

Research Report -
A Study of Factors Influencing IT System
Outsourcing Satisfaction in Hong Kong
Financial Service Industry

Student Name (ID): Chiang Chun Wah, Ray (2119645)

Programme: University of Wales Trinity Saint David – DBA

Module: HKBM 7021 Assignment

Lecturer: Dr. Andrew Chan

Table of Contents

1. Introduction.....	4
1.1 Trends of IT Outsourcing	5
1.2 Research Background.....	6
2. Literature Review	7
2.1 Theoretical Framework.....	8
2.1.1 Technology, Organization, and Environment (TOE)	8
2.1.2 Transaction Cost Economics (TCE)	9
2.1.3 Summary of Theoretical Framework.....	9
2.2 Constructs of IT Outsourcing	10
2.2.1 Technological Context	10
2.2.2 Organizational Context	14
2.2.3 Environmental Context	16
2.2.4 Summary of Independent Variables	18
3. Research Methodology	19
3.1 Research Model.....	19
3.2 Methodological Choice	19
3.3 Data Collection	20
3.3.1 Survey Design	20
3.3.2 Sampling Size	22
3.3.3 Data Collection Channel.....	22
4. Results	22
4.1 Demographic Analysis	23
4.2 Statistical Analysis	25
4.2.1 Reliability Analysis	25
4.2.2 Correlation and Simple Regression Analysis	28
4.3 Summary of Analysis.....	28
5. Discussion.....	29
6. Conclusions and Recommendations	30
Reference List.....	31

List of Tables

Table 2.1: Definition of Outsourcing.....	7
Table 2.2: TOE Framework Dimensions	9
Table 2.3: Summary of Research's Hypotheses	18
Table 3.1: Revision Result of Questionnaire	21
Table 4.1: Summary of Reasons for Outsourcing.....	23
Table 4.2: Demographic of Data.....	24
Table 4.3: Cross-tabulation between Job Position and ITO Reason	25
Table 4.4: Reliability Test Result	27
Table 4.5: Correlation and Simple Regression Result	28
Table 5.1: Hypotheses Result	29

List of Figures

Figure 2.1: Research Theoretical Framework.....	10
Figure 3.1: Research Model	19

1. Introduction

Information Technology (IT) outsourcing is quickly becoming a significant and evolving facet of the tech industry, providing essential solutions for various businesses, ranging from large enterprises to startups. This practice entails engaging external service providers to manage various IT-related tasks, including software development, infrastructure oversight, technical support, cybersecurity, technology implementation, and process optimization. By delegating certain operational functions to outside partners, companies can boost their efficiency, lower expenses, and concentrate on their core strengths. This method empowers businesses to adapt to market shifts and capitalize on third-party providers' expertise. Organizations frequently prioritize cost savings and improved competitiveness to enhance productivity and profitability. Outsourcing has gained traction as a favored strategy for companies seeking to meet their financial objectives while reducing the costs of maintaining in-house expertise (Ishizaka *et al.*, 2019). This transition allows organizations to tap into global talent and technological advancements, leading to better service delivery and innovation. By harnessing the benefits of IT outsourcing, companies can streamline their operations and position themselves favorably in an increasingly competitive environment.

IT outsourcing (ITO) has become essential for organizations, particularly within the financial services industry (FSI), as it enables them to maintain a competitive advantage while effectively managing costs and concentrating their resources on core business activities. The swift advancement of technology in recent years has necessitated companies to adapt promptly to remain relevant and efficient. By employing IT outsourcing, organizations can rapidly scale their IT capabilities in response to market demands, ensuring they remain agile and capable of adjusting to changes. Moreover, outsourcing allows businesses to leverage the latest technologies and innovations without incurring substantial initial expenditures. This access to advanced solutions enables firms to enhance their operational efficiency and service offerings, keeping them ahead of their competitors in a fast-paced market environment. Despite the widespread adoption of IT outsourcing, many organizations face challenges, particularly regarding satisfaction levels. The ITO project failure rate is 40% (Delen *et al.*, 2019), and satisfaction rates are reported as low as 33% (Murphy, 2024).

These statistics highlight significant issues within the IT outsourcing landscape, including ineffective communication, ambiguous expectations, and insufficient vendor management. Conversely, other researchers have identified key factors that can improve satisfaction, such as

fostering strong partnerships (Cha and Kim, 2018), evaluating core competencies (Hodosi, 2017), and effective contractual management (Rhodes *et al.*, 2016; Blijleven *et al.*, 2019; Erdoğan, 2020). Understanding and addressing these elements is crucial for organizations to revise their outsourcing strategy. Addressing the challenges associated with satisfaction and project success remains a critical issue in IT outsourcing.

1.1 Trends of IT Outsourcing

The advantages have led to outsourcing becoming a prevalent strategy in various sectors. For example, Statista (2024a) forecasts a compound annual growth rate (CAGR) of 9.02% for IT outsourcing in Hong Kong from 2024 to 2029. Furthermore, the value of the ITO market in the world is USD 187 billion in 2024 and is forecasted to be USD 238.5 billion by 2029 (Statista, 2024b). As companies seek to cut costs and tap into global resources, there is a noticeable trend toward outsourcing to address the changing demands within their industries. The rapid evolution of cloud technologies such as infrastructure as a service and software as a service over the past decade has only accelerated this trend, prompting businesses to improve efficiency and foster innovation.

In the banking, financial, and insurance (BFSI) sector, the global outsourcing market is estimated to expand by approximately USD 31.15 billion between 2021 and 2026 (ReportLinker, 2022). A significant factor contributing to this growth is the increasing need for regulatory compliance, as the BFSI sector faces substantial regulation changes. Outsourcing helps alleviate compliance challenges and permits organizations to concentrate on their strengths areas while navigating the uncertainties of evolving market regulations. These dynamics are anticipated to drive the demand and supply growth in the BFSI throughout the forecast period.

The rise of ITO in Hong Kong is primarily fueled by the demand for IT services, including cloud computing and data center operations. It is projected to reach around USD 3.25 billion from 2023 to 2028 (Technavio, 2024). A survey conducted in 2022 revealed that 44% of executive management (e.g., CIO) subscribed to outsourcing services, while 51% and 40% of IT respondents outsourced application development with maintenance and data center operations, respectively (Morgan Lewis, 2022). Additionally, a 2021 survey by the International Monetary Fund (IMF) indicated that 95% of participating banks in Hong Kong were exploring technology outsourcing. Over 100 organizations involved in banking, asset

management, securities services, and private equity—had already outsourced various business functions (IMF, 2021).

1.2 Research Background

ITO has become increasingly prevalent within the financial services industry (FSI) in Hong Kong, particularly in the banking sector. The essential IT assets, systems, and infrastructure are vital for facilitating their operational processes. Although the adoption of ITO in the FSI is projected to continue growing, it presents ongoing challenges for service buyers, largely due to the high rates of failure associated with ITO initiatives (Amplifyre, 2022). Many organizations have yet to pinpoint the specific constructs within ITO processes that lead to varying outcomes, as evidenced by existing research studies. Despite efforts by researchers to identify critical success factors aimed at reducing the incidence of unsuccessful ITO projects (Shaheen, 2016; Bashir *et al.*, 2020, Murphy, 2024), the results have not met expectations, suggesting that there may be overlooked gaps in the factors contributing to ITO success.

This study's primary focus is to identify the critical success factors that influence satisfaction with ITO in Hong Kong's FSI and to uncover the deficiencies in these factors that impact overall satisfaction levels. The research question (RQ) formulated is intended to guide this exploration and address these objectives effectively. By understanding the elements contributing to successful ITO experiences, organizations can address the issues from the complexities of outsourcing, improve service delivery, and ultimately enhance stakeholder satisfaction rates.

RQ1: What factors influence the satisfaction of the IT system outsourced in Hong Kong FSI?

In conclusion, ITO transcends mere cost reduction; it represents a strategic initiative that enables businesses of all sizes to enhance operational efficiency, accelerate innovation, and sustain a competitive advantage in a rapidly changing market. This approach allows organizations to focus on their core competencies while leveraging external service providers' specialized expertise and resources. As the outsourcing landscape continues to evolve, the advantages associated with it are expected to grow, reinforcing its significance as an integral element of contemporary business strategy. By adapting to technological advancements and market demands, companies can better position themselves for success in the future.

2. Literature Review

The researchers' studies provide insight into this study, such as definitions, theoretical frameworks, and methodologies, and identify gaps. The literature lists several definitions of outsourcing, which are listed in Table 2.1.

Table 2.1: Definition of Outsourcing

Study	Definition
Munjal, S. and Ishizaka, A. (2019)	Contracting out service buyer's core or non-core function to the competent service providers, service buyers can gain a competitive advantage.
Di Mauro, C. <i>et al.</i> (2018)	Purchasing semi-finished goods, finished goods, or services from a third party.
Gunasekaran, A. <i>et al.</i> (2015)	Outsourcing as assigning a procedure or function within a company to an outside company.

Following a comprehensive review of existing literature and extensive research analysis, this study characterizes ITO as:

Transferring a company's IT operations or system to a third party with better management experience or skills. This arrangement is made in return for mutually agreed financial compensation and a specified time frame, representing the most accurate depiction of the current ITO scenario.

Moreover, outsourcing establishes a business relationship between the purchasing entity and one or more selling entities. The purchasing entity is commonly referred to as the client or service buyer, while the selling entity is the service provider, vendor, or supplier. For clarity and consistency, this study adopts the terms "service buyer" and "service provider" throughout the discussion to align the terminology used. This definition highlights the collaborative nature of outsourcing, emphasizing the essential roles and responsibilities of both parties involved in the management of IT functions.

