

**Exploratory Study:
Contributing Factors to Successful IT
Outsourcing in Information Systems
Functions of Financial Service Industry in
Hong Kong.**

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List of Abbreviations

AI	Artificial Intelligence
BFSI	Banking, Financial Services, and Insurance
CCT	Core Competency Theory
CM	Contract Management
COM	Communication
ECT	Expectation Confirmation Theory
FSI	Financial Service Industry
HKMA	Hong Kong Monetary Authority
ICE	Internal Contract Experience
IM	Instant Messaging
IMF	International Monetary Fund
ISR	Perceived Information Security Risk
IT	Information Technology
ITO	Information Technology Outsourcing
ITOS	Information Technology Outsourcing Success
PAT	Partnership and Alliance Theory
QSP	Quality of Service Provider
RP	Regulatory Policy
SLA	Service Level Agreement
SOW	Scope of Work
TCE	Transaction Cost Economics
TCT	Transaction Cost Theory
TOE	Technology, Organization and Environment

Abstract

Purpose

This paper aims to identify the critical success factors in IT outsourcing in FSI in Hong Kong. Moreover, recommendations were proposed for improving each identified critical success factor to increase the success rate of IT outsourcing.

Design/Methodology/Approach

A hybrid methodology (qualitative and quantitative) was adopted to analyze the variables and their relationship thoroughly. The six members focus group was formed to discuss IT outsourcing, and the survey was conducted to collect 447 valid responses for data analysis.

Findings

The critical success factors were determined for IT outsourcing success (ITOS) that was based on the factors of Quality of Service Provider (QSP), Contract Management (CM), Internal Contract Experience (ICE), and Regulatory Policy (RP). On the other hand, the factors of Perceived Information Security Risk (ISR) and Communication (COM) had no significant association with ITOS.

Originality/Value

This paper is a holistic approach to identifying factors that affect IT outsourcing success in FSI in Hong Kong. In addition, practical recommendations were proposed to improve those factors, thereby increasing the success rate of IT outsourcing.

Keywords

Critical Success Factors, Information Technology Outsourcing Success (ITOS), Financial Services Industry (FSI), Technology Organization and Environment (TOE), Snowball Sampling.

Paper Type

Research Paper

1. Introduction

Globalization influences business operations and businesses are increasingly interdependent. Companies are facing tremendous pressure to increase productivity and maximize profitability. Outsourcing was one of the crucial strategic ways in the intricate, competitive, and dynamic global supply chains: outsourcing or offshore. It was one of the long-term business trends adopted by the companies (Adams et al., 2018; Ishizaka et al., 2019). Companies consider it an important strategy to reduce costs and increase competitiveness, productivity, and profitability (Taponen and Kauppi, 2020). Although there was disagreement on outsourcing's effects on businesses, around 29% of 14 researches were found unsatisfying with the result (Yang and Huang, 2000; McCarthy and Anagnostou, 2004; Lewin, Massini and Peeters, 2009; Yao et al., 2010; Dolgui and Proth, 2013; Ellram, Tate and Petersen, 2013; Mukherjee, Gaur and Datta, 2013; da Silveira, 2014; Drauz, 2014; Kinkel, 2014; Gylling et al., 2015; Lahiri, 2016; Adams et al., 2018; Pereira, Munjal and Ishizaka, 2019), because service buyers lost control of the outsourced area (Gylling et al., 2015; Lahiri, 2016), it was nevertheless seen as a typical competitive strategy in both local and foreign markets (Mukherjee, Gaur and Datta, 2013; Adams et al., 2018; Pereira, Munjal and Ishizaka, 2019). A critical review of some empirical research articles, some of the advantages of outsourcing and offshore were identified in the literature include cost savings, increased managerial effectiveness and flexibility, market access, and greater product/service quality (Yang and Huang, 2000; McCarthy and Anagnostou, 2004; Lewin, Massini and Peeters, 2009; Yao et al., 2010; Dolgui and Proth, 2013). It was the business strategy of hiring a third party outside a company to create products and perform services traditionally performed by its staff and employees. Outsourcing is a widespread decision and one of the most strategic for companies, which addresses maintaining expertise internally and meeting financial objectives (Sundquist, Hulthén and Gadde, 2015; Taponen and Kauppi, 2020).

Information technology (IT) is now widely used, not just to help management but also to stand out from the competition. IT is increasingly recognized as a catalyst for innovation and a fundamental component of economic success. However, due to the significance of IT for firms on both a strategic and operational level, expenses have risen and now account for a significant share of indirect costs for businesses (Chou, Hao-Chun Chuang and Shao, 2014; Luzzini et al., 2014). As a result, companies sustained competitive advantages from an IT perspective. IT Outsourcing (ITO) has become a common practice for in-house services and software

development in the last twenty years. However, the IT outsourcing (ITO) success rate was not good enough in the market. Some researchers researched IT outsourcing success and failure rates. The researchers found a failure rate of 40% in ITO (Delen et al., 2016, 2019; Hodosi and Rusu, 2019), and some commercial information indicated 25%-50% of outsourcing projects failures (Woodyer, 2016; Rouag, 2018; Dąbrowska, 2020; Luu, 2022). The key factors that caused failure were insufficient scoping and unclear spelled-out service level agreement in the contract, lack of trust, and higher cost than expected (Devos, Van Landeghem and Deschoolmeester, 2012; Cabral, Quelin and Maia, 2014; Jørgensen, 2014). Some factors had a positive result for building a successful case in ITO, such as communication, partnership, core competencies evaluation, cost saving, management support, and contractual management (Gottschalk and Solli-Sæther, 2005; Rhodes et al., 2016; Hodosi, 2017; Cha and Kim, 2018; Blijleven et al., 2019; Erdoğan, 2020). It has been a significant problem in ITO, and needed to determine the factors to improve the success rates.

1.1 IT Outsourcing Definition, Significant and Importance, and Trends

Definition

The outsourcing literature lists several definitions of outsourcing (Leimeister, 2010; Dekkers, 2011; Dolgui and Proth, 2013; Schmeisser, 2013; Gunasekaran et al., 2015; Di Mauro et al., 2018; Pereira, Munjal and Ishizaka, 2019). Dolgui, A. and Proth, J.-M. (2013) defined outsourcing as purchasing semi-finished goods, finished goods, or services from a third party. Gunasekaran, A. et al. (2015) defined outsourcing as assigning a procedure or function within a company to an outside company. Pereira, V., Munjal, S. and Ishizaka, A. (2019) defined outsourcing as contracting out their current internal or external non-value-added functions, value-added functions, or core competencies to the competent supplier(s), a firm can gain competitive advantage by producing goods or services efficiently and effectively for the outsourcing firm. After reviewing the existing literature, there concluded that a more thorough definition was needed to present in the context of contemporary corporate strategies. Therefore, the definition of IT outsourcing that follows is based on our thorough analysis of the body of research.

The definition of ITO is that a company's information systems functions, such as IT assets, resources, processes, or services, are handed over to one or more third-party vendors to manage for a contractually agreed monetary fee and period (Leimeister, 2010).

The above definition was the closest to the actual scenario in ITO. Outsourcing is a business relationship between buying companies and one or more selling companies. The buying side was also called the client or service buyer. The selling side was also called service providers, vendors, and suppliers. The service buyer and service provider were used to align the terminology in this research paper.

Significant and Importance

Outsourcing was a terrific approach to support a company's growth. Several of the biggest businesses in the world contract out portions of their labor. It would be best to balance internal staff and external resources to ensure consistent development and productivity. From a financial point of view, outsourcing benefits the business while it is growing. The companies would benefit from having more labor to operate the business but do not need to afford the expense of hiring and supporting more full-time employees. Moreover, the companies retain the flexibility to staff up for a busy season without the financial commitment of hiring in-house employees (Darwish, 2021). From an operation point of view, outsourcing non-core operations may deliver non-core activities with higher specialization, allowing for scale efficiencies, quality improvements, and development, all leading to sector growth (Kroes and Ghosh, 2010; Taponen and Kauppi, 2020; Darwish, 2021). Even enterprise-grade companies may feel the economic effects of new legislation. Strict privacy and security regulations exist in several businesses, which may increase the cost of staffing. More significantly, they added severe repercussions. An inadequately trained workforce that disregards rules might cost its business money. It was not easy to assemble a workforce with such extensive expertise without the resources of large companies (Duck, 2006; Kroes and Ghosh, 2010; Bachlechner, Thalmann and Maier, 2014; Darwish, 2021). Outsourcing to service providers who have already regulations compliant. It reduces the danger of future litigation and other difficulties with non-compliance for the team and business.

