship, (ii) internal relationships character through socialization mechanism and subsidiary-headquarters embeddedness, and to what extent reverse knowledge transfer positively affects foreign subsidiary performance. This research investigates the combined impact of these factors on the foreign subsidiaries' performance in Malaysia; however, the external relationships with networks partner and internal relationships with internally embedded subsidiaries with headquarters are accumulated knowledge and contribute to the MNEs' knowledge-based and performed subsidiary effectively. Consequently, subsidiaries should include a source of innovation (Birkinshaw et al., 2005) and serve as a network leader in quality for the entire MNE network (Silveira et al., 2017; Cantwell & Mudambi, 2005).

Moreover, previous research supports the notion that conventional knowledge building is enabled by various knowledge sources, providing overall knowledge development and transfer (Frost, 2001). However, regarding global integration and innovation, the significance of subsidiaries suggests that they significantly affect knowledge acquisition and production within multinational companies (Qin et al., 2011; Rabbiosi, 2011; Frost & Zhou, 2005). There are two main influences on the outcome of this research and external and internal knowledge acquisition: subsidiary autonomy and embeddedness.

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The following hypotheses, including hypotheses 1, 2, and 9, demonstrate the essential positive relationship with subsidiary knowledge development. As a result, subsidiary autonomy and external embeddedness are essential determinants of the development of subsidiary knowledge. According to Foss and Pedersen (2002), when a business is more independent, it is more likely to innovate and transfer knowledge to headquarters. Nahapiet and Ghoshal (1998) highlighted that subsidiary autonomy is the primary facilitator of subsidiary innovativeness. Besides Ghoshal and Bartlett (1988) and Najafi-Tavani et al. (2012a), this is one reason why autonomous subsidiaries are more effective in creating and disseminating new knowledge. Due to reduced communication costs and the potential for developing symbiotic or beneficial relationships with the parent company, the subsidiaries' autonomy to make these decisions will accelerate the production of new products or disseminate innovation processess for subsidiary.

Similarly, external embeddedness facilitates positive subsidiary knowledge development in this research (hypothesis 2). Knowledge is developed by accumulating subsidiary relationships with external actors and acts as a knowledge-gathering device that can alter knowledge inflow and outflow (Søberg & Wæhrens, 2020; Andersson et al., 2015d; Andersson et al., 2007b; Andersson et al., 2002). Subsidiaries' ability to develop knowledge from networked partners may contribute to the MNE knowledge base. The degree to which a business network is integrated within suppliers, consumers, and competitors (Su et al., 2009). Besides, as MNEs' strategic decisions are frequently amid management and new product development problems, they must navigate this aspect or network of relationships to sustain strategic managerial decisions or new product development. This phenomenon is associated with internally embedded relationships, recognized as internal embeddedness. As a part of the research outcome, this study highlighted that integrating subsidiaries-headquarters creates interdependence between subsidiaries and headquarters within the MNEs (Pearce & Papanastassiou, 2009).

Embedded relational behaviour into subsidiary-headquarters environments enables knowledge development and the transfer of this behaviour (Dellestrand & Kappen, 2012).

The group comparison results show that no influence between older subsidiaries influences local embeddedness and reverse knowledge transfer; successful knowledge development depends on long-term relationships and strong commitment (Andersson & Forsgren, 2000). While older subsidiaries have the edge over the younger ones, the younger ones will proliferate due to market competition (Narula & Santangelo, 2012). It is also essential to better set and sustain external embeddedness, which takes many resources that more significant subsidiaries may be better able to have (Andersson et al., 2005). Although previous research significantly highlighted that meaningful relationships appear in the Greenfield subsidiaries in the entry mode in the KIBS study. However, no significant changes were found in either Greenfield or acquired subsidiaries in this research.

5.5 Summary of the Research Findings

Performance in the service industry with a specific focus on KIBS in either new product development, management improvement, or innovation is the key driving force in the MNEs marketplace. There is a growing demand for benchmarking the efficiency and quality of production and defining the factors leading to favourable results and outcomes for the foreign subsidiaries in Malaysia's KIBS industry. The emergence and evolution of service innovation originated from the KIBS-centred sector since it is considered a fundamental innovation feature (Windrum & Tomlinson, 1999). Within the MNEs context, KIBS facilitates and promotes the parent company's human resources by gathering a knowledge base using intangible aspects (e.g., know-how). Furthermore, it provides tailored, high-value services and allows customers to capitalize on their knowledge capacity. KIBS enterprises have a strong positive association with external

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and internal embedded networks, which results in their serving as a source of knowledge for subsidiaries and headquarters. Hence, these intangible aspects become the primary driver for value creation and play a significant role in better performance, such as knowledge dissemination, technological improvement, customer satisfaction, productivity, service improvement, or new product development for the parent company.

The extant literature focused on studying cross-border knowledge transfer with MNEs in general (Juasrikul et al., 2018; Berry, 2015; Yang et al., 2008; Gupta & Govindarajan, 2000; Hippel, 1994). Several studies have shown that reverse knowledge transfer efficacy is influenced by subsidiary performance. There have been few studies focusing on service-based KIBS. The ones focused on it found that it is highly intangible and important in reverse knowledge transfer and subsidiary performance (Pina & Tether, 2016; Amara et al., 2016; Najafi-Tavani et al., 2012a). The majority of the studies to investigate the impact of KIBS on manufacturing-based KIBS were undertaken to understand better a firm's competitiveness (Wyrwich, 2019; Doloreux & Frigon, 2019; Chichkanov et al., 2019; Evangelista et al., 2015; Hall et al., 2014; James et al., 2013). Over the past decade, the general impression of KIBS in the service sector is that it is lagging behind innovation. It is known that much of the creation or product innovation happens in the manufacturing-based KIBS, in contrast to the service-based KIBS (Windrum & Tomlinson, 1999).