2.1 Theoretical Framework

ITO encompasses a variety of disciplines throughout the entire process. As a result, several theories address different aspects of ITO, including strategies, resources, contracts, relationships, and monitoring practices. A systematic review and empirical research conducted in 2020 have outlined the primary theories relevant to ITO (Hanafizadeh and Zareravasan, 2020). Technology, Organization, and Environment (TOE), and Transaction Cost Economics (TCE) frameworks are frequently utilized in ITO research. Notably, TOE and TCE are the most widely adopted frameworks by researchers investigating ITO (Hanafizadeh and Zareravasan, 2020). Below is a brief overview of these two theoretical frameworks and their respective areas of focus.

2.1.1 Technology, Organization, and Environment (TOE)

The TOE framework, created by Tornatzky and Fleischer, is instrumental in understanding the innovation adoption process within organizations (Tornatzky and Fleischer, 1990). This framework encompasses three key dimensions: technology, organization, and environment, all influencing the acceptance of innovations. In this context, "technology" refers to all technology pertinent to business operations. The "organization" dimension pertains to various firm characteristics, such as management style, organizational structure, and company culture. Lastly, the "environment" dimension includes external factors like market dynamics, competitive landscape, and regulatory conditions (Hanafizadeh and Zare Ravasan, 2018).

The TOE is a comprehensive theory highlighting these three dimensions as pivotal to the adoption process. Table 2.2 outlines the dimensions of the TOE framework. This approach has been widely utilized in IT outsourcing research, addressing decision-making, success factors, and information security risks (Bhatti, Mubarak, and Nagalingam, 2021).

Table 2.2: TOE Framework Dimensions

Dimension	Description
Technology	The technology dimension focus on how technology's design, functionality, and traits affect how an invention is adopted.
Organization	Organizational dimensions comprise several characteristics that might help or impede the adoption of an invention, including company structure, culture, goals, size, resource quality, communication, and decision-making processes.
Environment	Regulations, rivalries, communities, governments, customers, suppliers, and other external parties to the organization are all represented by the environmental dimension. These parties also determine the requirements for a specific innovation, the capacity to provide resources and support innovation, and the capacity to implement the innovation.

2.1.2 Transaction Cost Economics (TCE)

TCE is another frequently employed in examining information technology outsourcing (ITO). TCE is a credible theoretical basis for analyzing ITO decisions concerning make-or-buy choices, governance structures, costs, and transaction characteristics (Hanafizadeh and Zararavasan, 2020).

In practical terms, TCE differentiates between two types of costs: the cost associated with producing goods or services internally, known as production cost, and the cost incurred when purchasing goods or services from an external source, referred to as transaction cost. A company will manufacture goods or provide services internally when this option proves to be more economically viable than purchasing the same goods or services from the market. Conversely, engaging in transactions to acquire goods or services incurs additional expenses that must be considered.

2.1.3 Summary of Theoretical Framework

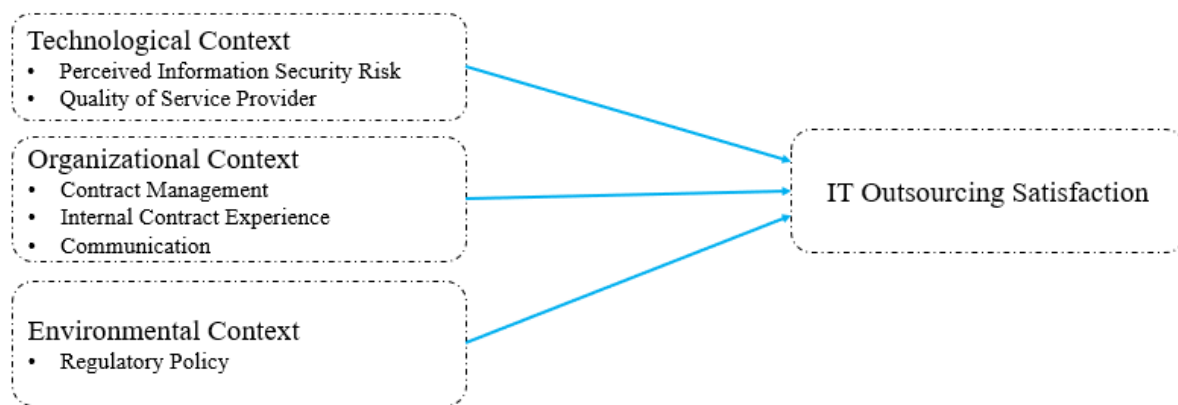
As previously mentioned, the processes involved in IT outsourcing (ITO) encompass a wide range of disciplines. The TOE framework is highly applicable across diverse scenarios, including information security risks, contract and communication, and policy and regulation (Hanafizadeh and Zare Ravasan, 2018; Hanafizadeh and Zararavasan, 2020; Bhatti, Mubarak and Nagalingam, 2021).

TOE is widely utilized to study the connection between ITO adoption and its associated outcomes, ongoing ITO adoptions often reflect satisfaction levels with outsourcing practices. To pinpoint the critical success factors that influence ITO satisfaction in this study and examine the impact of regulations within the financial services industry (FSI) on these satisfaction levels. Consequently, the TOE is deemed particularly effective for examining internal and external constructs affecting ITO satisfaction and has been chosen as the primary theoretical framework for this investigation.

2.2 Constructs of IT Outsourcing

In section 2.1, a review of various theoretical frameworks was conducted, leading to the adoption of the TOE for research. This framework is visually represented in Figure 2.1, which illustrates its key attributes. Within this context, three constructs: technological, Organizational, and Environmental, are influencing IT outsourcing satisfaction.

Figure 2.1: Research Theoretical Framework



Additionally, a further study to investigate these independent variables is planned to uncover any existing discrepancies and enhance understanding of their impact on outsourcing satisfaction levels. By systematically analyzing these variables, organizations can gain insights into how they affect satisfaction and performance in outsourcing relationships.

2.2.1 Technological Context

The technological context encompasses the technologies the organization utilizes that include currently operational and available in the market but have not yet been adopted. It plays a

crucial role in the adaptation process, as it can restrict the volume and speed of technological changes an organization can implement (Hanafizadeh and Zare Ravasan, 2018).

In addition to existing technologies, the technological context incorporates factors such as Perceived Information Security Risk and the Quality of Service Provider. The perceived risk associated with information security can impact a company's willingness to adopt new technologies, as organizations must weigh the benefits of innovation against potential vulnerabilities and threats to their data. Similarly, the quality of the service providers that a company engages with can influence the effectiveness of the outsourcing process and the overall success of technological implementations. A high-quality service provider can alleviate concerns related to security and performance, thereby facilitating smoother adaptations to new technologies.

These factors are crucial in shaping how organizations navigate the complexities of technological change, highlighting the interplay between current capabilities and the potential for future advancements. Understanding these dimensions allows companies to strategize their technology adoption better and improve their overall operational efficiency.

Perceived Information Security Risk (ISR)

Recent technological advancements, particularly in smartphones, mobile applications, and cloud computing, have significantly transformed business operations, enhanced efficiency while introducing new IT security risks. While these technologies streamline processes and improve operational effectiveness, they also present challenges that businesses must navigate carefully. Organizations that opt for ITO to capitalize on these benefits must also be cognizant of the associated risks (Delen *et al.*, 2019; Al Hadwer *et al.*, 2021).

Risk in this context refers to the potential occurrence of events that could adversely impact the organization. Each ITO service provider typically specializes in specific areas, such as end-user support, infrastructure setup, new system build-up or migration, software development, and cybersecurity. However, if a service provider does not possess the necessary expertise, it may lead to performance issues or unexpected costs, ultimately jeopardizing the success of the ITO project. Moreover, information security concerns represent one of the most significant threats to ITO arrangements. Given that perceived IT security risks are deemed critical for ITO in the Financial Services Industry (FSI), assessing how these risks influence the overall success of outsourcing initiatives (Hanafizadeh and Zare Ravasan, 2018; Ahmed, 2020).

As service providers manage outsourced functions for their clients, their capabilities in incident response and data protection against potential data breaches become crucial for the FSI. Ensuring that these providers have robust resources and expertise to safeguard sensitive information is vital for mitigating risks associated with outsourcing. By understanding these dynamics, businesses can make informed decisions that balance the benefits of ITO with the necessity of maintaining stringent security protocols to protect their operations and client data. While researchers acknowledge the involvement of perceived information security risks in Information Technology Outsourcing (ITO) (Delen *et al.*, 2019; Al Hadwer *et al.*, 2021) and highlight its significance (Hanafizadeh and Zare Ravasan, 2018; Ahmed, 2020), they have not included it into their study. The importance of cybersecurity and information security in business operations has surged in recent years. A notable instance is the cyber-attack on the Island Shangri-la hotels in Hong Kong between May and July 2022, which resulted in a data leak affecting 290,000 residents (The Standard, 2022). Additionally, the Financial Services Development Council (FSDC) reported that Hong Kong represented 3% of global cyber-attacks targeting the Financial Services Industry (FSI), potentially incurring economic losses of up to USD 32 billion.

Given these alarming trends, exploring the relationship between perceived security risks and satisfaction with ITO arrangements is crucial. To this end, the model incorporates Perceived Information Security Risk, which encompasses operational, information security, and financial risks associated with ITO. Understanding how these risks impact overall satisfaction with outsourcing initiatives is essential, especially in light of the increasing frequency and severity of cyber threats that organizations face today. By addressing these risks, businesses can improve their outsourcing strategies and enhance the satisfaction levels of their stakeholders, ultimately leading to more successful ITO outcomes. Thus, the hypothesis below is made:

H1: Perceived information security risk is significantly associated with ITO satisfaction in FSI.