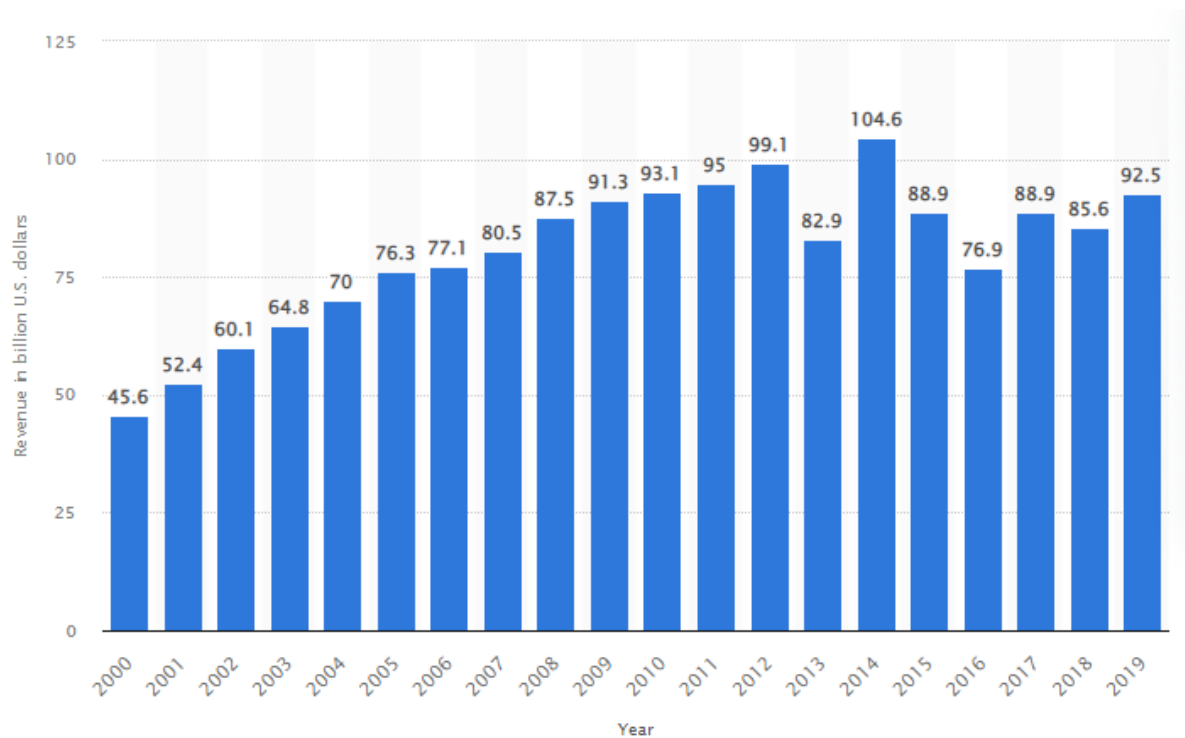
From flexibility to professional representation, outsourcing offers many advantages and is crucial for organizations big and small. Extending to IT, IT outsourcing was an important arrangement for companies to concentrate on core business functions and processes to improve their competitive advantages. Moreover, many companies treat IT as specific expertise, and companies can get professional service from outsourcing service providers (Bachlechner, Thalmann and Maier, 2014; Hodosi, Kaye and Rusu, 2015; Bhatti, Mubarak and Nagalingam,

2017). Moreover, IT assets and services were among the high costs companies to operate their business. All these reasons were driving the intention of ITO in the last two decades. These companies actively seek to outsource their IT because they believe it would be cheaper and get better services (Leimeister, 2010; Ishizaka et al., 2019; Elnakeep, Helal and Mazen, 2022).

Trends

Companies benefit from outsourcing in several ways, including increased flexibility and adaptability, lower operational expenses, and the freedom to concentrate on core skills. Due to these advantages, more businesses opted to outsource part of their company tasks. As a result, the outsourcing market had stable growth from 2000 to 2012 and has fluctuated since 2013. The overall CAGR in the last twenty years was 3.6% (Statista, 2020, William Kajjumba et al., 2021). Figure 1.1 shows the global outsourcing market size from 2000-2019. According to a study released in April 2022 by market research and advisory Straits Research, the worldwide outsourcing market reached \$246 billion in 2021. It would rise at a compound annual growth rate (CAGR) of 8.5% from 2022 to 2030 (Straits Research, 2022). Figure 1.2 shows the global outsourcing market size forecast by service type from 2022-2030 (Straits Research, 2022). Companies were putting more and more effort into lowering the cost of doing business and gaining access to global resources to fulfill the expanding industry needs. In particular, technologies like artificial intelligence (AI) and cloud computing have rapidly grown in the last ten years. These considerations encourage outsourcing services by businesses concentrating on technological advancements to increase company efficiency.

Figure 1.1: Global Outsourcing Market Size from 2000-2019 (USD Billion)



Source: Statista (2020)

Figure 1.2: Global Outsourcing Market Size from 2022-2030 (USD Billion)



Source: Compiled by Author

In global banking, financial services, and insurance (BFSI), the potential growth for the outsourcing market from 2021 to 2026 is around USD 31.15 billion (Newswire, 2022; ReportLinker, 2022). One of the main reasons influencing the development of the worldwide outsourcing market in the BFSI industry was the increasing necessity to adhere to regulatory norms (Newswire, 2022). Therefore, one of the main factors fueling the expansion of this industry was the need to follow regulatory requirements. Massive regulatory changes are experienced in the BFSI industry, increasing the need for regulatory compliance and transparency. In addition to having a low effect on the company, outsourcing makes it simpler for enterprises to concentrate on their core skills and helps manage the uncertainty produced by changing market rules. During the projected period, these factors are anticipated to fuel the expansion of the worldwide outsourcing market in the BFSI sector.

The IT market in Hong Kong is projected to have a CAGR of 4.89%, significantly growing in the forecast period between 2021 and 2026 (Fitchsolutions, 2021; Mordorintelligence, 2021; reogma, 2021; Technavio, 2022a). The presence and expansion of ITO were due to the demand for IT services in Hong Kong, such as data centers and cloud computing. The projection of the volume of the IT market in Hong Kong is around USD 6.72 billion from 2021 to 2026 (Marketresearch, 2022; Technavio, 2022a). The portion of ITO is around USD 3.19–4.12 billion during the forecast period (Mordorintelligence, 2021; Statista, 2022). Moreover, there was a survey in 2022 for ITO. 44% of CIOs employ outsourcing service providers more often. The IT executives who outsource the maintenance of the applications and data centers are 51% and 40%, respectively (Mordorintelligence, 2021; morganlewis, 2022). According to the International Monetary Fund (IMF) survey in 2021, 95% of the responding banks in Hong Kong were developing to outsource technology-related processes to service providers. Over 100 Authorized Institutions have outsourced their business processes to service providers (IMF, 2021). Authorized Institutions provide banking, asset and wealth management, private equity business, and securities services (hkma, 2021). Thus, IT outsourcing will continue to be a more common practice.

1.2 Research Background in IT Outsourcing in Financial Service Industry

Research Problem

According to the survey of IMF and forecast in the market, outsourcing IT will expand in the future, but it will remain problematic for the service buyer due to the high failure rates of ITO (Lacity, Willcocks and Rottman, 2008; Amplifyre, 2022). Therefore, it must be improved to sustain the ITO for competitive advantages. The literature on outsourcing in previous studies has researched different factors that influenced ITO and impacted the result of ITO but has no research specific to the financial service industry in success factors in ITO. In previous studies, core competencies and agency resources were fundamental factors in typical ITO research, but the service provider's quality factor differs from their findings. Some researchers had findings that service provider quality had a positive effect to result in ITO (Kim and Chung, 2003; Fjermestad and Saitta, 2005; Rhodes et al., 2016), but the same factor did not find the relationship in the other researchers (Gottschalk and Solli-Sæther, 2005; Delen et al., 2016). The author has formed a focus group with six participants working for FSI in Hong Kong. The participants discussed the different factors (e.g., communication, service scope, service provider relationship, quality, service level performance, etc.) that potentially affected the result in ITO. The participants were unanimous that the service provider's quality and service level agreement were success factors in ITO. In addition, communication was also a factor for a majority to agree in a focus group.

Moreover, technologies rapidly changed in the last ten years, and IT security is becoming more important for different industries. Mainly it was a crucial element in FSI. Therefore, IT security risks affected the ITO in FSI under the regulatory framework and compliance requirements in Hong Kong. As a result, ITO is more uncertain in this industry. Therefore, those issues were essential and needed to identify for FSI in ITO. IT Outsourcing was common in FSI in Hong Kong, especially in banking services. Different IT assets, systems, and infrastructure were needed to support their business operations. The trend of IT outsourcing remained and was forecasted to increase as a business strategy. Many research studies focused on identifying critical success factors and intending to reduce unsuccessful ITO (Kim and Chung, 2003; Fjermestad and Saitta, 2005; Gonzalez, Gasco and Llopis, 2005; Kronawitter et al., 2009; Hodosi et al., 2013; Bianchi and Junior, 2015; Shaheen, 2016; Bashir et al., 2020), but the result of ITO was still not good enough. There is a gap between the research and the cause of the problem that cannot be improved effectively. For instance, the quality of service provider had no significant impact on ITO success (Rhodes et al., 2016; Cha and Kim, 2018; Blijleven et al.,

2019; Hodosi and Rusu, 2019), but this factor was positive relation in others paper (Grover, Cheon and Teng, 1996; Lee, 2001; Lane and van der Vyver, 2005; Wibisono et al., 2019); contractual management had no significant impact on ITO success (Bachlechner, Thalmann and Maier, 2014; Moon et al., 2016; Karimi-Alagheband and Rivard, 2020), but was positive in other researches (Hodosi, Kaye and Rusu, 2015; Qi and Chau, 2015; Delen et al., 2016; Fehrenbacher and Wiener, 2019; Erdoğan, 2020). The review result motivated this research to verify ITO in Hong Kong.

Research Goals

The research goal is to identify the gap in critical success factors for improving the success rate of ITO by focusing on IT security risks, regulatory policy, and success factors in ITO in FSI in Hong Kong. This research designed three research questions (RQ) to address this problem.

RQ1: To identify critical success factors that impact ITO in FSI.

RQ1 aims to identify the success factors in ITO in FSI and verify the service provider quality and whether a significant effect on the relationship in ITO. The gap was found in the findings from the previous studies and focus group discussions. Therefore, it is necessary to verify these factors whether critical in ITO in FSI.

RQ2: To identify IT security risk factors that impact ITO success.

RQ2 aims to consider risk factors in ITO. Due to the interdisciplinary nature of the IT outsourcing idea, ITO becomes quite challenging to research and optimize beneficial results. However, the previous knowledge was insufficient to determine the high failure rate in ITO, and uncertainty risks are increasing in the external environment, such as rapid technological changes (cloud computing, artificial intelligence, etc.). IT security was consented important among researchers and professionals, but this factor was less studied in the research area that potentially contributes to ITO risks (Liang et al., 2016; Reyes González, 2016; Lacity, Khan and Yan, 2017).