Over the past decade, studies have illustrated that many KIBS have also been strongly emphasized in international business research alongside the service industry environment in the present time. Previous empirical research has not entirely examined various determinants of subsidiary knowledge development (e.g., subsidiary autonomy, external embeddedness, subsidiary headquarters), and reverse knowledge transfer is associated with subsidiaries' performance. Researchers have previously found that reverse

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knowledge transfer can affect the knowledge base of MNEs; in this manner, other researchers have recognized the significance of reverse knowledge transfer and subsidiary power and innovation (Griffith & Lee, 2016; Najafi-Tavani et al., 2014; Fang et al., 2013). In addition, research conducted on KIBS and Najafi-Tavani et al. (2012a) has shown that it considerably impacts external embeddedness and knowledge development, which is significantly detrimental. Furthermore, there is no clear evidence that fast-paced shifts in the research field negatively influence external embeddedness and knowledge development. Furthermore, there is no convincing evidence that rapid change in a particular study area negatively affects subsidiary knowledge development and reverse knowledge transfer. On the other hand, external embeddedness is a determining factor in developing subsidiary knowledge.

Nonetheless, this study examined the stimulating effect of reverse knowledge transfer on subsidiary performance. This study showed that external embedded ties strongly link subsidiary performance with suppliers, competitors, or customers. When the outcome of this study was compared to the subsidiary's network of the MNE, it proved subsidiaries are improving their standard of service over time. Subsidiaries' performance is high while subsidiaries externally and internally have been embedded within the MNEs network. The network of nodes used by MNEs (parent firms, subsidiaries, and subsidiaries' local actors) for communication between them and their local actors (customers, suppliers, competitors, etc.) is comprised of a large number of interlinked subsidiaries. While true, the firm retains business interactions with them through the network.

This study determines whether a significant connection exists between foreign subsidiaries' performance in the KIBS sectors and “reverse knowledge transfer impacts." Besides, it is known that external and internal development activities are correlated with subsidiary knowledge development. In addition, how the decision-making practices of the subsidiaries are also the major contributor to subsidiary knowledge development. This knowledge contributes to both the MNEs and subsidiaries strongly. Therefore, the findings of this research could benefit parents and subsidiaries. Below is a description of the results of this study that were reported:

- To a large degree, subsidiary autonomy has a major impact on the development of subsidiary knowledge.
- External embeddedness has quite a considerable effect on the development of subsidiary knowledge.
- Subsidiary autonomy does have a profound effect on reverse knowledge transfer.
- External embeddedness has a significant impact on reverse knowledge transfer.
- There was a negative correlation between internal socialization mechanisms and reverse knowledge transfer; however, there was a significant positive correlation between internal socialization mechanisms and subsidiary headquarters embeddedness.
- The embeddedness of subsidiary headquarters has no discernible effect on reverse knowledge transfer.
- The development of subsidiary knowledge has a substantial impact on reverse knowledge transfer.
- Subsidiary headquarter embeddedness has a considerable effect on subsidiary knowledge development.
- Reverse knowledge transfer has a significant impact on the success of subsidiaries.

This study's primary purpose is to determine the effect of reverse knowledge transfer on foreign subsidiary performance in the context of the Malaysian KIBS industries, which are regarded as the most "attractive industry in the service sector." This study supports the connection between the embeddedness of subsidiary headquarters and subsidiary-level knowledge development. Consequently, the importance of subsidiaries' external embeddedness as an innovation performance output (i.e., SKD and RKT) cannot be distinguished from the concept of subsidiary autonomy, which is defined as the degree to which a subsidiary has decision-making power in managerial and operational domains (Taggart & Hood, 1999). Consistent with previous empirical research (Beugelsdijk & Jindra, 2018; Najafi-Tavani et al., 2015b; Najafi-Tavani et al., 2012a; Gammelgaard et al., 2012), this study studied the interaction between external relationship characteristics (SA and EE) involved in subsidiary knowledge development and RKT and internal relationship characteristics (i.e., SHE and ISM) engaged in the RKT. ISM builds interestingly strong links between subsidiaries and headquarters rather than directly engaging in RKT, and the association between ISM and RKT is statistically insignificant.

Several earlier research implies that subsidiary influence on the development of knowledge can be described by its network-based activities, which are primarily studied in connection to external embeddedness (Dezi et al., 2021; Andersson et al., 2007a). While the literature suggests that it is crucial to consider subsidiary–headquarters relationships when investigating subsidiary influence (Birkinshaw, 2016; Najafi-Tavani et al., 2012b), this association has been the subject of few empirical studies that may not apply to the field of study as a whole. This work proposes two novelties (see figure.2.4): First, it integrates the literature that emphasizes the significance of both external and subsidiary embeddedness (Ferraris et al., 2020; Najafi-Tavani et al., 2012b). Subsidiary autonomy, external embeddedness, and subsidiary headquarters embeddedness are the determinants of subsidiary knowledge development in the context of subsidiary performance (Najafi-Tavani et al., 2015a; Najafi-Tavani et al., 2012a; Håkanson & Nobel, 2001). This study demonstrates a significant positive correlation between knowledge development and RKT.

However, the present study extends the complex network phenomenon in which implications of nested relationships are not only subsidiary to headquarters but also external relations to subsidiaries and internal relationships to headquarters, as the indicators of this research subsidiary performance in relation to RKT have been less studied. Previous research on RKT emphasized the influence of subsidiary knowledge and its innovative performance for headquarters (Jiménez et al., 2019; Nair et al., 2018). According to Nair et al. (2018), the extent of RKT with the tacit subsidiary knowledge. Emerging market MNEs connected with RKT more frequently when encountering tacit knowledge, demonstrating their dedication and willingness to acquire strategic knowledge assets. On the other side, Jiménez et al. (2019) study revealed that tacit knowledge is crucial for strengthening the competitive advantage of MNEs, notably when this advantage is founded on innovation within the MNEs. Both studies focus on the innovation potential of multinational corporations with subsidiary knowledge. Significant for both subsidiaries and MNEs, network knowledge (both external and internal) is absent from the analysis of subsidiary performance. If the subsidiary fails to establish itself within the MNEs, the relationships may deteriorate over time, and the subsidiary may lose its competitive edge. RKT is hence influential for subsidiaries to achieve position and autonomy within MNEs (Najafi-Tavani et al., 2015a).