Quality of Service Provider (QSP)

A partnership can be defined as a strategic alliance between independent firms that rely on each other while pursuing shared goals (Wibisono *et al.*, 2019). This collaborative arrangement showcases commitment over time, emphasizing teamwork and the distribution of risks and rewards (Wibisono *et al.*, 2019). The quality of the service provider is characterized by how well their outcomes align with the expectations of the service buyers (Wibisono *et al.*, 2019).

According to Al-Azad, M.S., Mohiuddin, M., and Su, Z. (2022), the quality of service providers encompasses inherent traits that enhance the effectiveness of relational interactions. Wibisono *et al.* (2019) established that service provider's capabilities are significant in ITO, a finding supported by research from Al-Azad, Mohiuddin, and Su (2022). However, some studies have not demonstrated the impact of QSP on the success of ITO (Cha and Kim, 2018; Blijleven *et al.*, 2019; Hodosi and Rusu, 2019). This inconsistency warrants further investigation within the context of Hong Kong. In this study, the quality of service providers is defined as their expertise aligning with the service buyer's expectations.

One of the critical advantages of ITO is the exchange of expertise and knowledge between service providers and service buyers (Wibisono *et al.*, 2019). Organizations often outsource to reduce training costs, accelerate task acquisition, and enable their employees to learn skills from the service providers. Consequently, the service provider's capabilities significantly influence credibility in the eyes of the service buyer, which in turn affects the buyer's satisfaction with ITO services. The collaboration brings together resources from both parties, which must be actively committed by both firms involved in the partnership. The relationship's success is closely linked to the dedication demonstrated by the partners, as committed partners strive to align immediate needs with long-term objectives (Sutthiparinyanon and Villegas Puyod, 2022). When trading partners perceive that maintaining their relationship requires substantial effort, this commitment becomes evident (Johny and Gurtu, 2022; Muhammad Nooruddin *et al.*, 2022). Such commitment reflects the quality of the service provider in their professional relationships. Credibility is a vital element for establishing a long-lasting connection. It affects the service buyers' confidence in service providers in the partnership. From the service provider's viewpoint, the development or absence of the service buyer's credibility can determine the longevity of their relationship. It is derived from several factors, including past performance, competence, goodwill, and integrity (Alwahdani, 2019).

The quality of the service provider is a critical consideration for service buyers when deciding whether to continue outsourcing functions or switch to different providers. Therefore, it is imperative to investigate how service provider quality impacts ITO satisfaction. This leads to the formulation of another hypothesis to explore this relationship further.

H2: The quality of service provider is significantly associated with ITO satisfaction in FSI.

2.2.2 Organizational Context

The organizational context encompasses various elements that influence satisfaction with Information Technology Outsourcing (ITO) and the choices made regarding its implementation (Hanafizadeh and Zare Ravasan, 2018). The internal processes and capabilities that impact ITO outcomes. Key components include Contract Management, which involves overseeing and ensuring adherence to agreements made during outsourcing arrangements, Internal Contract Experience, which reflects the organization's familiarity and proficiency in managing contracts, and communication factors, which pertain to the effectiveness of information exchange within the organization. These internal dynamics play a critical role in shaping an organization's ability to implement ITO and maintain satisfaction throughout the outsourcing relationship. Understanding the organizational context is essential for organizations to understand the complexities of ITO and optimize their strategic decisions. This ultimately leads to better alignment with their goals and improved satisfaction with outsourcing partnerships.

Contract Management (CM)

Written contracts play a vital role in managing an Information Technology Outsourcing (ITO) relationship, as they represent the foundational component of the partnership (Erdoğan, 2020). Traditionally, the act of both parties signing a contract signifies the establishment of a formal relationship between them. In the context of ITO, the contract outlines the specific services to be provided and the associated costs, which must be delivered within the agreed timeframe. Once a contract is carried out, contract management becomes essential to ensure that both parties fulfill contract requirements satisfactorily.

Research by Karimi-Alaghehband and Rivard (2020) has highlighted that the quality of contract management is critical both at the initial contract stage and during the post-contract phase, significantly influencing the outcomes of ITO. While several studies have reported positive correlations between effective contract management and successful ITO (Delen *et al.*, 2016; Fehrenbacher and Wiener, 2019; Erdoğan, 2020), others have found less favorable results (Bachlechner, Thalmann, and Maier, 2014; Moon *et al.*, 2016; Karimi-Alaghehband and Rivard, 2020). It is important to note that ITO contracts are not always comprehensive; incomplete contracts can lead to legal disputes and challenges in the implementation (Hanafizadeh and Zare Ravasan, 2018).

In this study, contract management is defined as the effective governance of contractual fulfillment aimed at maximizing the organization's benefits while minimizing additional costs arising during the service period. Given that a contract represents a binding agreement between two organizations, poor management of its activities and content can result in opportunistic behaviors that generate unforeseen costs and negatively impact IT outcomes. Therefore, understanding the relationship between contract management and ITO is crucial for fostering successful partnerships. Consequently, the study proposes the following hypothesis:

H3: The quality of contract management is significantly associated with ITO satisfaction in FSI.

Internal Contract Experience (ICE)

The contract significantly influences the satisfaction levels associated with IT outsourcing, as previously discussed. Alongside the management of the contract after it has been signed, the administration of the contract before signing is equally critical. Developing a thorough contract can help mitigate uncertainties, diminish the risks of opportunistic behavior, and minimize misunderstandings between the involved parties (Jain Palvia and Palvia, 2017). One of the key strengths of formal governance is its ability to create a mutual understanding of roles and expectations, which helps resolve any miscommunications or discrepancies.

Pre-signing contract administration involves the preparation of various contract components, including pricing, the scope of work (SOW), communication protocol, operating procedure, service levels, terms and conditions, penalties, payment structures, and exit strategies (Gunduz and Elsherbeny, 2020). Suppose the contract is drafted by individuals who lack outsourcing experience. In that case, there is a risk that the quality and comprehensiveness of the contract will not sufficiently safeguard the interests of the service buyer (Patil and Patil, 2014). Therefore, having employees with relevant contract experience is crucial in IT outsourcing. For instance, if an employee is not well-versed in contract drafting, the SOW may be incomplete, leading to missed tasks. Such inadequacies can create opportunities for opportunistic behavior and introduce ambiguity, which may necessitate additional resources to rectify, ultimately resulting in higher service costs.

Although this aspect has not been extensively addressed in existing literature, it remains a critical factor in IT outsourcing. To explore this relationship further, this study incorporates the

concept of internal contract experience, defined as the service buyer's capability to develop contracts effectively. The following hypothesis is proposed:

H4: The contract administration experience is significantly associated with ITO satisfaction in FSI.

Communication (COM)

In ITO, effective communication is crucial for successfully transmitting information and is characterized by accuracy, timeliness, sufficiency, and reliability (Mardatillah *et al.*, 2019; Ried *et al.*, 2022). Three key dimensions of communication behavior identified in the literature include knowledge sharing, communication quality (Ali *et al.*, 2022; Jatobá, Franco and Rodrigues, 2022; Sutthiparinyanon and Villegas Puyod, 2022). The success of any collaborative effort is heavily contingent on how well information is communicated. For partnerships to achieve their objectives, timely, accurate, and relevant information must be shared. High-performing partners typically engage in more frequent and relevant communication, which is facilitated by strong relational ties (Pai and Yeh, 2015). Sufficient knowledge enables individuals to work more effectively (Tsai and Hung, 2016), and is associated with higher satisfaction levels, serving as a significant predictor of successful partnerships (Nguyen, Mai and Nguyen, 2021).

Research indicates that communication factors have a significant influence on satisfaction with IT outsourcing (Cha and Kim, 2018), although some studies have not established a significant correlation (Karimi-Alagheband and Rivard, 2020). Communication is critical across various projects and interpersonal, as poor communication can lead to misunderstandings and misaligned expectations. Therefore, this study aims to explore communication quality and information sharing as key factors. The following hypothesis is proposed:

H5: The quality of communication is significantly associated with ITO satisfaction in FSI.

2.2.3 Environmental Context

Environmental context encompasses several critical elements, including external pressures, industry structure, the regulatory environment, and the presence of technical service providers (Hanafizadeh and Zareravasan, 2020). External pressures can be categorized into three main types: those arising from trading partners, competitive forces, and compliance with

governmental regulations and directives. In order to maintain a competitive edge, businesses often feel driven to adopt innovative practices due to these competitive pressures (Khalifa, Abd Elghany and Abd Elghany, 2021; Zeng, 2021). In highly competitive markets, organizations are likely to leverage new technologies to enhance their advantages and efficiency (Hanafizadeh and Zare Ravasan, 2017).

Additionally, regulatory policies form a significant aspect of the environmental context, influencing how organizations operate within the confines of established laws and standards. These regulations can either support or restrict businesses' actions, shaping their strategies and operational frameworks. Understanding these dynamics is essential for businesses navigating competitive landscapes, as they must adapt to external pressures and regulatory requirements to ensure their sustainability and growth in the market.

Regulatory Policy (RP)

The influence of external pressures and the regulatory landscape is crucial for Information Technology Outsourcing (ITO), particularly within the Financial Services Industry (FSI). Various factors, including trading partners, market conditions, regulations, and government policies, can impose limitations or facilitate ITO practices (Hanafizadeh and Zare Ravasan, 2018). To provide secure and reliable services to their clients, organizations in the FSI must incorporate strict commercial and technical standards. Compliance with most of these regulations, established by governing bodies, is mandatory for FSI entities. FSI often relies on service providers to deliver services and support, leveraging their ability to provide rapid service and flexibility that meet regulatory requirements. The effects of government regulations on ITO can be both beneficial and detrimental. Organizations may need to implement additional strategies to remain compliant when new regulatory measures are introduced, such as those requiring third-party risk management.