RQ3: To identify regulatory policy factors that impact ITO success.

RQ3 aims to explore whether the regulatory factors affect ITO success in FSI. There are many regulations and guidelines to ensure the operations of companies in FSI comply with regulations in Hong Kong that protect the asset and wealth of investors and customers. The regulatory policies always influence the operations of FSI's companies, and it may be overlooked in the ITO research of other industries.

2. Literature Review

The major ITO literature review in previous studies provided insight for this research. It is good knowledge that ITO has benefits. Scalability, cost savings, accessibility to new technologies, improved maintenance and update, concentration on core capabilities, and flexibility are the primary advantages (Lee, Chae and Cho, 2013; Hanafizadeh and Zareravasan, 2020). The ITO papers were organized mainly based on ITO implementation phases, and papers on ITO decisions were also reviewed in this research. It is because success means it has achieved the intention objectives in ITO.

2.1 Theoretical Framework

ITO involved different disciplines in the whole outsourcing process. Therefore, there were multiple theories covering different ITO processes, such as ITO strategy, resource, contract, relationship, and monitoring. A systematic review and empirical study summarized the major theories in ITO in 2005 and 2020, respectively (Gottschalk and Solli-Sæther, 2005; Hanafizadeh and Zareravasan, 2020). The common frameworks used for ITO research that Technology, Organization, and Environment (TOE), Transaction Cost Theory (TCT), Transaction Cost Economics (TCE), Core Competency Theory (CCT), Partnership and Alliance Theory, Contractual Theory, Resource-Based Theory, and Agency Theory. The above theoretical frameworks were briefly described, and their focus areas followed.

2.1.1 Technology, Organization, and Environment (TOE)

Tornatzky and Fleischer's TOE framework has been presented to describe the innovation process in the context of an organization (Tornatzky and Fleischer, 1990). It considered three aspects of a business (technology, organization, and environment) that affected innovation adoption. Technologies here refer to both internal and external business-related technology. The organization was related to the firm's descriptors, including its management structure, size, organizational structure, resources, and method of employee communication. Finally, the market components, the competitors, and the regulatory framework make up the environment (Hanafizadeh and Zare Ravasan, 2018a). The TOE Framework was a general theory that cites a few dimensions determining adoption without detailing the causes of each dimension, in contrast to several theories or models in information systems research. However, because

researchers may choose the components of each dimension by the features of innovation and the organization itself, the TOE Framework was broadly relevant to many disciplines and circumstances (Dewi et al., 2018). Table 2.1 list the dimensions of the TOE framework. Numerous research in IT outsourcing has widely used this approach, such as decision, success factors, and information security risk (Fjermestad and Saitta, 2005; Baker, 2012; Patil and Wongsurawat, 2015; Hanafizadeh and Zare Ravasan, 2018a; Hanafizadeh and Zareravasan, 2020; Bhatti, Mubarak and Nagalingam, 2021).

Table 2.1: TOE Framework Dimensions

Dimension	Definition
Technology	The technology dimension focuses 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.

Source: Dewi et al. (2018)

2.1.2 Transaction Cost Theory (TCT)

Transaction Cost Theory (TCT) is a comparative institutional framework for studying economic structure where the transaction is the fundamental analytical unit (Williamson, 1985). TCT is the most well-known economic theory and one of the main theories for ITO outsourcing choices (Nyrhinen and Dahlberg, 2007). TCT seeks to determine the governance arrangements for various forms of party exchanges to optimize economies for a particular organization (Alagheband et al., 2011). It was multidisciplinary and involved trading with complicated goods and services and economics, organization theory, laws, and regulations. According to the notion, outsourcing was divided into pre- and post-outsourcing. Pre-outsourcing is the

period before deciding whether to outsource, and post-outsourcing is the phase after that choice has been (Williamson, 1985).

The pre-outsourcing phase focus on the areas of contracting, negotiating the details in the contract, and safeguarding the agreement. The post-outsourcing phase focuses on implementation, legal, and lead time. Finally, the theory explains three dimensions: asset specificity, uncertainty, and frequency. The most important was ITO asset specificity (Williamson, 1985).

2.1.3 Transaction Cost Economics (TCE)

Transaction Cost Economics (TCE) is another theoretical framework that is commonly used to research ITO. TCE has been recognized as a solid theoretical foundation for studying ITO choices since it clearly addresses make-or-buy decisions on the concepts of transaction characteristics, governing frameworks, and expenses (Lacity, Willcocks and Khan, 2011; Hanafizadeh and Zararavasan, 2020). The cost of producing a good or service in-house is the production cost, while the cost of buying a good or service is the transaction cost. A corporation will do so when producing a product or service in-house is economically more advantageous than buying the identical thing off the shelf. The cost of carrying out the transaction is an extra expense associated with buying a product or service. Transaction costs include three factors that are asset specificity, uncertainty, and transaction frequency (Thouin, Hoffman and Ford, 2009). It covers production and transaction costs, asset specificity, uncertainty, frequency, and behavioral assumptions like limited rationality and opportunism. The distinctions between behavioral uncertainty and environmental uncertainty are particularly well-explained (Lacity, Willcocks and Khan, 2011).

2.1.4 Core Competency Theory (CCT)

According to the core competencies theory, tasks should be handled internally or by service providers. Consider outsourcing with service providers for tasks that are not core strengths. If they are a defensive measure to preserve a competitive edge, certain non-core operations may need to be kept in-house (Gottschalk and Solli-Sæther, 2005).

The business can consider IT to be a key competency. Most successful businesses are aware of the possibilities of IT. However, due to IT's inherent complexity and complexity at its heart, contracting out IT may prove to be a complicated endeavor. Any firm looking to effectively

outsource IT should possess the essential IT capabilities to specify IT needs and oversee their delivery by service providers (Hancox and Hackney, 2000).

2.1.5 Partnership and Alliance Theory (PAT)

Partnership, sometimes known as an alliance, is commonly cited as a key characteristic of IT outsourcing. A partnership may lessen the danger of insufficient contractual provisions, providing service purchasers peace of mind before outsourcing a difficult and expensive job like IT. However, in the connection between a service provider and a service buyer, the latter may become too reliant on the former, and their objectives may differ (Iyer, 2003). Despite claims seen in service provider marketing materials, most service buyers were dubious about collaboration. If a partnership did exist, it often consisted of several intangibles (e.g., trust, communications, etc.) rather than a legal agreement. In contrast to outsourcing of operations and IT infrastructure maintenance, where service providers required a deeper knowledge of the. (Hancox and Hackney, 2000).

2.1.6 Contractual Theory

An outsourcing contract offers a legally binding institutional structure in which each party's rights, obligations, and liabilities are outlined together with the objectives, rules, and tactics to guide the agreement. Every outsourcing agreement aims to promote communication and thwart opportunism. Appropriate contractual agreements may limit room for opportunism, forbid moral risks in a collaborative partnership, and safeguard each party's confidential information. A complete contract lessens the risk associated with opportunism on the side of one or more contractual parties. On the other hand, uncertainty may result from a gap in a contract, which makes it easier for parties to avoid accountability and transfer blame, increases the risk of conflict, and makes it more challenging to plan, make the most use of available resources, and carry out plans (Luo, 2002). The common ITO contractual issues include service level, service scope, payment terms, liability, exit plan, information security, intellectual property, dispute resolution mechanisms, termination terms, etc.

2.1.7 Resource-Based Theory

The choice to outsource is based on the service buyer company's capacity to invest in internal resources and maintain a competitive advantage (Mweru and Maina, 2016). Therefore, before

looking for resources outside the company, companies should confirm the availability of internal resources (Johansson, 2004). An important distinction in resource-based theory in ITO is that a resource provides companies with a sustained competitive advantage. Therefore, service buyer needs different resource attributes must be fulfilled (Mweru and Maina, 2016).

2.1.8 Agency Theory

This theory is applied when the service buyer outsources to the service provider. However, the aims or priorities of the service buyer may vary from those of the service provider, and the service buyer finds it difficult to assess the performance of the service provider owing to a lack of visibility, which is two possible caveats in this outsourcing arrangement (Mathew 2011). First, priorities between service providers and service buyers often diverge. For instance, the service buyer wants to cut costs, and the service provider wants to increase revenues. On the other hand, due to organizational constraints and the technical and commercial complexity of ITO, monitoring service providers' performance may be a difficult job for service buyers. Due to the worldwide character of contemporary organizations, especially in multilateral contracting, this issue often arises in ITO when one service provider delivers services to numerous ITO service buyers (Hodosi and Rusu, 2019).

Their differing goals in ITO and combined with service providers manage the information and service delivery. IT security issues and security incidents are easy to introduce in a service buyer's company. The agency theory to identify the perspectives of service buyers and service providers helps cover ITO information security risks (Bhatti, Mubarak and Nagalingam, 2021).

2.1.9 Expectation-Confirmation Theory (ECT)

Expectation-Confirmation Theory (ECT) is often used in the literature on consumer behavior to research service marketing in general, as well as customer satisfaction and post-purchase behavior (such as repurchasing and complaining) (Oliver, 1980). The measurement of ITO success is like service buyers repurchase decision. First, the service buyer examines the initial decision and the reasons for conducting ITO and then evaluates the outcome to determine whether it met the expectation. Finally, ITO is the continuous or ex-post reversal of the initial decision (Bhattacharjee, 2001).