5.5.1 Mediation Relations among the Constructs

- H11a: The relationship between subsidiary autonomy and RKT is mediated through subsidiary knowledge development.
- H11b: The relationship between external embeddedness and RKT is mediated by subsidiary knowledge development.
- H11c: The relationship between subsidiary headquarters embeddedness and RKT is mediated by subsidiary knowledge development.

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- H11d: Subsidiary headquarter embeddedness acts as a mediator between internal socialization mechanisms and RKT.

Based on past studies, the relationship between new product development or innovation/performance in subsidiaries of MNEs and the degree of autonomy in strategic decision-making and access to local external network knowledge is fundamental (Jun et al., 2019; Beugelsdijk & Jindra, 2018). While subsidiaries can make independent decisions, they are more likely to be externally active, granting them access to strategic knowledge. If they lack decision-making authority, MNE subsidiaries cannot acquire competence. To exercise autonomy, however, a degree of knowledge development is necessary. Regarding external interactions, subsidiary autonomy and external embeddedness are crucial for subsidiary knowledge development.

Furthermore, there is a strong association between subsidiary autonomy and external embeddedness in relationship to RKT. In addition, the RBV theory predicts that while subsidiaries develop rare and unique knowledge, the likelihood of RKT will increase. Therefore, subsidiary autonomy and external embeddedness can be predicted directly through RKT and indirectly through SKD's interaction in RKT.

According to network theory, embedded relations between internal and external networks support subsidiaries and headquarters with global operations and knowledge activities. As long as externally integrated subsidiaries operate with local networks, confidence and collaboration will increase, facilitating cross-organizational knowledge transfer. Both direct and indirect effects are necessary based on the first two mediation hypotheses developed from the existing literature (H11a and H11b).

According to the results of our mediation research H11a, both direct and indirect effects are crucial. Consequently, referencing "SKD" suggests that there is an effect

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between "SA" and "RKT." H11a has the same result as H11b. In this research context, both direct and indirect effects are significant, meaning that SA and EE directly engage in RKT. To strengthen relationships and improve subsidiary performance, they engage in SKD, which enhances the subsidiary knowledge development process and participates in RKT. SKD partially mediates the relationships between SA and EE concerning RKT based on the mediation theory that direct and indirect relationships are significant.

Based on the third (H11c) and fourth (H11d) mediation relationships that developed from the internal relationships characteristics criteria, which are the positive association and statistical significance of strong ties between subsidiaries and headquarters for subsidiary knowledge development, as confirmed by an earlier study by Najafi-Tavani et al. (2015a). When internal and external networks are interconnected, they aid subsidiaries and headquarters with global operations and knowledge-based activities (Andersson et al., 2015d, 2002). This strategy assumes that strategic resources can be identified by creating social interactions and internal networks amongst subsidiaries. According to an earlier study by Najafi-Tavani et al. (2015a), the embeddedness of subsidiary headquarters is the most significant predictor of reverse knowledge transfer (direction from subsidiary to headquarters). However, in this study, SHE did not participate in RKT; instead, SHE was statistically and significantly meaningful through mediator linkages between subsidiaries' knowledge development. SHE is considered not involved in RKT, despite being a significant predictor of RKT when knowledge is sent to headquarters, and internal network knowledge is used for subsidiary product development. It focuses on subsidiary knowledge development, the most significant addition to the field of study. So long as this study examines the Hayes and Preacher (2014) and Baron & Kenny (1986) approaches to mediation analysis, both statistical techniques support the mediation linkage. Regarding the fourth individual mediation link obtained from the literature, the

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embeddedness of subsidiary headquarters mediates the relations between internal socialization mechanisms and RKT.

Establishing close ties between a subsidiary and its parent firm necessitates internal socialization and headquarters-subsidiaries subsidiaries, as Gupta and Govindarajan (2000) suggested. Moreover, the embeddedness of subsidiary headquarters is essential for RKT and must be investigated further. Based on the concept of a literature gap, this study determined that there is no established association between internal socialization mechanisms and RKT. However, ISM involves RKT in maintaining the embeddedness of subsidiary headquarters and establishing strong mediation relations. Based on the statistical concept and outcome, it could be assumed that the direction of the knowledge transfer is crucial for establishing the linkages that occur in the context of the RKT.

5.5.2 R2 (Square) Summary of the Result

R-squared is the most used statistic for evaluating a regression model's ability to explain observed data. R2, which assesses the proportion of variation explained by each endogenous variable, demonstrates a model's explanatory ability (Shmueli & Koppius, 2011). For instance, an r-squared value of 55.7% indicates that the regression model explains 55.7% of the observed variability in the target variable. Therefore, a larger r-squared suggests that the model describes the variance more effectively. Henseler et al. (2009) state that R2 values of 0.75, 0.50, and 0.25 are significant, moderate, and weak. In specific fields, such as stock return prediction, an R2 value as low as 0.10 is acceptable (Raithel et al., 2012). R2 must always be interpreted within the context of the study and compared to similar studies and models of comparable complexity. In this study, three exogenous variables accounted for the variance in subsidiary knowledge development: subsidiary autonomy, external embeddedness, and subsidiary headquarters embeddedness. Comparable to how the internal socialization mechanism can explain

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36.7% of the variance in subsidiary headquarter embeddedness, subsidiary autonomy, external embeddedness, subsidiary headquarters embeddedness, internal socialization mechanism, and subsidiary knowledge development can explain 68% of the variance in RKT. RKT may account for 55.7% of the variance in subsidiary performance. According to Henseler et al. (2009), the influence of RKT on subsidiary performance falls between 0.75 and 0.50, which means that the impact of RKT on subsidiary performance is significant.