Hanafizadeh and Zare Ravasan (2018) research highlights that the FSI has faced increasing pressure from various regulatory measures. However, they have not yet formulated a specific hypothesis regarding this pressure. Over the past five years, regulatory policies have increasingly concentrated on managing third-party risks. For instance, the Hong Kong Monetary Authority (HKMA) has emphasized the importance of third-party monitoring related to regulatory technology. It has integrated outsourcing requirements into its operational risk management policy as of 2022 (HKMA, 2022).

Organizations are likely to outsource IT functions to comply with regulatory demands, transferring the associated pressures to the service providers rather than their internal teams. This aspect is critical for FSI and warrants thorough examination for firms operating in Hong Kong. Consequently, regulatory policy has been integrated into the research model, leading to the formulation of the following hypothesis:

H6: Strengthening regulatory outsourcing policy is significantly associated with ITO satisfaction in FSI.

2.2.4 Summary of Independent Variables

The independent variables were selected to establish a foundation for this research. In the context of the TOE model, four independent variables presented inconsistencies, and the literature review did not yield consistent findings within the environmental context. Two additional variables, ISR and RP, are proposed to enhance the model. These factors are critical in the financial services industry, as highlighted by the International Monetary Fund (IMF, 2021), particularly because regulatory policies are beneficial and mandatory for FSI sector organizations.

As a result, the model incorporates six independent variables for further investigation: ISR, QSP, CM, ICE, COM, RP. In addition to these variables, the participants' demographics will also be considered when analyzing the influences that drive independent variables. The hypotheses formulated for this research are detailed in Table 2.3, providing a structured approach to explore these relationships further.

Table 2.3: Summary of Research's Hypotheses

#	Hypothesis
H1	Perceived information security risk is significantly associated with ITO satisfaction in FSI.
H2	The quality of service provider is significantly associated with ITO satisfaction in FSI.
H3	The quality of contract management is significantly associated with ITO satisfaction in FSI.
H4	The contract administration experience is significantly associated with ITO satisfaction in FSI.
H5	The quality of communication is significantly associated with ITO satisfaction in FSI.
H6	Strengthening regulatory outsourcing policy is significantly associated with ITO satisfaction in FSI.

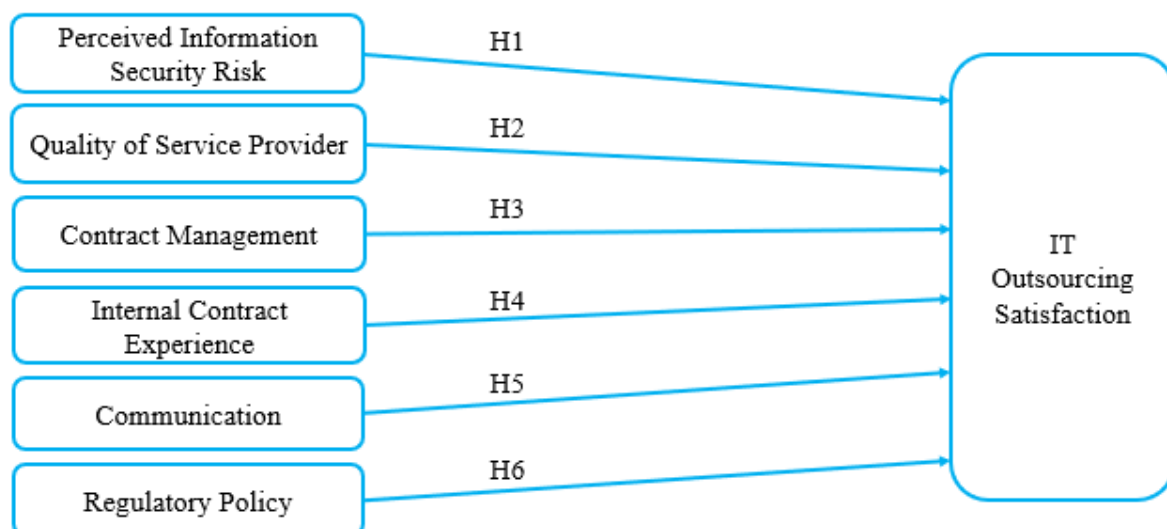
3. Research Methodology

This section outlines the methods utilized in executing the study and presents a systematic approach to analyzing the research activities and addressing the research questions. Additionally, it includes specifics regarding this study, the techniques employed for data collection and analysis, the various tools and methodologies applied, and the reasoning behind the chosen methods (Bouchrika, 2022).

3.1 Research Model

The QSP, CM, ICE, and COM are established in response to the inconsistencies identified in the literature review. Two additional factors, ISR and RP are incorporated as significant contributors to Information Technology Outsourcing (ITO) satisfaction to enhance the research model. These six independent variables are depicted in the research model illustrated in Figure 3.1. The framework is developed based on the TOE model. It is tailored to reflect the specific circumstances of the Financial Services Industry (FSI) for this research.

Figure 3.1: Research Model



3.2 Methodological Choice

The methodological choice is based on the research aim and philosophy, and it is decided whether to use quantitative, qualitative, or hybrid research approaches. This study aims to identify the associations between variables, prompting the adoption of a quantitative method for data collection and analysis. This approach focuses on gathering and processing structural

data that can be quantified. The research involves collecting information through various means, such as surveys and polls, which serve as the basis for making predictions and conducting analyses (Kelley-Quon, 2018). To ensure comprehensive analysis, both primary and secondary data are utilized. The primary data consisted of new, real-time information collected directly by the researcher, while the secondary data comprised existing datasets gathered by other researchers, agencies, and organizations (Ajayi, 2017). These secondary data sources were derived from literature reviews and previous studies, providing a solid foundation for the research.

The quantitative research method systematically gathers and analyzes numerical data to describe, predict, or manage specific interest factors. This strategy allows for evaluating hypotheses based on the collected data (Apuke, 2017). In this study, a survey is conducted to collect information focusing on employees within the IT sector, especially those currently or previously involved in Hong Kong's financial services industry (FSI).

3.3 Data Collection

Data collection involves systematically gathering and analyzing pertinent factors to effectively address defined research questions, test hypotheses, and evaluate outcomes (Paradis *et al.*, 2016). In this study, primary data for the quantitative method was gathered through a survey, with the questionnaire designed specifically based on the formulated hypotheses. The questionnaire aims to capture an understanding of the identified variables, ensuring that the questions posed are fair and easily understandable for respondents. Detailed discussions regarding the survey's design and implementation are provided in the subsequent section.

3.3.1 Survey Design

The model and literature review identify both independent and dependent factors pertinent to the survey. Two parties formulate the questionnaire: the first part gathers demographic information to understand the respondents' backgrounds better, while the second part contains items based on six independent variables, with items dedicated to each variable. The Likert scale, developed by Rensis Likert, is utilized to collect respondents' views and opinions, employing a unidimensional scale (Batterton and Hale, 2017). This psychometric tool is widely used by researchers to gauge sentiments regarding products, brands, or target markets (Fleetwood, 2018).

The Likert Scale is selected because it is easy to create and efficient in collecting data from respondents. It is recognized for producing reliable results, and the accuracy of the conclusions drawn from the data can be verified through various methodologies (Taherdoost, 2019). A 6-Point variant of the Likert Scale was chosen specifically because odd-numbered scales often include a "neutral" option, which can lead respondents to answer hastily without careful consideration. In contrast, the 6-Point variant encourages participants to engage more thoughtfully with the subject matter and to provide either a favorable or unfavorable response (Thompson, 2018). Additionally, the 6-Point scale enhances measurement precision and eliminates the "neutral" choice, which can lead to clearer insights (Nemoto and Beglar, 2014).

Consequently, respondents indicated their degree level for each statement using a 6-Point Likert Scale ranging from 1 to 6. Before conducting the pilot test, the initial draft of the questionnaire statements underwent a review process where IT experts provided feedback. This feedback contributed to refining the statements for clarity and helped to eliminate any redundant items. The results of this review and the subsequent amendments are summarized in Table 3.1.

Table 3.1: Revision Result of Questionnaire

No.	Items (Before)	Issues identified by IT expertise	Revision	Items (After)
DG1	The options of statement: 1. Reduce Cost of Operation 2. Improve Productivity and Efficiency 3. Reduce Business or IT operations Risk 4. Transitioning to New Systems or new technology 5. More Experienced IT Professionals 6. Company Restructure 7. Lower Wage Requirements 8. Others	1) #1 and #7 seems same item or clarify it; 2) The list is too long for ranking, may be pick top 5 or rank top 5.	revised	1. Cost Saving 2. Improve Productivity and Efficiency 3. Transfer Business or IT operations Risk 4. Transitioning to New Systems or new technology 5. Company Restructure 6. Others
DG6	1) Individual Contributor 2) Supervisor 3) Manager 4) Senior Manager 5) Regional Manager 6) Vice President 7) Management / C-Level 8) Others	#4 and #5 are too similar	deleted #5	1) Individual Contributor 2) Supervisor 3) Manager 4) Senior Manager 5) Vice President 6) Management / C-Level 7) Others
DG7	How many subordinates report to you directly? 1) 0 - 1 2) 2 - 3 3) 4 - 6 4) 7 - 9 5) 10 - 12 6) 13 - 15 7) 16 - 20 8) 21 or above	Too many levels	revised a question and redefined the range.	How many staffs report to you directly and indirectly? 1) 0 2) 1 - 10 3) 11 - 20 4) 21 - 50 5) 51 - 100 6) 101 - 200 7) 201 - 500 8) 501 or above
ISR3	IT outsourcing can transfer the business or IT operation risks to the outsourcing service provider.	Risk can be transferred, but the liability is the service buyer if the outsourced system/service fails.	deleted a business risks	IT outsourcing can transfer the operational risks to the outsourcing service provider.