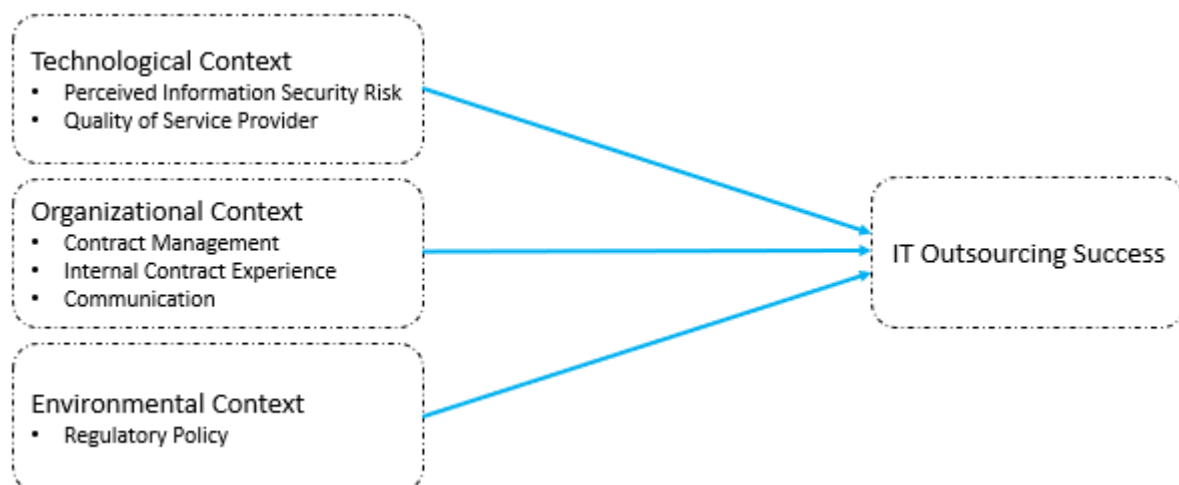
2.1.10 Summary of Theoretical Framework

ITO involved the multidisciplinary in the process discussed in the previous section. Each theoretical framework can only cover some factors in ITO after reviewing the literature review in previous studies. TOE, TCT, and TCE were the most popular to use as a base framework in ITO research studies. The TOE Framework was extensively applicable to a variety of situations, including decision-making, success criteria, and information security risk (Fjermestad and Saitta, 2005; Baker, 2012; Patil and Wongsurawat, 2015; Hanafizadeh and Zare Ravasan, 2018a; Hanafizadeh and Zareravasan, 2020; Bhatti, Mubarak and Nagalingam, 2021). Even though the TOE framework is usually used to prove the relationship between ITO adoption, continuous ITO adoption indicates ITO success. Hence, the continuous adoption of outsourcing IT can be interpreted as ITO success. This research aims to identify the success factors and explore FSI regulations and whether they significantly affect ITO success. Therefore, Technology, Organization, and Environment (TOE) theory is more suitable for analyzing internal and external factors in ITO success. Therefore, the TOE will be adopted as the base theoretical framework in this research.

2.2 Factors in IT Outsourcing

Several theoretical frameworks were reviewed in section 2.1, concluding that a TOE framework was adopted in the following study. Figure 2.1 shows a model that is illustrated attributes of the TOE theoretical framework.

Figure 2.1: Research Theoretical Framework



Source: Hanafizadeh and Zare Ravasan (2018a)

Technological, Organizational, and Environmental are three independent variables that affect IT outsourcing success. A follow-up study will examine these independent variables to identify any discrepancies in further research.

2.2.1 Technological Context

The technical context encompasses all the technologies pertinent to the company, including those presently in use there and others that are marketed but not yet used. An organization's current technologies influence the adoption process by restricting the amount and speed of technological change an organization may make (Baker, 2012). The technological context includes Perceived Information Security Risk and Quality of Service Provider factors. The detail is discussed in the following.

2.2.1.1 Perceived Information Security Risk

Technology has rapidly developed in recent years, such as intelligent mobile phones, mobile applications, and cloud computing. It facilitates the company's operations more efficiently but introduces IT security risks at the same time. The companies conducted for ITO because of its significant benefits. However, they must understand the risks involved (Delen et al., 2019; Al Hadwer et al., 2021). A risk is the potential for an event that might negatively affect the company. For instance, each service provider has expertise in ITO, such as helpdesk service, systems, infrastructure, software development, and cybersecurity. If the service provider lacks expertise in the outsourced area, the performance and financial risks may be introduced in ITO and cause the project failure. The other most serious sort of hazard to ITO is information security. Especially ITO in FSI, the perceived IT security risk is a crucial area and needs to identify whether it affects the success of ITO (Hanafizadeh and Zare Ravasan, 2018a; Ahmed, 2020). The service provider managed the outsourced functions for the service buyer. Therefore, the services provider's resources for responding to incidents and data protection against data leakage are essential in FSI.

Although some searches mentioned the risks that need to be involved in ITO (Delen et al., 2019; Al Hadwer et al., 2021) and emphasized it is a crucial area in ITO (Hanafizadeh and Zare Ravasan, 2018a; Ahmed, 2020). However, studies on perceived Information security in ITO still need to be detailed. There is no objection to cybersecurity and information security, which

have been more critical in recent years. The most significant cybersecurity and information security incidents have taught us never to take them lightly (De Groot, 2022). The people have been increasing their awareness. So, it is necessary to ask about the relationship in ITO. The Perceived Information Security Risk in this study is defined as operational, information security, and financial risks in ITO. Thus, the below hypothesis is made:

H1: Perceived Information Security Risk significantly affects ITO success in FSI.

2.2.1.2 Quality of Service Provider

A partnership is a strategic alliance of independent businesses that depend on one another while working toward common objectives (Morgan and Hunt, 1994; Wibisono et al., 2019). The partnership as a working arrangement between companies demonstrates dedication through time, a spirit of collaboration, and shared risks and rewards (Grover, Cheon and Teng, 1996; Wibisono et al., 2019). The strength of a relationship determines its ability to succeed (Lee and Kim, 1999; Lee, 2001; Lahiri and Kedia, 2009; Ren, Ngai and Cho, 2010; Swar et al., 2012; Gupta, 2014). Partnership quality was defined as the degree to which the results met the participants' expectations (Wibisono et al., 2019). Other researchers defined partnership quality as innate qualities that support the efficiency of relational interaction (Goles and Chin, 2002). However, some researchers have yet to successfully prove the service provider's quality in ITO (Rhodes et al., 2016; Cha and Kim, 2018; Blijleven et al., 2019; Hodosi and Rusu, 2019). Therefore, this inconsistent result should be identified in the Hong Kong environment. Therefore, the service provider quality in this study is defined as the degree to which the results met the service buyer's expectations.

Sharing the expertise and knowledge from service providers is one of the benefits of ITO (Lane and van der Vyver, 2005; Wibisono et al., 2019). The service buyer chose to outsource not only to save the cost of training for employees and to shorten the period to pick up the tasks but also to transfer the skill to the employees through the service provider. So, the service provider's capabilities affect the service buyer's trustworthiness. A service buyer's confidence in a service provider was reflected in that service's success in ITO. The cooperating businesses provide their resources to outsourcing. A portion of each party's resources is brought together, faced, and merged (Hakansson and Snehota, 1994; Mutebi et al., 2022). The resources required by the partnership should be committed to by two connected firms. A high level of commitment to the partnership is linked to relationship success because committed partners attempt to

balance short-term issues with long-term objectives (Mohr and Spekman, 1994; Sutthiparinyanon and Villegas Puyod, 2022). When trade parties feel that maintaining their connection will require putting up their best effort, that is when commitment is evident (Morgan and Hunt, 1994; Johny and Gurtu, 2022; Muhammad Nooruddin et al., 2022). The commitment has reflected the service provider's quality in their working relationships.

People in each company may form relationships thanks to inter-firm interaction. This relationship is impacted by what the parties know about one another and what they may share. An essential component of a long-term connection is trust. Trust between the parties is necessary for a long-term inter-organizational partnership. Trust is an essential factor in determining the strength of a buyer-seller connection (Homburg, Giering and Menon, 2003; Wibisono et al., 2017; Wibisono et al., 2019). From the service provider's perspective, gaining the service buyer's trust may influence whether the connection will continue. This can be explained by prior work history, or one of the three trust modes listed below: ability, benevolence, and integrity (Alwahdani, 2019). Ability refers to the service provider's competencies and skills. Benevolence refers to the service provider's legal actions that protect the interests of the service buyer. Integrity refers to the service provider's adherence to the expected ethical codes and commitment to being honest (Alwahdani, 2019).

According to the above discussion, the service provider's quality is essential for service buyers to consider whether they continuously outsource their functions or change the other service providers. Thus, the service provider's quality needs to identify whether it affects the success of ITO. The other hypothesis is made:

H2: The Quality of Service Provider has a significant effect on ITO success.

2.2.2 Organizational Context

The organizational context describes the structure, culture, goals, size, resource quality, communication, decision-making processes, features, and company assets. This setting affects ITO success and implementation choices (Baker, 2012). The organizational context is related to internal processes or capabilities, including Contract Management, Internal Contract Experience, and Communication factors.

2.2.2.1 Contract Management

Written contracts serve several purposes in managing an ITO relationship since they are the most crucial component (Erdoğan, 2020). Traditionally, once a contract was signed between the service buyer and the service provider, it is thought that a relationship has been created and formally established between the parties (Solli-Sæther and Gottschalk, 2010). The supply of services and charges that must be completed within a contractual term between two contracting parties were defined by a contract in the context of ITO. The ability of formal governance to establish a shared knowledge of roles and expectations between parties and address misunderstandings and issues with the expectations of parties is one of its most significant features (Alborz, Seddon and Scheepers, 2003). In addition, creating a comprehensive contract might eliminate the risk of opportunistic conduct, uncertainty, and ambiguity between two contractual parties (Gantman, 2011; Jain Palvia and Palvia, 2017). Contract management also has a gap in the literature review section. There were positive results for contract management factors in some research (Qi and Chau, 2012; Hodosi, Kaye and Rusu, 2015; Qi and Chau, 2015; Delen et al., 2016; Fehrenbacher and Wiener, 2019; Erdoğan, 2020), but not others (Bachlechner, Thalmann and Maier, 2014; Moon et al., 2016; Karimi-Alaghehband and Rivard, 2020). Even if most agreements reached by parties to a contract are comprehensive, this is not always the case. Incomplete contracts might lead to lawsuit proceedings and implementation challenges (Hanafizadeh and Zare Ravasan, 2018a). This study defines contract management as the comprehensive contract that achieves the most benefits for the company and reduces the extra charge generation during the service period.