5.6 Implications and Reflections of the Research Carried Out, including Limitations.

The study aims to address the study's primary research questions and various sub-research questions introduced in chapter one (1). The interpretation and consequences of the findings have been explored as the limitations. Additionally, this study added to the existing body of knowledge by addressing the following questions:

"To what extent do subsidiary knowledge development, internal socialization mechanism, and subsidiary-headquarter embeddedness impact reverse knowledge transfer, and how do they affect the performance of foreign subsidiaries in KIBS in Malaysia?"

This analysis applied an SEM to survey data from an original sample of 234 foreign subsidiaries in Malaysia. This thesis explores the impact of reverse knowledge transfer and subsidiary performance on service-based KIBS firms. This study aimed to demonstrate that high subsidiary autonomy and external embeddedness are conducive to knowledge development.

Embedded relationships ensured the availability of resources and intangible resources they could access through subsidiaries, subsidiaries-headquarters networks, and external

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networks (Hamel, 1991). New and rare strategic knowledge will be created between channel members, suppliers, customers, and non-channel members, such as competitors, research institutions, and universities (Najafi-Tavani et al., 2018; Möller & Halinen, 2017; Alexiev et al., 2016). Both types of channel members maintain a network of relationships. Based on the sub-questions that show that subsidiaries are externally aligned with external players, they can acquire new knowledge and increase reverse knowledge transfer in the subsidiary. This subsidiary thrives based on new services and products being developed. The result shows that relationships with external actors through network ties create the resource bundle that improves subsidiaries to build innovation capacity or new product performance. While subsidiaries are consolidated with headquarters, these resource bundles are transferred to headquarters, and headquarters are better positioned to make strategic decisions for future development. Academic literature from the KIBS sector suggests that the most critical impacts of external actors (such as suppliers and competitors) are essential to knowledge development.

According to sub-research question 1, the proposed subsidiary autonomy facilitates knowledge development. This research demonstrates a significant positive outcome of the subsidiary autonomy associated with knowledge development. Indeed, in keeping with prior findings, the result is that subsidiary autonomy positively affects subsidiary knowledge development. Following previous findings (Najafi-Tavani et al., 2012a; Rabbiosi, 2011; Cantwell & Mudambi, 2005), the result confirms and supports those subsidiaries that practice autonomy are better equipped to leverage more knowledge. As a result, it is more likely that the autonomous subsidiary will be at the forefront of discovering, developing, and disseminating new knowledge (Ghoshal & Bartlett, 1988). In a global market, subsidiaries with high autonomy and embeddedness have mutually beneficial ties with their local markets (customers, suppliers, competitors, and research institutions). The second sub-questions are that external embeddedness can affect subsidiary knowledge development. This research could theoretically recognize that external relations (for subsidiaries) positively influence the development of subsidiary knowledge.

A set of the third sub-questions pose the hypothesis that there is a connection between reverse knowledge transfer and subsidiary knowledge development. This study demonstrates that the stock of subsidiary knowledge associated with reverse knowledge transfer is a significant positive factor for subsidiary performance. The findings indicate that subsidiaries in the KIBS sector accumulate knowledge through embedded relationships and then transfer it in various forms, including sales and marketing know-how, management system and practice know-how, distribution know-how, service production strategy know-how, and marketing know-how. Continuing the preceding study's finding, subsidiaries cannot acquire power unless they participate in knowledge development and later contribute to reverse knowledge transfer (Najafi-Tavani et al., 2012b). This study demonstrates that autonomous subsidiaries actively participate in reverse knowledge transfer.

In response to the sub-questions, the internal socialization mechanism positively affects building relationships between subsidiaries-headquarters. Besides, subsidiary-headquarters embeddedness affects the firm's knowledge development. The result confirms that internal socialization mechanisms (i.e., the need for reciprocity) are considerably involved in maintaining a strong tie with subsidiaries and headquarters. Subsidiary-headquarters embeddedness is also significantly correlated with subsidiary knowledge development. However, research questions support that subsidiaries and headquarters are more integrated and have greater knowledge development potential due to the socialization mechanisms. The frequent interaction between the subsidiaries and

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their headquarters allows the subsidiary manager to create an organizational knowledge network.

Prior studies encourage knowledge exchange facilitation within the intra- firm through socialization mechanisms (Gupta & Govindarajan, 2000). Therefore, implicit knowledge depends on an employee's familiarity with the topic, which is present through daily encounters and communicated through frequent meetings in many different ways (Griffith & Lee, 2016; Sheng et al., 2015; Roth et al., 2009). The socialization mechanism increases knowledge development by helping subsidiaries and headquarters connect and transfer knowledge (Özsomer & Gençtürk, 2003). Eventually, this study found that the internal socialization mechanism is significantly positive in maintaining embedded relationships between subsidiaries and headquarters and contributes to subsidiaries' knowledge development. However, this research does not support the internal socialization mechanism to reverse knowledge transfer. There are several potential reasons that no relationships were detected.

The communication between headquarter and the subsidiary manager is to be seen as there is no relationship between the internal socialization mechanism and reverse knowledge transfer due to the improper communication method between the subsidiary and the headquarters manager. One more explanation is that cross-border interaction can make knowledge transfer less efficient. However, a growing body of evidence indicates that positive ties between socialization mechanisms on knowledge transfer are emphasized (Cano-Kollmann et al., 2016; Noorderhaven & Harzing, 2009; Gupta & Govindarajan, 2000).

Second, this result may imply that the exchange of knowledge, especially the tacit one transferred through formal or informal meetings or communication or joint task force, and training programs between KIBS firms and their clients is enhanced by trust (Scarso

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& Bolisani, 2012). Such relationships are much easier to develop during face-to-face contact (Gotsch et al., 2011). Thus, it improves subsidiaries-headquarters relationships, and relationships increase the flow of knowledge at the subsidiary level. As long as a subsidiary knowledge development is associated with knowledge transfer and this knowledge generates through the embedded relationships between the subsidiary and headquarters, it indirectly facilitates reverse knowledge transfer. Nonetheless, numerous aspects of firms and their environments affect firm performance. Therefore, the direct relationship between internal socialization mechanisms with reverse knowledge transfer is intertwined.