3.3.2 Sampling Size

The sample size for this study was determined by the number of completed questionnaires, which represents a subset of the overall target population (Taherdoost, 2017). To establish a representative sample size, it is essential to understand and specify three key criteria: the margin of error, the population proportion, and the confidence level (Ahmad and Halim, 2017). These criteria help ensure that the sample accurately reflects the broader population from which it is drawn.

Before proceeding with the comprehensive final test, conducting a preliminary pilot test is important to assess the questionnaire's effectiveness. This pilot test typically involves a small group of respondents, generally 30 to 50 participants (Aithal and Aithal, 2020). The purpose of the pilot test is to identify the potential problem, such as unreliable statement or technical difficulties, and adjust it to the full-scale study.

3.3.3 Data Collection Channel

The survey was developed using a digital Google Form and was disseminated through various electronic platforms. The questionnaire was made available in both English and Chinese to accommodate the primary language of Hong Kong, thereby enhancing the respondents' understanding and ensuring accurate responses. The data collection utilized a snowball sampling method (Taherdoost, 2016), where the initial participants, comprising individuals from the IT sector, were encouraged to share the questionnaire with their friends, colleagues, former coworkers, and IT service providers. This approach allowed for a broader distribution and increased the overall sample size by leveraging the networks of the initial respondents.

4. Results

This section analyzes the primary data collected through the survey using a quantitative approach. The data gathered via a digital format was examined using descriptive and inferential statistical methods to provide clear and informative presentations. Descriptive statistics help to illustrate the relationships among various factors within a sample or population, organizing the data and providing a concise summary (Kaur, Stoltzfus and Yellapu, 2018). Inferential statistics, on the other hand, facilitate predictions about a more extensive data set based on a

representative sample. Random selection of data is generally considered the most effective method for describing and drawing inferences about a population (Simplilearn, 2021). During the designated data collection timeframe, 43 completed surveys were received. All the data were exported in digital format and analyzed using statistical software, with further details on the analysis results presented in the following sections.

4.1 Demographic Analysis

The demographic data were analyzed to predict the trend based on their background. Table 4.1 shows the reasons for selecting ITO. It demonstrates that 37.2% of respondents would like to save money by outsourcing IT, followed by “Improve Productivity and Efficiency” and “Transitioning to New System and New Technology”. It also predicts that “Cost Saving” will be the first reason for outsourcing in the final survey, and the second reason will be either improving efficiency or transitioning to a new system.

Table 4.1: Summary of Reasons for Outsourcing

	Cost Saving	Improve Productivity and Efficiency	Transfer Business or IT Operations Risk	Company Restructure	Transitioning to New Systems or New Technology	Other
Most Important Reason	37.2%	25.5%	14.0%	0.0%	23.3%	0.0%
2nd Reason	25.6%	25.6%	27.9%	4.6%	16.3%	0.0%
3rd Reason	14.0%	13.9%	41.9%	9.3%	20.9%	0.0%
4th Reason	16.3%	27.9%	11.6%	14.0%	30.2%	0.0%
Least Important Reason	7.0%	4.6%	14.0%	67.4%	7.0%	0.0%

In Table 4.2, respondents show the demographic data that assisted in analyzing this study from a different perspective. It included 97.7% of FSI, and 2.7% of non-FSI experienced respondents who assessed their perspective on information security and regulatory policy factors. The respondents have outsourcing experience, and the common are “1-5” and “6-10” times of ITO experiences with the same number of respondents, representing 69.8% of respondents. Over 11 times of ITO experiences are 30.2%. 60.5% of the respondents work for “Accountancy, banking or finance” sector, and 20.8% of respondents work computing or IT. The top two company sizes for the respondents are “101-250” and “251-500.” These two types of companies represented 60.4% of the respondents. 16.3% of respondents’ company size is over 1,000 employees in Hong Kong.

For the IT team size, 74.4% of the IT team are under 50 members. As for the nature of the work, 88.4% of IT professionals, that includes 37.2% of management, 9.3% of IT consultants, and

41.9% of technical nature. 39.5% are senior managers or above for job positions, whereas 32.6% are individual contributors.

Table 4.2: Demographic of Data

Total Number	Respondents (%)
	43 (100%)
FSI Working Experience	
- Yes	42 (97.7%)
- No	1 (2.3%)
Number of ITO Experience	
- 0	0 (0%)
- 1 - 5	15 (34.9%)
- 6 - 10	15 (34.9%)
- 11 - 20	6 (14%)
- 21 or above	7 (16.3%)
Current Working Sector	
- Accountancy, Banking or Finance	26 (60.5%)
- Computing or IT	9 (20.9%)
- Healthcare	0 (0%)
- Marketing	1 (2.3%)
- Property or Construction	2 (4.7%)
- Retail	1 (2.3%)
- Transport or Logistics	2 (4.7%)
- Other	2 (4.7%)
Total Number of Employees in Company in Hong Kong	
- 1 - 50	2 (4.7%)
- 51 - 100	4 (9.3%)
- 101 - 250	13 (30.2%)
- 251 - 500	13 (30.2%)
- 501 - 1,000	4 (9.3%)
- 1,001 - 1,500	2 (4.7%)
- 1,501 - 2,500	2 (4.7%)
- 2,501 or above	3 (7%)
Total Number of Employees in the IT Department in Hong Kong	
- 1 - 20	23 (53.5%)
- 21 - 50	9 (20.9%)
- 51 - 100	4 (9.3%)
- 101 - 200	7 (16.3%)
- 201 or above	0 (0%)
Work Nature	
- IT Management	16 (37.2%)
- IT Consultant	4 (9.3%)
- IT Operation Services	2 (4.7%)
- IT Technical Services	16 (37.2%)
- Non IT Professional	4 (9.3%)
- Non IT Services	1 (2.3%)
Job Position	
- Individual Contributor	14 (32.6%)
- Supervisor	4 (9.3%)
- Manager	8 (18.6%)
- Senior Manager	5 (11.6%)
- Vice President	6 (14%)
- Management / C-Level	6 (14%)
- Others	0 (0%)
Number of Direct and Indirect Staff	
- 0	18 (41.9%)
- 1 - 10	17 (39.5%)
- 11 - 20	1 (2.3%)
- 21 - 50	4 (9.3%)
- 51 - 100	1 (2.3%)
- 101 - 200	1 (2.3%)
- 201 - 500	1 (2.3%)
- 501 or above	0 (0%)

The job position and ITO reason in Table 4.3 show the respondents' backgrounds affect their willingness to outsource IT services. Refer to the table, senior manager or above positions who outsourced their IT for transferring the risk. Meanwhile, the middle-level positions (supervisor and manager) are targeted for cost savings, and the individual contributors would like to get resources to assist them in transitioning to the new system or technology. This insight can inform organizations about the varying attitudes toward outsourcing based on demographic segments.

Table 4.3: Cross-tabulation between Job Position and ITO Reason

Job Position \ Reason	Cost Saving	Improve Productivity and Efficiency	Transfer Business or IT Operations Risk	Transitioning to New Systems or New Technology
Individual Contributor	25.0%	45.5%	0.0%	50.0%
Supervisor	18.8%	9.1%	0.0%	0.0%
Manager	25.0%	9.1%	33.3%	10.0%
Senior Manager	12.4%	9.1%	33.3%	0.0%
Vice President	18.8%	9.1%	16.7%	10.0%
Management / C-Level	0.0%	18.1%	16.7%	30.0%

4.2 Statistical Analysis

Statistical analysis uses quantitative data to explore trends, determine patterns, and identify correlations through different types of analysis, such as reliability and linear regression analysis. The result provides valuable insights into the relationships between various variables.

4.2.1 Reliability Analysis

Reliability analysis assesses the consistency of the research technique. It measures the internal consistency of items of their constructs. Cronbach's Alpha is the most popularly utilized metric for this purpose. The value from 0 to 1 represents the degree of consistency. Cronbach α , a measure of acceptable internal consistency, should be higher than 0.7 (Kennedy, 2021).

After collecting the pilot data, all survey items, including both independent and dependent variables, underwent a reliability test to ensure their validity. This process involved identifying and removing items that demonstrated weak consistency within the constructs. By doing so, the Cronbach's alpha (α) value approached 1, indicating enhanced reliability and consistency among the survey items. The results of the reliability test, which removed the items to improve the Cronbach α values further, are presented in Table 4.4. They show that the Cronbach α values for each variable exceeded 0.84. This high value signifies that the items within each

variable exhibit strong internal consistency, reinforcing the credibility of the measurement tools used in the study.

Additionally, the mean scores for each item ranged from 4.1 to 5.1, indicating that the overall respondents tended to "Agree" with the statements presented in the survey. This positive response suggests that the survey effectively captures the participants' perspectives and aligns with the intended constructs. Overall, the combination of strong reliability and favorable mean scores enhances the confidence in the survey's ability to provide accurate and meaningful insights into the research topic.