The contract is a binding agreement between two organizations. Therefore, if the organization unwell manages the activities and content of the contract, opportunism may happen and have an extra cost during the service duration. Finally, it may affect the objectives of IT outsourcing. So, it is necessary to determine the relationship between contract management and ITO. Therefore, the following hypothesis is made:

H3: Contract Management significantly affects ITO success.

2.2.2.2 Internal Contract Experience

The contract is potentially affecting the success of IT outsourcing, as described in the previous paragraph. However, employee experience is also essential in contract management. The content, expertise qualification, scope of work (SOW), service level, information security,

clauses, terms & conditions, liabilities, penalty, payment arrangements, and exit policy are critical in the outsourcing contract. If participants with no outsourcing experience prepare the contract, the quality and coverage of the contract may not protect the service buyer enough (Yadav and Metri, 2010; Patil and Patil, 2014). For instance, the employee must know the process detail, and some tasks have not been included in SOW. The incomplete SOW will generate opportunistic behavior and ambiguity; extra resources are necessary to fill the gap. Finally, the service buyer may afford extra service costs due to unclear contract statements. Even though this factor has not been found in literature reviews, it is vital in ITO. So, internal contract experience is added to this study to identify the relationship and is defined as the capabilities of the service buyer for the formulation contract. The following hypothesis is made:

H4: Internal Contract Experience has a significant effect on ITO success.

2.2.2.3 Communication

Communication has eight crucial components: the source, message, channel, receiver, feedback, environment, context, and interference. In addition, communication includes understanding, sharing, and meaning (University of Minnesota, 2015). Finally, communication includes open talks about expectations, future directions, skills, strengths, shortcomings, and daily interchange of project-related information (Klepper, 1995; Schmidt and Menth, 2016; Zhong and Myers, 2016; Hodosi et al., 2020). The effectiveness of shared information is captured via communication, which is a vital sign of a partnership's health.

Communication quality, information sharing between service providers, and participation were three dimensions of communication behavior (Mohr and Spekman, 1994; Ali et al., 2022; Jatobá, Franco and Rodrigues, 2022; Sutthiparinyanon and Villegas Puyod, 2022). A crucial component of information transmission was effective communication. The correctness, timeliness, sufficiency, and reliability of the information conveyed were all examples of quality (Daft and Lengel, 1986; Mardatillah et al., 2019; Ried et al., 2022). The success of any possible cooperation depends heavily on the quality of the communication. If the partnership's objectives were met, timely, accurate, and relevant information must be provided. Information sharing describes how much important, often confidential information is shared with a partner. Higher-performing partners communicate information more often and with more relevance due to deeper relationships (Morris and Snell, 2011; Pai and Yeh, 2015). People may work more efficiently with enough knowledge (Schuler, 1979; Tsai and Hung, 2016). It was also linked to

higher levels of pleasure and was a key predictor of successful partnerships (Devlin and Bleackley, 1988; Nguyen, Mai and Nguyen, 2021). Participation refers to the degree to which partners collaborate while creating goals and making plans. The need for involvement in defining roles, obligations, and expectations grows as one partner's activities affect the other's capacity to compete successfully. Participation in decision-making and establishing the objective were crucial for partnerships to flourish (Anderson, Lodish and Weitz, 1987; Liu et al., 2017). More effective partnerships were anticipated to have better communication quality, more information sharing between partners, and greater partner involvement in planning and goal formulation.

Several researchers' finding about communication factors significantly affecting IT outsourcing success (Kumar and Palvia, 2002; Alexandrova, 2012; Ishizaka and Blakiston, 2012; Bachlechner, Thalmann and Maier, 2014; Cha and Kim, 2018). Even though some studies cannot prove communication factors as significant (Gorla and Somers, 2014; Karimi-Alagheband and Rivard, 2020), communication is crucial for different types of projects and interpersonal. Poor communication caused misunderstandings with wrong expectations. Therefore, it has a high probability of causing project failure (McManus and Wood-Harper, 2007; Attarzadeh and Ow, 2008). So, this factor is needed to identify in this study and is defined as communication quality and information sharing. The hypothesis is made:

H5: Communication significantly affects ITO success.

2.2.3 Environmental Context

The environmental context involves external pressure, the industry's structure, the availability or lack of technical service providers, and the regulatory landscape (Hanafizadeh and Zareravasan, 2020). There are three ways to approach the topic of external pressure: pressure from trading partners, pressure from competitors, and pressure from rules and government directives. In order to keep their competitive advantage, businesses may be compelled by competition to implement new ideas (Zhu, Kraemer and Xu, 2006; Khalifa, Abd Elghany and Abd Elghany, 2021; Zeng, 2021). Businesses are more likely to use new technologies to gain a competitive advantage in environments with higher levels of competition (Koong, Liu and Jian Wang, 2007; Hanafizadeh and Zare Ravasan, 2017; Hanafizadeh and Zare Ravasan, 2018). The Regulatory Policy factor is one of the environmental contexts.

2.2.3.1 Regulatory Policy

The external pressure and regulatory environment are closely related to ITO. Trading partners, the marketplace, rules, and government policies all exert pressure on FSI and could impose restrictions or support ITO (Hanafizadeh and Zare Ravasan, 2018a). To offer secure and dependable services to their consumers, FSI should consider stringent commercial and technical considerations. FSI must abide by the bulk of these regulations set by regulatory organizations. FSI seeks external service providers for their service delivery and support due to the flexibility and agility of service providers in offering services that satisfy regulatory needs. The impact of government regulation on ITO might be positive or negative. The supplementary remediation plan is mainly required for those businesses when governments place new restrictions on FSI, such as mandating third-party risk management.

This factor was seldom found in the previous research because it is not applicable in other industries. However, the regulatory policy is essential to FSI and may cause additional actions with costs that should be taken for continuously outsourced functions. It is applied for companies in FSI and needs to identify whether it affects ITO. The below hypothesis is made:

H6: Regulatory Policy significantly affects transaction cost in ITO in FSI.

2.2.4 Summary of Independent Variables

The independent variables in the TOE model were identified to build a base for this research. Four independent variables from the TOE model were inconsistent and could not find consistent findings in the environmental context in the literature reviews. Two independent variables: Perceived Information Security Risk and Regulatory policy, were proposed to add to the technological and environmental context of the model for this research. It is because information security and regulatory policy are essential areas in the financial service industry (IMF, 2021). Especially, regulatory policy is mandatory for FSI. Therefore, six independent variables: Perceived Information Security Risk, Quality of Server Provider, Contract Management, Internal Contract Experience, Communication, and Regulatory Policy, were adopted to investigate further. Besides the above independent variables, the participant demographics also be considered when analyzing the driving forces behind independent variables. Table 2.2 summarizes the hypotheses of this research.

Table 2.2: Summary of hypotheses in this research

#	Hypothesis
H1	Perceived Information Security Risk significantly affects ITO success in FSI.
H2	The Quality of Service Provider has a significant effect on ITO success.
H3	Contract Management significantly affects ITO success.
H4	Internal Contract Experience has a significant effect on ITO success.
H5	Communication significantly affects ITO success.
H6	Regulatory Policy significantly affects ITO success in FSI.

Source: Compiled by Author

3. Research Methodology

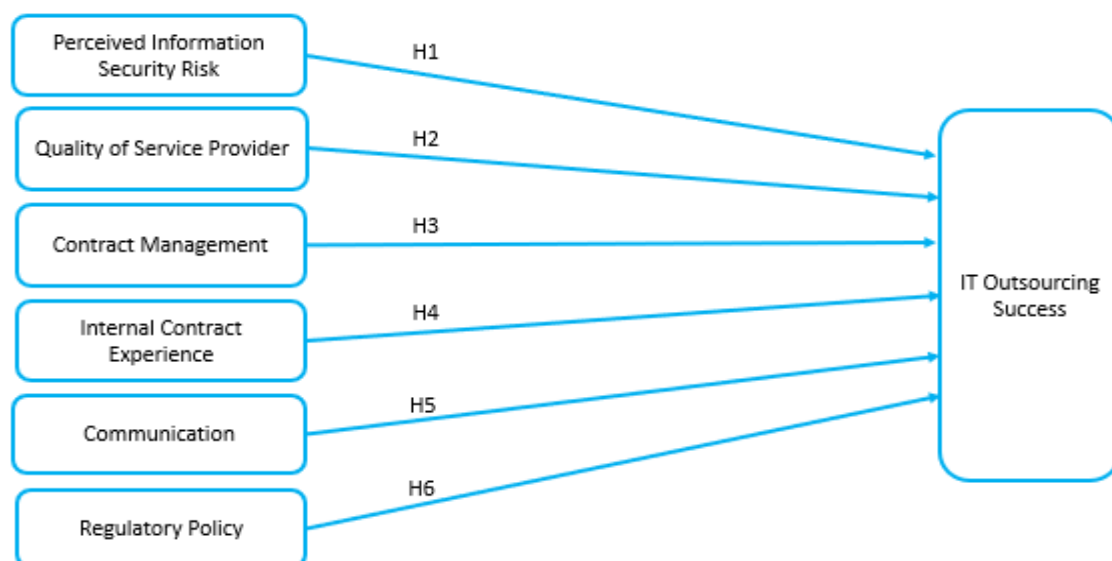
Research is described as producing new knowledge or using pre-existing information to produce novel ideas, approaches, and comprehensions. It could include synthesizing and analyzing earlier research to the point that it produces original and innovative results (Stengel, Neugebauer and Meenen, 2007; Song, 2021). The theoretical foundation for the approaches used is known as methodology. The method of the study was determined by the viewpoint from which it was seen (Howell, 2012).