Finally, no relationship may have been detected due to the heterogeneity of foreign subsidiaries' size and type used in this study. In this study, the organizational size ranges and type of industry may influence the negative relationship. The result indicates that the internal socialization mechanism and subsidiary-headquarters embeddedness do not participate in the reverse knowledge transfer mentioned in sub-questions 4 and 5.

In particular, in subsidiaries and headquarters, embeddedness relies on mutual adaptation and trust in relationships (Andersson et al., 2001); thus, strategic resources accumulated from external and internal sources increase reverse knowledge transfer and subsidiary performance (Lee, 2010; Frost et al., 2002). Besides embedded ties, subsidiaries facilitate knowledge sourcing and intra-firm knowledge transfer by fostering cooperation (Tsai & Ghoshal, 1998). This research finds that the subsidiary's performance is significantly associated with the subsidiary's flow of knowledge and the determinants of subsidiaries knowledge development. The result shows that subsidiary performance is the highest when reverse knowledge transfer is high.

Notwithstanding internal socialization, mechanisms strengthen the relationship between subsidiaries and headquarters and actively predict subsidiary knowledge

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development. Empirical evidence demonstrates that external embeddedness, subsidiary autonomy, subsidiary-headquarter embeddedness, and subsidiary knowledge development are facilitate reverse knowledge transfer. Simultaneously, subsidiary headquarters' embeddedness and internal socialization mechanism do not affect reverse knowledge transfer noticeably.

Socialization mechanisms such as internal tasks, corporate training, and common corporate culture may reduce boundaries between subsidiaries and headquarters or different network organizational units. Hence, the trust-building phenomenon grows among the networked members within the MNEs (Smale et al., 2015; Vora & Kostova, 2007). Furthermore, if more integrated socialization mechanisms are employed, formal and informal knowledge exchange occurs between subsidiaries and headquarters managers (Schulz, 2003). In this case, the subsidiaries manager has more opportunities to share concerns with the headquarters manager (Foss et al., 2012). Thus it leads to stronger relations among different units (Nohria & Ghoshal, 1994). Therefore, the internal socialization mechanism should safeguard and reduce knowledge exchange barriers (Decreton et al., 2019; Andersson et al., 2014).

5.6.1 Implications

The following section illustrates the implications of the finding for subsidiaries and parent firms. This part also demonstrates some policies or optimizing subsidiaries ability to transfer knowledge to performance. This study has also investigated the impact of the determinants of subsidiary knowledge development, which significantly affects reverse knowledge transfer through the lens of the network and the firm's resource-based view. This study reveals the importance of considering the operational model for international business strategies. Thus, this studies compelling theoretical arguments for how the entire model with network characteristics influences subsidiaries' performance. The study

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reveals that external embeddedness, subsidiary autonomy, and subsidiary-headquarters embeddedness are the main determinants of subsidiary knowledge development. Thus, they influence knowledge development or evolution at the subsidiary level. It is affecting the development of subsidiary knowledge. At the same time, subsidiary autonomy and external embeddedness are significantly positive for reverse knowledge transfer and subsidiary performance. Therefore, this study first provides the implication for subsidiaries and parent firms.

5.6.1.1 Implications for Subsidiaries

This study aims to dissect how the external relations of subsidiaries bring to light the potential knowledge-gathering phenomenon that may benefit subsidiaries by leveraging the strengths of external and internal business relationship networks in distinctive KIBS firms. In the context of MNEs, The core argument of subsidiary-specific knowledge gathering and knowledge selection process and exchange with its headquarters is potential. At the same time, external relationship characteristics play a crucial role in KIBS-based subsidiaries.

Close ties with local actors are key to the success of the KIBS sector. The primary source of specialized expertise is likely to be close ties with the local actor. The specialist's role is to validate new knowledge by providing input to the subsidiaries on generating new knowledge for better performance. The success of KIBS firms depends entirely on their ability to interact with external actors. Beyond local skills and subsidiaries' ability to recognize and share local knowledge with the parent company and other regional players. It is decided that subsidiaries can maintain and strengthen network members' networked connections to co-create and develop new knowledge with the subsidiaries' support.

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Additionally, this research finding implies that subsidiary autonomy is critical for knowledge development. This research shows that autonomous foreign subsidiaries can conduct more efficient knowledge acquisitions and exchange knowledge with headquarters. Later, headquarters could utilize this knowledge in the decision-making process. Moreover, the research findings highlighted that the relationships between subsidiaries and their parent firm significantly increase knowledge development. The key competitive advantage is made possible by their utilization of local know-how and the capacity to employ it across borders, which they (e.g., sub-headquarters) subsequently utilize to build their organizational network.

Moreover, KIBS subsidiaries' success depends on the intangible resources obtained from headquarters. Therefore, the embedded relation builds a web of knowledge in this network and dynamically shares it with the other embedded ties. Besides, subsidiaries must utilize the appropriate internal socialization mechanisms to maintain embedded relationships because it safeguards and reduces knowledge exchange barriers.

5.6.1.2 Implications for Parent Firm

The focus on subsidiary-headquarters embeddedness of the MNEs' internal network has led this study to offer significant implications for the parent firm. This study highlights the critical nature of partnerships between subsidiaries and parent companies. Knowledge transfer, particularly relationships between headquarters and subsidiaries, has become a crucial aspect that both headquarters and subsidiaries are eager to utilize (Kostova et al., 2016). Knowledge development through embedded relations between subsidiaries and headquarters is one of the most crucial research discoveries. Henceforth, the output SEM model suggests that subsidiary performance depends on the external sources of knowledge and the strong ties between subsidiaries and headquarters, subsidiary autonomy, and internal socialization mechanism.