Table 4.4: Reliability Test Result

Variable and Item	Question	Mean	SD	Cronbach α
Perceived Information Security Risk		4.51	0.794	0.841
ISR1	IT outsourcing service providers have specialized functions and services.	4.81	0.852	
ISR2	IT outsourcing can reduce IT operations' impact due to staff turnover.	4.28	1.098	
ISR4	IT outsourcing service providers have more resources (expertise and tools) for responding if any incidents occur.	4.74	0.978	
ISR5	We have controls to protect the company's data from being disclosed and abused by service providers during the service period.	4.21	0.914	
Quality of Service Provider		4.40	0.683	0.846
QSP1	IT outsourcing service providers have professional certificates for assessing their capabilities objectively.	4.47	0.984	
QSP2	The client base of service providers is one of the selection criteria to consider their capabilities and relevant experience in the industry to serve our company.	4.49	0.856	
QSP3	The experience of service providers can assist us in implementing a new computer system and in-house training staff.	4.56	0.765	
QSP4	We can transfer the financial liabilities to service providers if transiting to a new system or outsourced system upgrade failure.	4.05	0.754	
QSP5	Service providers share the knowledge of systems and the potential risks, reducing the failure rate in IT operations.	4.44	0.959	
Contract Management		4.75	0.864	0.917
CM1	The number of subject matter experts of service providers is specified in the contracts to ensure a reasonable level of service during the contract period.	4.72	1.076	
CM2	The arrangement of out-of-scope work is defined in the contract to reduce disputation during the contract period.	4.88	0.956	
CM3	The IT outsourcing contract state service providers to comply with company's security policies, standards, and processes during the contract period.	4.81	0.982	
CM4	Service providers must bear the primary responsibility and liabilities for outsourced IT systems or services during the contract period.	4.67	0.969	
CM5	The service level agreement (SLA) of IT outsourcing aligns with the SLA of company to secure the benefit to the company, and avoid extra expense by unnecessary service levels in contracts.	4.65	0.997	
Internal Contract Experience		4.61	0.933	0.921
ICE1	We have the capability to determine the scope of work in detail for IT outsourcing.	4.6	1.116	
ICE2	We know how to write a statement of work for an IT outsourcing contract because we have the right skills.	4.44	0.959	
ICE3	We know how to write service level agreements (SLAs) for contracts to outsource IT work.	4.58	1.139	
ICE4	We consider the nursing period in IT outsourcing contracts to prevent additional costs due to the uncertainties in the transition stages of IT outsourcing.	4.7	1.013	
ICE5	We have the capability to negotiate with determine the scope of work in detail for IT outsourcing.	4.74	1.115	
Communication		4.78	0.818	0.866
COM2	IT outsourcing service providers and we are working in the same time zone region that can contact each other easier.	5.09	1.087	
COM3	I prefer service providers that speak the same first language as me.	4.93	1.121	
COM4	The communication between the service providers and us is timely.	4.6	0.791	
COM5	The communication between the service providers and us is accurate.	4.51	0.827	
Regulation Policy		4.48	0.857	0.900
RP1	Company facing compliance requirements, outsourcing IT can reduce the stress on in-house staff and handing over the responsibility to service providers.	4.16	0.898	
RP2	Service providers' experience serving companies in the Financial Services Industry and knowledge of regulation to avoid regulation policies violation during the service period.	4.65	1.066	
RP3	Global or listed service providers certified by international data privacy, information security, and IT service management standards. It facilitates my company to fulfill the regulatory requirements during the service period.	4.63	1.001	
RP4	Service providers reduce subcontracting to other service providers. It facilitates the company to manage third-party risk in regulation policy.	4.47	0.935	
ITO Satisfaction		4.33	0.665	0.851
ITOS2	Our service provider often completes tasks that exceed our expectations.	4.23	0.751	
ITOS3	We acquired expert services from service providers and transferred risks to them.	4.35	0.72	
ITOS4	We are satisfied with our overall benefits from IT outsourcing.	4.35	0.842	
ITOS5	In general, We are satisfied with IT outsourcing service.	4.4	0.877	

4.2.2 Correlation and Simple Regression Analysis

The Pearson Correlation Coefficient measures how strong the relationship with direction between two variables measured on at least an interval scale is (Komaroff, 2020). It provides insights into how changes in one variable affect another, allowing researchers to explore the significance of relationships between independent and dependent factors. The correlation coefficient, denoted as r , ranges from -1 to +1. A value of r close to +1 indicates a strong positive association (Akoglu, 2018), meaning that the other variable also tends to increase as one variable increases.

The data collected for each variable is averaged to analyze the relationship between the two variables, and these average values are utilized to compute the correlation coefficient. Table 4.5 demonstrates the association between independent and dependent variables.

The p-value of those independent variables are $< .001$ that are significant associated to ITO satisfaction.

The R^2 is the variation explained by the model. For instance, the R^2 of AVG-ISR is 0.371, which implies that the model can interpret 37.1% of the data variation.

The value r means that ITOS can increase r for a 1-unit change in the factor. For instance, ITOS increases 0.609 for a 1-unit change in ISR. This value provides insight to researchers for recommendation formulation. By selecting the higher value of the factor, ITOS can be enhanced more efficiently.

Table 4.5: Correlation and Simple Regression Result

	AVG-ISR	AVG-QSP	AVG-CM	AVG-ICE	AVG-COM	AVG-RP
AVG-ITOS Pearson's r	0.609 ***	0.665 ***	0.637 ***	0.690 ***	0.629 ***	0.510 ***
R^2	0.371	0.443	0.406	0.476	0.396	0.260
p-value	$< .001$	$< .001$	$< .001$	$< .001$	$< .001$	$< .001$

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

4.3 Summary of Analysis

The pilot data was analyzed through demographic and statistical analysis methods, allowing us to comprehensively understand the respondents' perspectives on IT outsourcing. The demographic analysis allowed us to categorize respondents based on various characteristics, such as job role, position, and professional experience within the IT sector. Additionally, the statistical analysis focused on identifying the key factors contributing to respondents'

satisfaction with IT outsourcing services. By employing techniques such as correlation analysis and regression modeling, we could examine the relationships between different variables.

Overall, the combination of demographic and statistical analyses not only illuminates users' intentions to outsource IT services but also provides valuable insights into the elements that drive user satisfaction. This dual approach equips organizations with the knowledge needed to tailor their outsourcing strategies effectively, ensuring that they meet their diverse client base's specific needs and preferences.

5. Discussion

This study explored the factors influencing outsourced IT system satisfaction in Hong Kong FSI. It identified all the independent variables, ISR, QSP, CM, ICE, COM, and RP that significantly affected ITO satisfaction and summarized in Table 5.1.

Table 5.1: Hypotheses Result

Hypothesis	Significance level	Support / Reject
H1. Perceived information security risk is significantly associated with ITO satisfaction in FSI.	$p < 0.001$	Supported
H2. The quality of service provider is significantly associated with ITO satisfaction in FSI.	$p < 0.001$	Supported
H3. The quality of contract management is significantly associated with ITO satisfaction in FSI.	$p < 0.001$	Supported
H4. The contract administration experience is significantly associated with ITO satisfaction in FSI.	$p < 0.001$	Supported
H5. The quality of communication is significantly associated with ITO satisfaction in FSI.	$p < 0.001$	Supported
H6. Strengthening regulatory outsourcing policy is significantly associated with ITO satisfaction in FSI.	$p < 0.001$	Supported

Perceived Information Security Risk and Regulation findings are consistent with the results of Hussein Alghushami, A., Zakaria, N.H. and Mat Aji, Z. (2020). Their study's target respondents are CIOs, CTOs, and IT professionals, who are similar to the target respondents in this study. In general, these respondents have more security and compliance awareness than the other staff, and it is unsurprising that this factor significantly affects ITOS.

Felisoni, P.R., Martins, F.S. and Gaspar, M.A. (2020) identified contract management and administration as significantly associated with ITOS. In Felisoni's study, respondents' IT

experience affects the contract's quality and strategic objectives. This study consistently shows that CM and ICE are success factors; all respondents have ITO experience.

For Quality-of-Service Provider (QSP) and Communication (COM), Al-Azad, M.S., Mohiuddin, M. and Su, Z. (2022) have different findings in their research. The QSP result is consistent in this study, but COM is not. Al-Azad's study focused on the service provider/buyer willing to share with others. It is human behavior, whereas the COM in this study is communication skills and protocol. COM is more objective and assessable from the respondents' perspective.

6. Conclusions and Recommendations

In this study, based on a theoretical framework, TOE builds the hypotheses and uses quantitative methods to collect and analyze the data. Finally, six critical success factors for ITO satisfaction were identified to address the research question. It provides insight into the organizations and service providers when considering or reviewing outsourcing services. Those factors impact the satisfaction of ITO, and service buyers and providers can improve the related areas to improve satisfaction with ITO success. The above analysis result also predicts the outsourced purpose and which performance factors can enhance ITO satisfaction more effectively. Until the full-scale test data is collected, this research could be extended to make it more representative.

There are recommendations to enhance the ITO satisfaction: (1) Building knowledge management within an organization is essential for accumulating valuable knowledge and experiences from various projects. Project teams actively share their insights and lessons learned, and organizations can create a rich repository of information that all staff members can utilize. Employees have access to documented experiences from previous projects that can avoid repeating mistakes and effectively mitigate risks. For instance, if a team encounters challenges related to terms and conditions in outsourcing projects, they can refer to earlier projects that faced similar issues and learn from the strategies employed to address those challenges. It contributes to CM, ICE, and COM factors.