This section describes the methodology adopted for conducting the research. It provides a systematic method to process the research activities and answer the research questions. In addition, it provides information on the study carried out, the methodology utilized to gather and analyze the data, the various instruments and techniques used, and the justification for method selection (Bouchrika, 2022).

3.1 Research Model

The independent variables were defined in the literature review, and two variables were added to the research model. Finally, the hypotheses were made, and the list in Table 2.2 was based on the inconsistent findings and the other beneficial factors for ITO success. Figure 3.1 shows the research model that was based on the theoretical framework of the TOE and modified to match the actual FSI situation for this research purpose.

Figure 3.1: Research Model

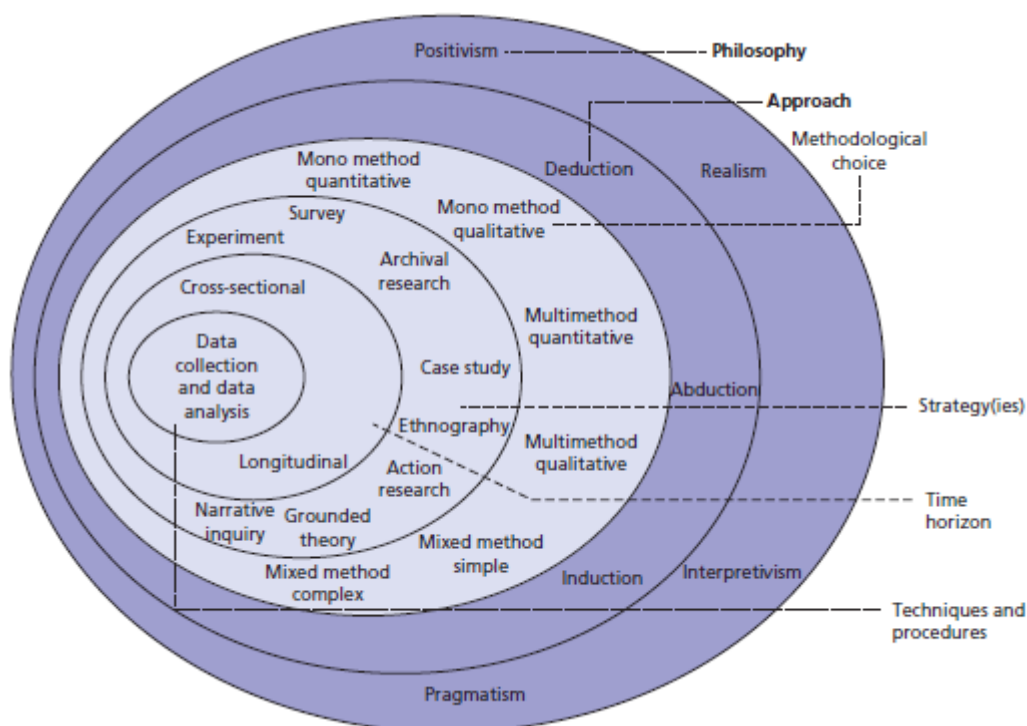


Source: Compiled by Author

3.2 Research Onion

For better organizing methodology, the research onion model was used as the guiding principle to develop different stages in research. Figure 3.2 illustrates the steps to build a research work from its outer to its inner layers, like an onion (Saunders, Lewis and Thornhill, 2019). Six primary layers include Philosophy, Approach, Methodological Choice, Strategy, Time Horizon, Technique and Procedures to the research onion.

Figure 3.2: Research Onion



Source: Saunders, M., Lewis, P. and Thornhill, A. (2019)

3.3 Research Philosophy

There are four main research philosophies: positivism, realism, interpretivism, and pragmatism. Each philosophy has its focus area and assumptions. Pragmatism is beginning to address the issue and seeks to solve it by examining several ideas (Saunders, Lewis and Thornhill, 2019). As this research employs theories, ideas, and results to address the research issue and provide workable answers, pragmatism is this study's most appropriate research philosophy.

3.4 Research Approach

The three primary methods for developing theories are induction, abduction, and deduction (Saunders, Lewis and Thornhill, 2019). The deductive method creates a hypothesis or set of hypotheses based on an existing theory before formulating a research strategy to test them (Dissanayake, 2015). The positivist method, which allows for the formation of hypotheses and the statistical testing of anticipated findings to an acceptable degree of probability, is best suited to the deductive approach (Diehl, 2010). It is defined as the progression from general to specific. After establishing a broad theory and knowledge basis, the information obtained via the research process is evaluated considering it (Kothari, 2009). A deductive approach is also possible with qualitative research methods, although, in such situations, the expectations created by prior research would be established differently than via hypothesis testing (Saunders, Lewis and Thornhill, 2019). Through a questionnaire, the deductive method develops a knowledge of observation that enables the researcher to contrast various human understandings using actual evidence. The information acquired aids in confirming or disproving the hypothesis, and the procedure may be repeated.

The inductive method allows one to develop the own theories. It demonstrates how deductive and inductive vary from one another. The inductive method is distinguished by a shift from the particular to the universal (Bryman, 2015). Since no structure guides the data gathering in this method, the study topic may be determined after the data has been gathered (Flick, 2015). Although the data analysis may reveal that it fits into an existing theory, it is also true that this may be considered the moment at which new ideas are produced (Bryman, 2015). This approach is often used in qualitative research. Interviews are conducted on certain occurrences, and the collected data may be used to look for trends among respondents (Flick, 2015). This strategy may, however, also be successfully used in positivist approaches, which generate findings by first analyzing the data and looking for significant patterns.

The abductive method prefers the inference of explanations above the observation of evidence. Abductive reasoning begins with a hunch or guess and seeks proof to back it up. Science often uses abductive reasoning to create hypotheses or models (Hassan, 2022).

The objective of this study is to identify the success factors of ITO. The set of hypotheses of IT outsourcing success is to be made after conducting the literature review by existing theory and pass-through the systematic analysis to test them. Moreover, the study is focused on the financial service industry (FSI) in Hong Kong. Therefore, certain factors that may not be

included in the existing theory should be considered. New ideas may be produced in the Hong Kong environment. This study adopted deductive and inductive research approaches according to the above conditions.

3.5 Methodological Choice

The process of methodological choice is deciding whether to do research using quantitative, qualitative, or hybrid approaches. The mono method employs a single method for gathering data, followed by equivalent qualitative or quantitative analysis processes. The multiple-method design uses data-gathering and analysis techniques (Collis and Hussey, 2013). In contrast, a mixed-method approach uses qualitative and quantitative data collecting and analysis methodologies (Creswell, 2012).

Qualitative research is often used for collecting descriptive or factual data to answer the research questions (Hammarberg, Kirkman and de Lacey, 2016). Quantitative research was used for collecting and analyzing structural data that can be represented numerically (Goertzen, 2017). This research used both primary and secondary data methods to generate a more objective outcome. The primary data is real-time data the researcher originates for the first time. The second data has already existed that was collected by other researchers, agencies, and organizations in the past (Ajayi, 2017). The second data of both research methods were collected from a literature review and other research studies.

This study is not only to identify the success factors of ITO but also to focus on FSI in Hong Kong. Therefore, a mixed method (qualitative and quantitative) was adopted in this research. Qualitative research aims to gather, examine, and interpret non-numerical data from the targeted population, such as focus group and interviewees (Rosenthal, 2016). In quantitative research, numbers are used or may be used as numbers. It involves gathering information via surveys, polls, and other means, then utilizing the findings to create predictions and perform analysis (Kelley-Quon, 2018). The mixed-method approach aids in validating research results utilizing quantitative and qualitative sources, investigating quantitative results with qualitative data, and creating survey questions (Bryman, 2006; Santos et al., 2017).

3.5.1 Qualitative Research Method

The qualitative research method was adopted to seek participants' opinions, views, and preferences about this research topic (Hammarberg, Kirkman and de Lacey, 2016). For better interaction between participants and the author for collecting data, a focus group interview was conducted for an in-depth interview. Focus group is group interviews that use information exchange between study participants to produce data. It was just a fast and practical method to get information from participants at once (Kitzinger, 1995; Abraham et al., 2022). Participants were encouraged to converse, ask questions, share tales, and comment on one another's experiences and viewpoints after the author posed a question. Exploring participants' knowledge and experiences makes good use of the approach.

The primary data in this research was collected from a focus group formed by six participants working for IT in FSI or providing service for IT in FSI. The group members included management level, IT professionals, and service providers. Those participants have provided insights and opinions about success and failure in ITO based on their experience and situation in FSI in Hong Kong. Table 3.1 lists the participant's information about the focus group. The six focus group participants (O.Nyumba et al., 2018), and their roles and experience were representative participants to provide their opinions and views on this topic.