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Additionally, perhaps most significantly, the obvious consequences are that the parent firm can maximize the subsidiaries' potential to produce knowledge stock for both subsidiaries and parent firms. Thus, the importance of subsidiary-parent firm embeddedness explicitly goal-seeking is a strategy that helps MNE to be more equipped with product development or service development. Additionally, close relations serve as an effective means of transferring knowledge.

Second, this study sheds light on the subsidiary autonomy factor, the headquarters' lower degree of control. Providing subsidiaries with additional freedom to search for new opportunities and enhance their knowledge allows the subsidiaries to grow. It can be shown from the study results that local contexts are essential when it comes to subsidiary knowledge development, especially in the KIBS industry. KIBS is indispensable in co-creating knowledge and participating in various improvement or innovation systems. They facilitate and initiate substantial growth, competitiveness, and the ability to outperform others, implying advantages relative to competitors. Hence, KIBS-based subsidiaries were involved in knowledge-creating activities, which later contributed to the MNE development due to the integration of the local context.

As a result, the subsidiary's potential to produce new knowledge may be impeded by the low level of embedded relations. Therefore, giving a subsidiary more autonomy can successfully exploit knowledge and transfer it back to headquarters. If this is the case, headquarters is aware of the detrimental impact of the low level of autonomy since subsidiaries cannot make independent decisions due to the lack of autonomy. More autonomous subsidiaries can effectively acquire practical knowledge, assessment, exchange, and decision determination (Birkinshaw & Hood, 1998; Egelhoff, 1993).

Finally, parent firms' key competitive advantages exploit new knowledge from local environments and transfer knowledge within the organization network. Notably, the

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analysis reveals a significant effect of internal socialization mechanisms that installed subsidiary-headquarters embeddedness.

Internal socialization mechanisms have critical importance to both subsidiaries and headquarters. It ensures the core value of interacting with subsidiaries and headquarters managers formally or informally or responding to an event that develops knowledge. Thus, socialization builds the interpersonal network between subsidiaries, headquarters managers, and employees who create new knowledge. When the parent firm has an effective internal socialization mechanism, it may also benefit from the knowledge found in its subsidiaries, which helps foster closer connections between subsidiaries and headquarters.

5.7 Contribution of the Research

5.7.1 Theoretical Contribution

This study is crucial because it broadens our theoretical understanding of cross-border reverse knowledge transfer within the KIBS using the resource-based view and business network theory, which indicates that a firm can outperform its competitors and sustain itself in the marketplace. This research concentrates on foreign subsidiaries in Malaysia. Relying on a resource that resides in the subsidiaries' external alliances and interpersonal networks, extant literature has shown how MNEs can access knowledge from diverse foreign subsidiaries located worldwide. Therefore, the impact of knowledge development from other subsidiaries is entirely unknown for the subsidiaries but MNEs.This study establishes subsidiary performance, which ultimately depends on the embedded relations in external and internal network strengths and how MNEs can access knowledge.

The relationship between subsidiary knowledge development and RKT and foreign subsidiary performance may be described in light of resource-based (RBV) and business network theory, which is the distinctive theoretical contribution of this study (BNT). For

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a subsidiary to attain competitive advantage and performance, it must acquire and control valuable, uncommon, irreplaceable, and non-substitutable resources and capabilities, according to the central tenet of RBV. General subsidiary knowledge development has been highlighted as an uncommon and unique organizational skill (Barney, 2001). So long as this study emphasizes internal and external relationship features, the subsidiaries should investigate existing knowledge within the firm boundary and new knowledge outside the firm boundary that externally and internally embedded subsidiaries possess. The theory of BNT of the MNE, on the other hand, regards subsidiaries as strategic players that enhance the technological capabilities of the MNE at foreign locations by developing subsidiary-specific advantages (Cantwell & Piscitello, 2014). In this research context, subsidiaries acquire knowledge resources through the network of relationships, both within and outside the firm boundary; the direction of the knowledge appears through external sources, subsidiary autonomy, and internal embeddedness with headquarters, where subsidiary-headquartets managers exchanges knowledge. In this situation, the internal socialization mechanism is essential for absorbing the knowledge of headquarters management.

Moreover, based on past studies, enterprises' external linkages or networks substantially impact product innovation (Ryan et al., 2018; Hippel & Tyre, 1995). Therefore, the embeddedness of subsidiaries in the local external network is a crucial method for acquiring new knowledge (Cano-Kollmann et al., 2016). Besides, Frost (2001) and Ciabuschi et al. (2014) found that local network links of subsidiaries are seen as a resource and valuable input for product innovation. This research has determined that subsidiaries' external network linkages (i.e., suppliers, competitors, clients, vendors, and universities) and internal network ties with headquarters via socialization mechanisms increase the sources of new knowledge. Hence, external and internal network relationships are considered resources and valuable input for subsidiary performance (

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i.e., product innovation, new service development, improved product services) (i.e., product innovation, new service development, improved product services).

It is well argued that subsidiaries based on the network perspective can integrate with embedded relationships within the internal MNEs network (e.g., headquarters, other subsidiaries, sister subsidiaries) and its external network (e.g., suppliers, customers, competitors) (Meyer et al., 2011; Andersson et al., 2002). Moreover, greater access to the external network increases subsidiaries' access to rare knowledge and develops new competence for the MNEs.

The MNE network's perceptions of subsidiaries' growing roles and activities outside organizational boundaries are significant, emphasizing the inter-organizational network or, more precisely, the embeddedness of subsidiary-headquarters business networks. Alternatively, it may refer to a subsidiary's internal corporate-level embeddedness (Ratajczak-Mrozek, 2017; Oehmichen & Puck, 2016; Figueiredo, 2011). In the MNE context, subsidiaries and headquarters rely on a network of relationships. To succeed in the international market, subsidiaries must be part of a relevant network. Thus, MNEs have conceptualized a network in which subsidiaries, headquarters, and other actors maintain nodes' relationships in the business network. The network provides subsidiaries with opportunities to exploit resources and produces innovative ideas. In international business, perspective firms depend on other networks' managerial intent and action (Vahlne & Jonsson, 2017).