Reference List

- Ahmad, H. and Halim, H. (2017) "Determining sample size for research activities," *Selangor Business Review*, pp. 20–34. Available at: <https://sbr.journals.unisel.edu.my/ojs/index.php/sbr/article/view/12> (Accessed: October 16, 2024).
- Ahmed, I. (2020) "Technology organization environment framework in cloud computing," *TELKOMNIKA (Telecommunication Computing Electronics and Control)*, 18(2), p. 716. doi: 10.12928/telkomnika.v18i2.13871.
- Aithal, A. and Aithal, P.S. (2020) "Development and validation of survey questionnaire & experimental data – A systematical review-based statistical approach," *SSRN Electronic Journal* [Preprint]. Available at: <https://doi.org/10.2139/ssrn.3724105>.
- Ajayi, O. V. (2017) "Primary sources of data and secondary sources of data." doi: 10.13140/RG.2.2.24292.68481.
- Akoglu, H. (2018) "User's guide to correlation coefficients," *Turkish journal of emergency medicine*, 18(3), pp. 91–93. doi: 10.1016/j.tjem.2018.08.001.
- Al Hadwer, A. *et al.* (2021) "A systematic review of organizational factors impacting cloud-based technology adoption using technology-organization-environment framework," *Internet of Things*, 15(100407), p. 100407. doi: 10.1016/j.iot.2021.100407.
- Al-Azad, M.S., Mohiuddin, M. and Su, Z. (2022) "The client and service provider relationship in IT outsourcing project success: The moderating effects of organizational attitudes on knowledge sharing and partnership quality," *Journal of global information management*, 30(1), pp. 1–27. Available at: <https://doi.org/10.4018/jgim.299325>.
- Ali, S. *et al.* (2022) "Practitioner's view of the success factors for software outsourcing partnership formation: an empirical exploration," *Empirical Software Engineer*, 27(2). doi: 10.1007/s10664-021-10044-y.
- Alkhater, N., Walters, R. and Wills, G. (2018) "An empirical study of factors influencing cloud adoption among private sector organisations," *Telematics and informatics*, 35(1), pp. 38–54. Available at: <https://doi.org/10.1016/j.tele.2017.09.017>.
- Alwahdani, A. (2019) "The impact of trust and reciprocity on knowledge exchange: A case study in IT outsourcing," *Journal of information systems engineering & management*, 4(1). doi: 10.29333/jisem/5738.
- Amplifyre (2022) *Biggest IT outsourcing failures and how to avoid them*, Amplifyre. Available at: <https://www.amplifyre.com/articles/biggest-it-outsourcing-failures-and-how-to-avoid-them> (Accessed: October 1, 2024).
- Apuke, O. D. (2017) "Quantitative research methods : A synopsis approach," *Kuwait Chapter of Arabian Journal of Business and Management Review*, 6(11), pp. 40–47. doi: 10.12816/0040336.

Bachlechner, D., Thalmann, S. and Maier, R. (2014) "Security and compliance challenges in complex IT outsourcing arrangements: A multi-stakeholder perspective," *Computers & security*, 40, pp. 38–59. doi: 10.1016/j.cose.2013.11.002.

Bashir, I. *et al.* (2020) "Systematic literature review and empirical study for success factors: Client and vendor perspective." Available at: <https://www.semanticscholar.org/paper/154d6f9b78019552927580e995e1139af3715031> (Accessed: October 1, 2024).

Batterton, K. A. and Hale, K. N. (2017) "The likert scale what it is and how to use it," *Phalanx*, 50(2), pp. 32–39. Available at: <http://www.jstor.org/stable/26296382>.

Bhatti, B. M., Mubarak, S. and Nagalingam, S. (2021) "Factors impacting information security risk management in IT outsourcing: An agency theory perspective." Available at: <https://aisel.aisnet.org/pacis2021/16> (Accessed: October 1, 2024).

Blijleven, V. *et al.* (2019) "Critical success factors for Lean implementation in IT outsourcing relationships: A multiple case study," *Information technology & people*, 32(3), pp. 715–730. doi: 10.1108/itp-01-2016-0002.

Bouchrika, I. (2022) *How to Write Research Methodology: Overview, Tips, and Techniques*, Research.com. Available at: <https://research.com/research/how-to-write-research-methodology> (Accessed: October 13, 2024).

Cha, K.-J. and Kim, Y. S. (2018) "Critical success factors for mutual collaboration with suppliers in IT outsourcing industry: a case study of a top IT outsourcing company in Korea," *Enterprise information systems*, 12(1), pp. 76–95. doi: 10.1080/17517575.2016.1196734.

Delen, G. P. A. J. *et al.* (2016) "Lessons from Dutch IT-outsourcing success and failure," *Science of computer programming*, 130, pp. 37–68. doi: 10.1016/j.scico.2016.04.001.

Delen, G. P. A. J. *et al.* (2019) "Foundations for measuring IT-outsourcing success and failure," *The Journal of systems and software*, 156, pp. 113–125. doi: 10.1016/j.jss.2019.06.074.

Dewi, M. A. A. *et al.* (2018) "Smart city readiness model using technology-organization-environment (TOE) framework and its effect on adoption decision." Available at: <https://aisel.aisnet.org/pacis2018/268> (Accessed: October 1, 2024).

Di Mauro, C. *et al.* (2018) "Offshoring and backshoring: A multiple case study analysis," *Journal of purchasing and supply management*, 24(2), pp. 108–134. doi: 10.1016/j.pursup.2017.07.003.

Erdoğan, D. (2020) "The role of contract and relationship norms in the success of Information Technology Outsourcing," *Eastern Journal of European Studies*. Available at: https://www.academia.edu/44817175/The_role_of_contract_and_relationship_norms_in_the_success_of_Information_Technology_Outourcing (Accessed: October 15, 2024).

Fehrenbacher, D. D. and Wiener, M. (2019) “The dual role of penalty: The effects of IT outsourcing contract framing on knowledge-sharing willingness and commitment,” *Decision support systems*, 121, pp. 62–71. doi: 10.1016/j.dss.2019.04.005.

Felisoni, P.R., Martins, F.S. and Gaspar, M.A. (2020) “Evaluation of the main performance criteria of IT outsourcing for contract management in public companies: a bibliometric review,” *Research, Society and Development*, 9(11), p. e81491110390. Available at: <https://doi.org/10.33448/rsd-v9i11.10390>.

Fleetwood, D. (2018) *What is a Likert Scale – Definition, example, characteristics, & advantages*, QuestionPro. Available at: <https://www.questionpro.com/blog/what-is-likert-scale/> (Accessed: October 16, 2024).

Gunduz, M. and Elsherbeny, H. A. (2020) “Operational framework for managing construction-contract administration practitioners’ perspective through modified Delphi method,” *Journal of construction engineering and management*, 146(3), p. 04019110. doi: 10.1061/(asce)co.1943-7862.0001768.

Hanafizadeh, P. and Zare Ravasan, A. (2017) “An investigation into the factors influencing the outsourcing decision of e-banking services: A multi-perspective framework,” *Journal of global operations and strategic sourcing*, 10(1), pp. 67–89. doi: 10.1108/jgoss-05-2016-0016.

Hanafizadeh, P. and Zare Ravasan, A. (2018) “A model for selecting IT outsourcing strategy: the case of e-banking channels,” *Journal of global information technology management*, 21(2), pp. 111–138. Available at: <https://doi.org/10.1080/1097198x.2018.1462070>.

Hanafizadeh, P. and Zareravasan, A. (2020) “A systematic literature review on IT outsourcing decision and future research directions,” *Journal of global information management*, 28(2), pp. 160–201. doi: 10.4018/jgim.2020040108.

Hayes, A. (2022) *Descriptive statistics: Definition, overview, types, example*, Investopedia. Available at: https://www.investopedia.com/terms/d/descriptive_statistics.asp (Accessed: October 16, 2024).

HKMA (2022) *Operational Risk Management*, [hkma.gov.hk](https://www.hkma.gov.hk). Available at: <https://www.hkma.gov.hk/media/eng/doc/key-functions/banking-stability/supervisory-policy-manual/OR-1.pdf> (Accessed: October 15, 2024).

Hodosi, G. (2017) *Information technology outsourcing in large companies in Sweden A perspective on risks, relationships and success factors*, Diva-portal.org. Available at: <https://www.diva-portal.org/smash/get/diva2:1088520/FULLTEXT01.pdf> (Accessed: October 15, 2024).

Hodosi, G. and Rusu, L. (2019) “IT outsourcing: Definition, importance, trends and research,” in *Risks, Relationships and Success Factors in IT Outsourcing*. Cham: Springer International Publishing, pp. 1–9.

Hodosi, G. *et al.* (2020) “Factors for successful IT outsourcing relationships in large companies in Sweden: A service buyer’s perspective,” in *Information Systems*. Cham: Springer International Publishing, pp. 486–497.

Hussein Alghushami, A., Zakaria, N.H. and Mat Aji, Z. (2020) “Factors influencing cloud computing adoption in higher education institutions of least developed countries: Evidence from republic of Yemen,” *Applied sciences (Basel, Switzerland)*, 10(22), p. 8098. Available at: <https://doi.org/10.3390/app10228098>.

IMF (2021) *PEOPLE’S REPUBLIC OF CHINA–HONG KONG SPECIAL ADMINISTRATIVE REGION FINANCIAL SECTOR ASSESSMENT PROGRAM*, *Imf.org*. Available at: <https://www.imf.org/-/media/Files/Publications/CR/2021/English/1HKGEA2021004.ashx> (Accessed: October 15, 2024).

Ishizaka, A. *et al.* (2019) “Outsourcing and offshoring decision making,” *International journal of production research*, 57(13), pp. 4187–4193. doi: 10.1080/00207543.2019.1603698.

Jain Palvia, S. C. and Palvia, P. (2017) “Critical issues facing IT outsourcing vendors in India,” in *Global Sourcing of Services*. World Scientific/NOW Publishers, pp. 261–300.

Jain Palvia, S. C. and Palvia, P. (2017) “Critical issues facing IT outsourcing vendors in India,” in *Global Sourcing of Services*. World Scientific/NOW Publishers, pp. 261–300.