Table 3.1: Participants of the Focus Group

#	Name	Job Position	Company	Business Nature	Role of ITO
1	Group Member A	C-Level	Technergy Solutions Limited	IT Service Provider	Service Provider
2	Group Member B	Manager	China Bohai Bank Co., Ltd.	Banking Service	Service Buyer
3	Group Member C	Individual Contributor	BOCOM International Holdings Co. Ltd.	Securities Services	Service Buyer
4	Group Member D	Senior Manager	BOCOM International Holdings Co. Ltd.	Securities Services	Service Buyer
5	Group Member E	Vice President	Chow Tai Fook Enterprises Limited	Private Investment	Service Buyer
6	Group Member F	Individual Contributor (Providing ITO service for FWD Financial Limited.)	Protiviti	Global Consulting Services in Finance, and Technology.	Service Provider

Source: Compiled by Author

3.5.2 Quantitative Research Method

The quantitative research method is the practice of objectively gathering and evaluating numerical data to characterize, forecast, or regulate factors of interest (McLoughlin, 2007). The quantitative method was adopted for this experimental research. The data collected and analyzed from this method can be measured to support the hypotheses (Apuke, 2017). The survey was conducted to collect the data, and the target participants in this research are IT workers, especially those working for FSI or who worked for FSI in Hong Kong.

3.6 Research Strategy

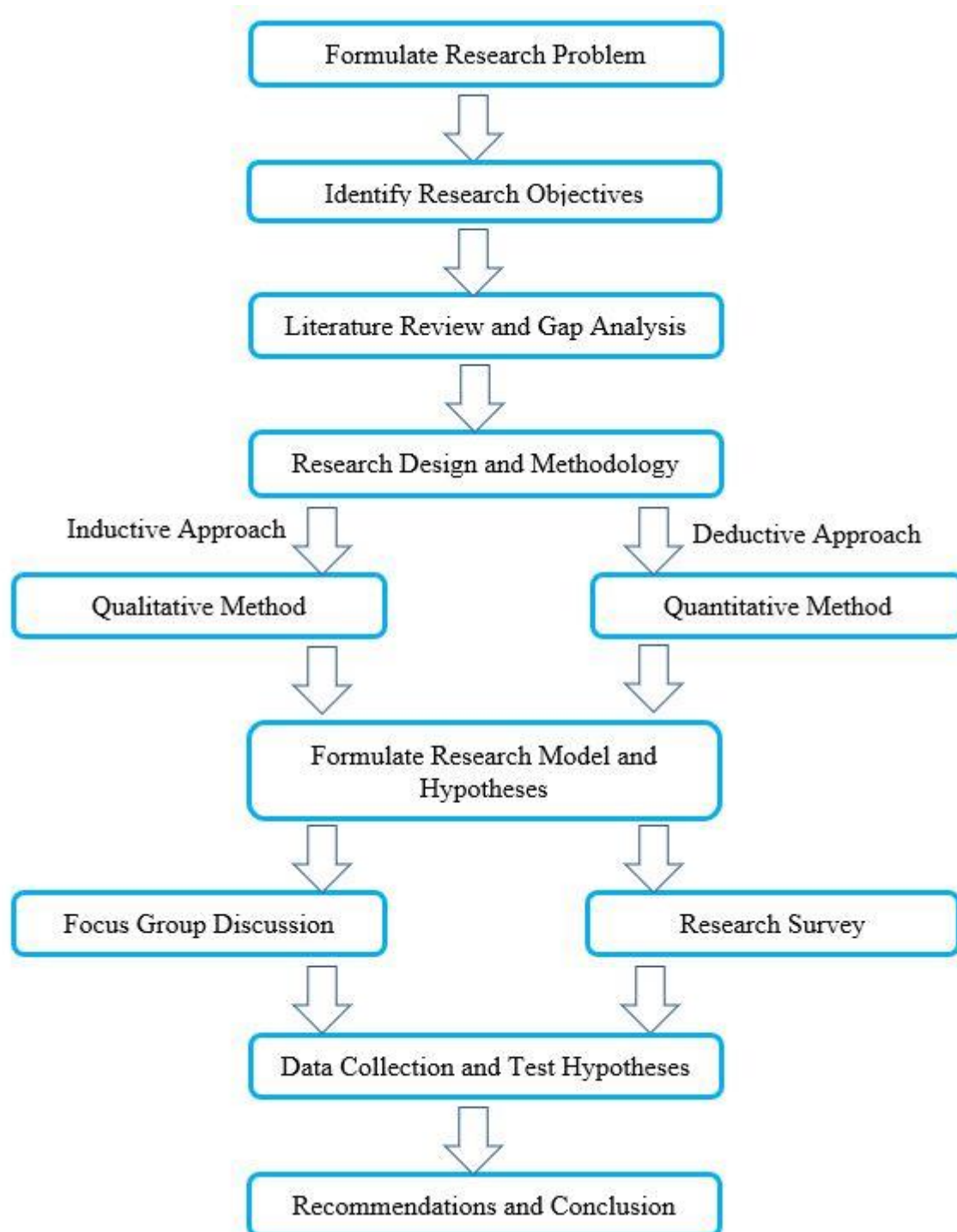
A strategy is a set of instructions for carrying out a task. Therefore, a research strategy was described as a plan for how a researcher will respond to their research issue. It is the theoretical connection between the researcher's mindset and subsequent technique selection for gathering and analyzing facts (Denzin and Lincoln, 2005; Lee, 2012). There are eight strategies for developing the research strategy: Experiment, Survey, Archival Research, Case Study, Ethnography, Action Research, Grounded Theory, and Narrative Inquiry (Mardiana, 2020). Each strategy may be best for associating with different research philosophies and approaches.

The experiment and survey strategies are the most suitable for this research according to the nature of this study is exploratory for identifying the success factors of ITO (Saunders, Lewis and Thornhill, 2019). Even though it plays a significant role in psychology and social science research, the experiment is a research strategy that owes a lot to the natural sciences. Studying the likelihood that a change in one independent variable would result in a change in a second dependent variable is the goal of an experiment (Ogwu, 2022). The experiment's hypotheses for ITO success were developed, and the data was then evaluated to demonstrate whether or not there has a link between the variables. In addition, questionnaire-based surveys are well-liked because they make it possible to obtain standardized data from a large population cost-effectively, making comparisons simple (Saunders, Lewis and Thornhill, 2019), and the data can be gathered quickly. For research with a short timescale, it is a benefit. The survey approach is also seen as authoritative by the public and is quite simple to explain and comprehend.

Moreover, it permits gathering numerical data for quantitative analysis utilizing inferential and descriptive statistics (Saunders, Lewis and Thornhill, 2019). The data gathered through a survey technique may be utilized to create models of these associations and provide potential

explanations for specific interactions between variables. Finally, when sampling was done, a survey method gave researchers more control over the study process. It allowed them to provide more affordable results than gathering data from the whole population. According to the research onion principle and the above discussion, each step has selected the appropriate approach and method to build this research work. The research design and works were summarized and illustrated in Figure 3.3.

Figure 3.3: Research Flow



Source: Compiled by Author

3.7 Research Time Horizon

It is referred to the time frame for the research. Based on time, research may be divided into two categories: longitudinal and cross-sectional (Saunders, Lewis and Thornhill, 2019). The research has a six-month window starting in November 2022 to complete it. It focuses on the elements contributing to IT outsourcing's success in Hong Kong's financial services sector. Time was of the essence; hence, this study used a cross-sectional methodology. Thus, a survey technique makes it easier to gather data quickly.

3.8 Data Collection

Data collection is the process of systematically acquiring and analyzing data on relevant factors so that one may respond to specified research questions, test hypotheses, and assess results (Paradis et al., 2016). The mixed-method (qualitative and quantitative) was used in this research. Both primary and secondary data were collected through different channels. The secondary data of qualitative and quantitative methods were collected from academic journal articles, textbooks, current news articles, organizational documents, newspapers, magazines, and websites.

The qualitative method's primary data were collected from focus group discussions, and the questions were listed in Appendix A. The author developed the open-ended questions and sent them to group members in advance for their preparation. The focus group discussion covered ITO matters that included ITO purposes, the importance of ITO, and the evaluation of ITO. The quantitative method's primary data was collected from the survey. The author formulated the questions of the questionnaire based on the data from the focus group discussion and hypotheses. Then, incorporating what was learned from the process, a questionnaire was created to comprehend the key factors, and steps were made to ensure the questions were fair and straightforward. The survey was discussed in detail in the following section.

3.8.1 Survey Design

The independent and dependent factors mentioned in the focus group and literature studies were connected to the survey's questions. Two components make up the questionnaire. To better understand the participants' backgrounds, questions about their demographics are asked in the first segment. In the second phase, respondents rated their agreement or disagreement

with each statement in each question using 6-Point Likert Scales. The 6-Point Likert Scale ranged from 1 as "Strongly Disagree"; 2 as "Very Disagree"; 3 as "Disagree"; 4 as "Agree"; 5 as "Very Agree"; 6 as 'Strongly Agree'.

Rensis Likert developed the Likert scale, introduced as a method for measuring attitudes in his paper "A Technique for the Measurement of Attitudes" in 1932 (Batterton and Hale, 2017). To gather the views and opinions of respondents, researchers employ a unidimensional scale. Researchers often use this psychometric scale to learn how people feel about a brand, item, or target market (Fleetwood, 2018).

A Likert scale was adopted because it is straightforward to create, data can be collected from many respondents reasonably quickly, produces a highly reliable scale, and the validity of the interpretations drawn from the data they provide can be verified using several different techniques (Taherdoost, 2019). Additionally, it is simple for participants to read and complete (Nemoto and Beglar, 2014). The 6-Point Likert scale was chosen because odd-numbered Likert scales most likely have a "neutral" choice between positive and negative. However, the "neutral" response choice might persuade respondents to quickly answer the question without considering it. 6-Point Likert scale, participants are encouraged to think about the subject more thoroughly and choose favorably or negatively (Thompson, 2018). Moreover, the six-point scale increased measurement precision and helped account for this reality (Nemoto and Beglar, 2014).