The research findings emphasized the critical nature of the linkages between reverse knowledge transfer and subsidiary performance. Therefore, this research can theorize that strong network ties effectively transfer knowledge (Uzzi, 1997). Thus, the key elements of theoretical contributions include embedded relations and internal and external embeddedness that assure subsidiary knowledge's resources and development. In

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addition, the new knowledge and capability may be identified and determine knowledge transfer.

According to the RBV, a firm's competitiveness is determined mainly by its access to strategic resources. In line with this perspective, close interaction with external counterparts within the business network and competitors assists in developing a new strategic and rare resource to develop new products for the subsidiary. In addition, results indicate that the internal socialization mechanism facilitates subsidiary-headquarters embeddedness.

The socialization mechanism fostered various formal and informal approaches to defining an organization's worth. Thus, subsidiary-parent embeddedness supports the development of subsidiary knowledge. Providing theoretical ground knowledge development is related to either internal or external or both types of relationships. This study contributes to the corpus of knowledge by conceiving and empirically validating a strong relationship between organizations' capabilities to build resources and maintain competitive advantages (Barney, 1991). RBV ensures relations firm's strategic resources that provide competitive advantages.

Besides, based on Barney's (1991) resource-based view, technological innovation capability is highlighted, and subsidiaries' ability to develop new products effectively manages technological innovativeness. Utilizing the knowledge stock acquired from the external embeddedness and subsidiary autonomy can enhance subsidiary performance and increase innovation capability. However, the flow of knowledge also contributes to the MNEs' knowledge base. This study confirms that the reverse knowledge transfer model sheds light on the network view and resources base perspective, providing a robust basis for understanding the relationships between subsidiaries' external and internal networks.

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This study indicates that external and internal relationships are relevant to the knowledge development of subsidiaries. The findings corroborate the RBV perspective because, from the RBV vantage point, this study identifies the close linkages between subsidiaries' abilities to build and preserve competitive advantages through their strategic resources (Grant, 1991). The results reveal that a subsidiary's ability to generate new knowledge is proportional to its internal and external network embeddedness.

In addition, according to the BNT approach, network connections are the sole and most effective tool for knowledge transfer (Uzzi, 2018, 1997). Therefore, both external and internal embedded relationships serve as methods for knowledge transfer that considerably accelerate the development of subsidiary knowledge. Based on this study's findings, it is recommended that the internal socialization mechanism not only assists the formation of a shared understanding and mission throughout the business but also strengthens the links between subsidiaries and headquarters (Kostova et al., 2016). Due to autonomy control issues, subsidiaries may deviate from the main objective of MNEs, according to this study. However, employing socialization mechanisms has reduced conflict between the different units and within headquarters and increased their confidence and trust (Cuypers et al., 2020; Barner-Rasmussen & Björkman, 2007).

In addition, strategic knowledge accumulation drives productivity and competitiveness, and in the KIBS industry, technological knowledge is essential (Cantwell & Mudambi, 2005). This study determined that headquarters participation is unproductive and that product innovation or performance requires a high degree of subsidiary autonomy (Beugelsdijk & Jindra, 2018). According to the present study's findings, subsidiary autonomy is the fundamental initiative for maintaining close ties with external and internal network partners. If critical decisions about new product development are made at headquarters, this would indicate a decrease in autonomy in

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terms of decision-making (Meyer & Benito, 2016). With the industry environment in mind, KIBS companies that function as knowledge carriers are anticipated to impact knowledge development significantly. This is due to the extent to which contact between the external and internal environments generates new knowledge for subsidiaries. For instance, Ambos and Reitsperger (2004) illustrate that a low level of autonomy harms a subsidiary's absorptive ability since it prevents a subsidiary from fully integrating into its local environment. As a result, a low level of autonomy will impair the ability of KIBS enterprises to acquire knowledge by eroding the relationships between the subsidiary and its local players, which are vital knowledge channels for KIBS firms. According to Moore and Birkinshaw (1998), interaction with internal and external players is the most important source of knowledge for global service firms. Consequently, face-to-face engagement, trust, teamwork, and communication are essential for KIBS companies to acquire tacit knowledge and be innovative (Najafi-Tavani et al., 2015b; Howells, 2002).

5.7.2 Managerial Contributions

The empirical results have important implications for subsidiaries managers and MNEs operating in the international market. The current focus on reverse knowledge transfer and subsidiary performance has led scholars to offer practical implications and valuable guidance to managers. The research usually is a form of interaction between subsidiaries and headquarters. However, most MNEs face significant challenges in the international context when it appears to be building network ties. In addition, the rapid changes in customer expectations and efficient service have presented significant challenges for MNEs. This research finding provides strategies to managers of MNEs and subsidiaries to mitigate that concern and increase global competition.

First, subsidiaries with decision-making autonomy mainly introduce new products or services in local and foreign markets. Besides launching a new product, collaborating

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with external partners would have a higher probability of subsidiary success in product innovation, sales growth, customer satisfaction, or service improvement. The finding significantly affects the development of new products that extend the study (Mudambi et al., 2014a).

Second, it is also vital for subsidiaries managers to understand the different network relationships that determine the competencies related to operational decision-making, whether business-related or technology-related.

Third, a subsidiary manager may connect with many suppliers, customers, or competitors to create a high team spirit with a similar strategic objective. The findings confirm that managerial involvement can be critical for knowledge exchange, sharing, and development. On the other hand, internally embedded subsidiaries exchange knowledge through the effective socialization mechanism, which reciprocates to the sub-headquarters manager.

Fifth, firms with high concentration act as knowledge gatekeepers in the embedded network to develop ties with suppliers, customers, and competitors to create a balanced power structure.

Finally, the results strongly suggest the merit of understanding the functions performed by subsidiaries when developing a business internationally. Determining whether the parts are transaction-focused (e.g., sales and marketing) or relationship-driven is crucial, and gaining knowledge from local environments and exchanging with the parent company is vital. Both managers pay attention, and subsidiaries can help the parent company fine-tune and coordinate an effective global strategy. Besides, subsidiaries can create a new product in the competitive marketplace and succeed in international markets.