Jatobá, M. N., Franco, M. and Rodrigues, M. (2022) “The role of communication between partners in the process of strategic alliances: a systematic literature review,” *Journal of business & industrial marketing*. doi: 10.1108/jbim-09-2021-0440.

Johny, J. and Gurtu, A. (2022) “Risks in supply chain management,” in *International Series in Operations Research & Management Science*. Cham: Springer International Publishing, pp. 3–26.

Karimi-Alagheband, F. and Rivard, S. (2020) “IT outsourcing success: A dynamic capability-based model,” *Journal of strategic information systems*, 29(1), p. 101599. Available at: <https://doi.org/10.1016/j.jsis.2020.101599>.

Kaur, P., Stoltzfus, J. and Yellapu, V. (2018) “Descriptive statistics,” *International journal of academic medicine*, 4(1), p. 60. doi: 10.4103/ijam.ijam_7_18.

Kelley-Quon, L. I. (2018) “Surveys: Merging qualitative and quantitative research methods,” *Seminars in pediatric surgery*, 27(6), pp. 361–366. doi: 10.1053/j.sempedsurg.2018.10.007.

Kennedy, I. (2021) *Sample size determination in test-retest and cronbach alpha reliability estimates - British journal of contemporary education (BJCE)*, *British Journal of Contemporary Education (BJCE)*. Available at: <https://abjournals.org/bjce/papers/volume-2/issue-1/sample-size-determination-in-test-retest-and-cronbach-alpha-reliability-estimates/> (Accessed: October 7, 2024).

Khalifa, N., Abd Elghany, Mona and Abd Elghany, Marwa (2021) “Exploratory research on digitalization transformation practices within supply chain management context in developing countries specifically Egypt in the MENA region,” *Cogent business & management*, 8(1), p. 1965459. Available at: <https://doi.org/10.1080/23311975.2021.1965459>.

Komaroff, E. (2020) “Relationships between p-values and Pearson correlation coefficients, type 1 errors and effect size errors, under a true null hypothesis,” *Journal of statistical theory and practice*, 14(3). doi: 10.1007/s42519-020-00115-6.

Mardatillah, A. *et al.* (2019) “The importance of characteristic partnership as A sustainable competitive advantage: A perspective review,” in *Proceedings of the Proceedings of 1st Workshop on Environmental Science, Society, and Technology, WESTECH 2018, December 8th, 2018, Medan, Indonesia*. EAI.

Moon, J. *et al.* (2016) “IT outsourcing success in the public sector: Lessons from e-government practices in Korea,” *Information development*, 32(2), pp. 142–160. doi: 10.1177/0266666914528930.

morganlewis (2022) *A focus on outsourcing in financial services: Digital transformation and innovation*, *Morganlewis.com*. Available at: <https://www.morganlewis.com/-/media/files/publication/presentation/webinar/2022/a-focus-on-outsourcing-in-financial-services-digital-transformation-and-innovation.pdf> (Accessed: October 15, 2024).

Muhammad Nooruddin, U. *et al.* (2022) “Adoption and commitment to online banking in Pakistan using the technology acceptance model,” *Banks and bank systems*, 17(4), pp. 154–166. doi: 10.21511/bbs.17(4).2022.13.

Murphy, L. (2024) “The influence of IT outsourcing on organisational success and innovation,” *Future Business Journal*, 10(1). Available at: <https://doi.org/10.1186/s43093-024-00372-y>.

Nemoto, T. and Beglar, D. (2014) *Temple University, Japan Campus*, *Jalt-publications.org*. Available at: https://jalt-publications.org/sites/default/files/pdf-article/jalt2013_001.pdf (Accessed: October 16, 2024).

Nguyen, P. T. M., Mai, K. N. and Nguyen, P. N. D. (2021) “Alliance management practices for higher trust, commitment and inter-organizational relationship performance: Evidence from travel companies in Vietnam,” *Sustainability*, 13(16), p. 9102. doi: 10.3390/su13169102.

Pai, F.-Y. and Yeh, T.-M. (2015) “The effects of interdependence and cooperative behaviors on buyer’s satisfaction in the semiconductor component supply chain,” *Sustainability*, 8(1), p. 2. doi: 10.3390/su8010002.

Paradis, E. *et al.* (2016) “Design: Selection of data collection methods,” *Journal of graduate medical education*, 8(2), pp. 263–264. doi: 10.4300/JGME-D-16-00098.1.

Patil, S. and Patil, Y. S. (2014) “A review on outsourcing with a special reference to telecom operations,” *Procedia, social and behavioral sciences*, 133, pp. 400–416. doi: 10.1016/j.sbspro.2014.04.207.

Pereira, V., Munjal, S. and Ishizaka, A. (2019) “Outsourcing and offshoring decision making and its implications for businesses - A synthesis of research pursuing five pertinent questions,” *Journal of business research*, 103, pp. 348–355. doi: 10.1016/j.jbusres.2019.07.009.

Reportlinker (2022) *Global Outsourcing Market in BFSI Sector Market 2022-2026*, *Reportlinker.com*. Available at: https://www.reportlinker.com/p03696572/Global-Outsourcing-Market-in-BFSI-Sector.html?utm_source=GNW (Accessed: October 15, 2024).

Rhodes, J. *et al.* (2016) “Critical success factors in relationship management for services outsourcing,” *Service business*, 10(1), pp. 59–86. doi: 10.1007/s11628-014-0256-8.

Ried, L. *et al.* (2022) “From target to actor: Contagion of honesty and deception across buyer–supplier negotiations,” *Journal of operations management*. doi: 10.1002/joom.1212.

Schmidt, N. and Menth, L. (2016) “Establishing information technology outsourcing relationship quality: A comparative repertory grid study,” *Establishing information technology outsourcing relationship quality: A comparative repertory grid study*. Available at: https://aisel.aisnet.org/ecis2016_rp/170 (Accessed: October 16, 2024).

Shaheen, W. Z. (2016) *Outsourcing risk management and success factors in Palestinian ICT companies*. An-Najah National University.

Simplilearn (2021) *Descriptive vs. Inferential statistics: Key differences and measurement techniques*, *Simplilearn.com*. Simplilearn. Available at: <https://www.simplilearn.com/difference-between-descriptive-inferential-statistics-article> (Accessed: October 16, 2024).

Statista (2024a) *IT Outsourcing - Hong Kong*, *Statista*. Available at: <https://www.statista.com/outlook/tmo/it-services/it-outsourcing/hong-kong> (Accessed: October 1, 2024).

Statista (2024b) *IT-outsourcing market revenue by segment 2024-2029*, *Statista*. Available at: <https://www.statista.com/forecasts/1079933/it-outsourcing-services-revenue-segment> (Accessed: October 1, 2024).

Sutthiparinyanon, P. and Villegas Puyod, J. (2022) “The role of partnership quality, trust, perceived commitment and perceived risk on successful outsourcing relationship,” *Suranaree Journal of Social Science*, 17(1), pp. 1–11. doi: 10.55766/hruk4070.

Sutthiparinyanon, P. and Villegas Puyod, J. (2022) “The role of partnership quality, trust, perceived commitment and perceived risk on successful outsourcing relationship,” *Suranaree Journal of Social Science*, 17(1), pp. 1–11. doi: 10.55766/hruk4070.

Taherdoost, H. (2016) “Sampling methods in research methodology; How to choose a sampling technique for research,” *SSRN Electronic Journal*. doi: 10.2139/ssrn.3205035.

Taherdoost, H. (2017) “Determining sample size; How to calculate survey sample size.” Available at: <https://papers.ssrn.com/abstract=3224205> (Accessed: October 16, 2024).

Taherdoost, H. (2019) “What is the best response scale for survey and questionnaire design; Review of different lengths of rating scale / attitude scale / Likert scale.” Available at: <https://papers.ssrn.com/abstract=3588604> (Accessed: October 16, 2024).

Technavio (2024) *IT Market in Hong Kong to grow by USD 2,527.56 mn*, *Technavio.com*. Available at: <https://www.technavio.com/report/it-market-industry-in-hong-kong-analysis> (Accessed: October 1, 2024).

The Standard (2022) *Over 290,000 Hongkongers affected by cyberattack targeting eight Shangri-la hotels*, *The Standard*. Available at: <https://www.thestandard.com.hk/breaking-news/section/4/195364/Over-290,000-Hongkongers-affected-by-cyberattack-targeting-eight-Shangri-la-hotels> (Accessed: October 1, 2024).

Thompson, C. (2018) “The case for the Six-Point Likert scale,” *Quantumworkplace.com*. Quantum workplace, 7 September. Available at: <https://www.quantumworkplace.com/future-of-work/the-case-for-the-six-point-likert-scale> (Accessed: October 16, 2024).

Tornatzky, L. G. and Fleischer, M. (1990) *Processes of technological innovation*. New York, NY: Free Press.

Tsai, J.-M. and Hung, S.-W. (2016) “Supply chain relationship quality and performance in technological turbulence: an artificial neural network approach,” *International journal of production research*, 54(9), pp. 2757–2770. doi: 10.1080/00207543.2016.1140919.

Wibisono, Y. Y. *et al.* (2019) “Managing differences, interaction, and partnership quality in global inter-firm relationships: An empirical analysis on offshore IT outsourcing,” *International journal of managing projects in business*, 12(3), pp. 730–754. doi: 10.1108/ijmpb-04-2018-0074.

Zhong, F. and Myers, M. D. (2016) “Client-vendor relationships in cloud computing: Lessons from it outsourcing.” Available at: <https://aisel.aisnet.org/pacis2016/138/> (Accessed: October 16, 2024).