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5.8 A Discussion of Limitations and Possible Future Research Avenue

This study examines the antecedents of subsidiary knowledge development and reverse knowledge transfer and its effects on subsidiary performance determinants. This research develops a framework in which an indicator of reverse knowledge transfer correlated with the success of a subsidiary has been established. To test the proposed theories, this thesis used a quantitative study. The study examined the relationships between reverse knowledge transfer and subsidiary performance in the KIBS industry.

Although the research model is being implemented throughout all KIBS subsidiaries and explicitly considers each subsidiary's role and the underlying determinants of subsidiary knowledge development.

The research model of KIBS-based subsidiaries shows a positive correlation between subsidiary performance and subsidiary knowledge development. Thus, it is imperative to emphasize that this study deals solely with the role of subsidiaries and the factors influencing subsidiary knowledge development. This research is subject to many potential caveats, such as methodological challenges and concerns with data collection. However, this study identified some drawbacks due to several possible reasons. First, this study is focused entirely on foreign subsidiaries in Malaysia. Subsidiaries from other countries may have different insights concerning performance indicators. The findings from this study should be considered when looking at the existing limitations of this study, which may allow researchers to pursue future investigations that examine the reverse knowledge transfer that occurs in multinational organizations.

The study makes causality claims using cross-sectional data, which is not optimal for establishing causation. One could argue that the effect of reverse knowledge transfer and innovation takes time to manifest since subsequent feedback from the subsidiary's manager takes time.

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In a related manner, although this research focuses on a manager's perspective, these groups represent the entire phenomenon of knowledge exchange and transfer. Thus, validating subsidiaries' performance in different organizational groups and contexts is challenging. Hence, future studies could include longitudinal data to test the study pattern associated with subsidiary performance.

Second, the study sample covered an adequate number of respondents from foreign subsidiaries in Malaysia. However, subsidiaries belonging to MNEs from the other countries' research findings may differ and could not be generalized to MNEs of subsidiaries in other countries. Thus, future studies could include subsidies from other countries to compare the findings with each other.

Third, the subsidiary perspective, significantly reverse knowledge transfer, is crucial for understanding the study's subject matter. However, the headquarters is the recipient of the potential knowledge. This study could add the headquarters perspective to complement the subsidiaries' view (Peng et al., 2017). Thus, an avenue of future research may come from efforts to collect data from the headquarters level.

Fourth, Gupta and Govindarajan (2000) indicate that international knowledge transfer can be anticipated o conducting multiple network perspectives. Therefore, examining the knowledge transfer process from a multiple-network standpoint is crucial to identifying innovation performance. Data should also be obtained from potential research from both subsidiaries and parent companies to understand reverse knowledge transfer and headquarters performance in future research.

Fifth, although this study provides evidence of subsidiary performance in terms of either product development or management performance in the KIBS. However, it is not easy to specify whether subsidiaries in Malaysia are performing with particular product

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development or service improvement, or management performance. The sample was taken to study KIBS type I and Type II (see Chapter 1). Since the influence of a particular sample cannot be determined from other studies, researchers should establish specific research involving participants with KIBS.

According to the classification employed in this study, there are two subtypes of KIBS: KIBS I and KIBS-II. However, KIBS-I is a recognized professional service (e.g., P-KIBS involves management consultancy, legal, and accounting services). On the other hand, KIBS-II considers a new technology-based T-KIBS (e.g., professional service firm, computer servers). Some regarded the sectors as homogenous units and separated them according to the standard industrial classification. It also highlighted the large category distinction between two forms of KIBS (Pina & Tether, 2016; Miles et al., 1995). Besides, research on KIBS is distinctive from other usually product-based manufacturers and operational services (Pina & Tether, 2016). Similarly, knowledge-based firms related to innovation may introduce the KIBS industry, such as technological, marketing, and organizational (Chichkanov et al., 2019). This study combines KIBS-I and KIBS-II; however, future studies should address how product-based innovation or performance and operational performance differ.

Finally, this study conducted an empirical analysis to highlight reverse knowledge transfer and subsidiary performance with empirical research based on the methodological perspective. A mixed-methods research study mapping the comprehensive results and capacities of MNEs and subsidiaries might be used to understand better how subsidiaries successfully manage knowledge transfer. However, because this study focuses exclusively on the subsidiary level, the potential of the headquarters view remains unknown. Thus, the critical questions remain unidentified regarding how the headquarters

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initiative could foster a global strategy. Future studies could include a multilevel analysis to capture headquarters performance.

5.8.1 Concluding Remark

This research has applied a new approach to understanding how to reverse knowledge transfer influenced the KIBS sector's subsidiary performance. The emphasis of this research was not on the conventional transfer of knowledge or expertise from headquarters to subsidiaries or subsidiaries to headquarters. Rather than that, this research evaluated the transfer of knowledge between subsidiaries-headquarters and external network partners (which is reverse knowledge transfer in this research). The outcomes of the SEM model examine the hypothesized effects of subsidiaries' performance by generating knowledge from external and internal sources. The broad areas of the KIBS industry frequently depend on the performance of the professional workforce. As a result, KIBS business provides its clients with highly personalized, high-value offerings critical to knowledge creation by combining their services.

The KIBS sector is crucial because it contributes to technological advancement, and that form of innovation creates economic development (Sargon & Katircioğlu, 2019). Moreover, innovation or product development is essential in developing and emerging countries as they face substantial challenges in the rapidly changing world (Kuchukova et al., 2016). Furthermore, since knowledge and experience are vital to the industry, KIBS ensures these best practices across sectors (Doloreux & Gomez, 2017). Consequently, developing countries like Malaysia also transform into knowledge economies and benefit from expanding the KIBS industry. Therefore, KIBS's success in establishing a new framework or structure enables it to share and assist in creating new markets both globally and in the emerging economy.

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