3.8.2 Sample Population

The population in statistics refers to the collection of data points used to create statistical research. It alludes to information on the relevant research (Levy and Lemeshow, 2008). A sample is a smaller portion of the population being discussed. It is an accurate representation of the study's population. The population members were invited to participate in the survey and makeup of the samples. As a result, the samples were subsets or subgroups of the population. These samples may be examined to learn more about the traits or actions of the total population (Bhat, 2019). Both were essential for representable results in the research.

The target participants in this study were IT workers, especially those working for FSI or who worked for FSI in Hong Kong. Approximately 108,500 Information Technology (IT) workers will in 2021 (Census and Statistics Department, 2022). Thus, the sample size calculation was based on this population figure.

3.8.3 Sampling Size

The sample size is the number of completed responses the survey receives. It is a sample because it only represents part of the target population (Taherdoost, 2017). The three criteria of sample size need to understand and specified before determining a representable sample size for the research: the margin of error, confidence level, and population proportion (Ahmad and Halim, 2017).

Margin of error: How many errors can be accepted in the survey's sampling? A lower margin of error requires high sample sizes but is closer to the facts (Taherdoost, 2017). In the research, a 5% margin of error is acceptable (Taherdoost, 2017; Kosar, Bohra and Mernik, 2018). Thus, a 5% margin of error was adopted in this research.

Confidence level: A population is sampled when the average value of the attribute that results from those samples equals the value of the actual population (Singh and Masuku, 2014). The data is more representative of the population, and the higher the confidence level. Many researchers commonly used a 95% confidence level (Simundic, 2008; Taherdoost, 2016; Hazra, 2017). Therefore, it was fair representative data for setting a confidence level of 95%. For a confidence level of 95%, the z value is 1.96 (Hazra, 2017). Table 3.2 provides a listing of z values for various confidence levels.

Table 3.2: Z values for various confidence levels

Confidence Level	Z Value
90%	1.64
95%	1.96
97%	2.17
99%	2.58

Source: Hazra, A. (2017)

Population proportion: The sample size may be more significant than if the real variability of the population characteristic were used since a percentage of 50% represents the most significant variability in a population, which is used to calculate a more conservative sample

size (Israel, 1992; Frey and Zhang, 2021). Therefore, a population proportion of 50% was adopted for sampling size calculation in this study to achieve a more accurate result.

The above criteria have been selected as the appropriate value for calculating the sample size, and the formula is below:

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right)}$$

where N = population size; z = z value; e = margin of error; p = population proportion (Kallio, 2022).

The criteria value for calculating the sample size in this research are N = 108,500; z = 1.96; e = 0.05; p = 0.5. Therefore, according to the above formula, the sample size is 382.8046. Thus, 383 questionnaires are required to return to this research.

3.8.4 Data Collection

Literature reviews were conducted during the research period to collect secondary data from qualitative and quantitative approaches. The focus group offered a week to participants of focus group members for preparation, and the total process duration was around two weeks for collecting the primary data of the qualitative approach. The primary data of the quantitative approach was planned for around 1.5 months, and the processes were from question formulation to data collection.

The survey was created using a digital Google Form and distributed over e-channels, including social media, WhatsApp, WeChat, and Signal. For collecting precise data from the participants, English and Chinese languages were used to build a questionnaire. It is because the Chinese language is the first language in Hong Kong. As a result, participants easily understood the questions and provided the best answer. These samples were gathered through snowball sampling (Taherdoost, 2016), and the questionnaire was sent to friends, coworkers, former coworkers, and IT service providers. Those people were asked to dispatch it further to increase the number of participants.

3.9 Ethics

As research is planned, access is sought to organizations and people, and data is collected, managed, analyzed, and reported, ethical issues will emerge (Saunders, Lewis and Thornhill, 2019). A variety of factors will impact the standards of conduct. Research ethics outlines principles for doing research responsibly. To achieve a high ethical standard, it also instructs and oversees researchers performing research (CityUniversityOfHongKong, 2013). Societal behavior standards will also impact whether a researcher's behavior is suitable or acceptable (Saunders, Lewis and Thornhill, 2019).

The author completed the ethical form of the university and was approved by the research supervisor before the research. The author declared in the form that the research processes are legal and ethical. Moreover, the author ensures data privacy and confidentiality from participants. All data will be stored in an as secure manner and used for research purposes only. The author will destroy all the data after the result of the research has been issued.

For the focus group, the author has informed all focus group members of the research purpose and purpose of data collection in the focus group discussion. Group members who feel unsatisfied with the discussion could leave it anytime. For the survey, the necessary information was described on the initial page of the digital form before the participants clicked to start the survey:

1. The purpose of this research.
2. The survey is conducted anonymously.
3. The participant who feels unsatisfied with the survey could withdraw at anytime.
4. All data will be destroyed after six months upon the completion of the research.

4. Results

This section is to analyze the primary data of quantitative that were collected from the survey using digital forms. To present the data as meaningful information, descriptive and inferential statistics were used for inspecting and calculating the data. Descriptive statistics organize data and provide a concise summary by defining the connection between variables in a sample or population (Kaur, Stoltzfus and Yellapu, 2018). Measurements of central tendency and measures of variability make up descriptive statistics. The mean, median, and mode are measurements of central tendency, whereas the standard deviation, variance, minimum and maximum variables, kurtosis, and skewness are measures of variability (Hayes, 2022). Inferential statistics are predictions about a large data set based on a representative population sample. On the other hand, a random sample of data is considered to characterize and draw conclusions about a population (Simplilearn, 2021). Estimating populations and testing hypotheses are the two basic goals.

A total of 447 questionnaires were returned in the planned data collection timeframe. All data were exported in digital form and analyzed by the SPSS statistics software. A detailed discussion of the analysis result follows.

4.1 Data Classification

Two types of data are nominal, and ordinal data collected from the survey. These two data types should be understood further before choosing an appropriate analysis method to process the data analysis. The nominal data refers to information whose values cannot be expressed numerically but may be grouped into sets based on the features that identify or characterize the variable (Brown and Saunders, 2007). Ordinal data is classified within a variable that has a natural rank order. In such instances, the relative position of each case is known in the data set. However, the intervals between the categories are uneven or unknown (Saunders, Lewis and Thornhill, 2019).

The demographic data belonged to the nominal data type, whereas the data collected through the Likert scale belonged to the ordinal data type. The demographic data collected through responses have been presented as descriptive statistics, but the Likert scale data need to define further for choosing the statistical tests. Since the researchers have various perspectives on the measurement level of the Likert scale data: ordinal or interval (Murray, 2013), there has been

debate about parametric vs. non-parametric approaches for many years (Mircioiu and Atkinson, 2017). Parametric tests are used for continuous or interval data with a normal distribution (Treleaven and Barrett, 2007). Non-parametric tests are used when dealing with discrete variables or continuous data that is not normally distributed (Hill, 2006). The Likert scale of this research is the continuous and interval data from strongly disagree to strongly agree, even though the intervals may not be equal. So, parametric tests were adopted for Likert scale data analysis in this study. The parametric tests include reliability, regression, and correlation tests to determine the relationship and significance (Norman, 2010).

4.2 Data Demographics

The demographic data were analyzed and summarized in Table 4.1. The detail of the analysis result is shown in Appendix C. The participants are working in FSI and non-FSI industries. Therefore, it assisted in analyzing this study from a different point of view—especially information security and regulatory policy factors. Among the participants, 53.9% had FSI experience, and 46.1% had no FSI experience.

There around 72% of participants had ITO experience. The highest portion of participants were “1-5” times of ITO experience, which had 43.8%. “6-10” and “11-20” times of ITO experience were 18.3% and 6.5%, respectively. Over half of the participants work in Accountancy, Banking or Finance, and Computing or IT. 46.3% of participants are in the IT sector, whereas 16.3% are in Accountancy, Banking, or Finance.

The top 3 ranges of the number of employees in Hong Kong were “1-50”, “51-100”, and “101-250”. These three ranges occupied 68% of participants. Over 1,000 employees in Hong Kong had 11.7%. For the team size of the IT department, the team under 50 members had 74.7%. 44.7% of “1-20” IT team members, whereas 30% of “21-50” members. Over 100 members in the IT department had 13.9%.

In their working nature, the majority of participants are IT professionals, who had 90.4%. 22.8% of management nature, 16.1% of IT consultants, and around half of the participants are the technical nature of work. In response to the job position in IT, 27.5% of participants who are grading are senior manager or above, whereas 18.1% of the individual contributor. For the subordinate staff response, 45.9% of “1-10” subordinate staff was around half of the participants in this group.

Table 4.1: Demographic of Data

	Participants (%)
Total Number	447 (100%)
FSI Working Experience	
- Yes	241 (53.9%)
- No	206 (46.1%)
Number of ITO Experience	
- 0	124 (27.7%)
- 1 - 5	196 (43.8%)
- 6 - 10	82 (18.3%)
- 11 - 20	29 (6.5%)
- 21 or above	16 (3.6%)
Current Working Sector	
- Accountancy, Banking or Finance	73 (16.3%)
- Computing or IT	207 (46.3%)
- Healthcare	32 (7.2%)
- Marketing	41 (9.2%)
- Property or Construction	19 (4.3%)
- Retail	10 (2.2%)
- Transport or Logistics	7 (1.6%)
- Other	58 (13%)
Total Number of Employees in Company in Hong Kong	
- 1 - 50	154 (34.5%)
- 51 - 100	89 (19.9%)
- 101 - 250	61 (13.6%)
- 251 - 500	50 (11.2%)
- 501 - 1,000	41 (9.2%)
- 1,001 - 1,500	16 (3.6%)
- 1,501 - 2,500	15 (3.4%)
- 2,501 or above	21 (4.7%)
Total Number of Employees in the IT Department in Hong Kong	
- 1 - 20	200 (44.7%)
- 21 - 50	134 (30.0%)
- 51 - 100	51 (11.4%)
- 101 - 200	36 (8.1%)
- 201 or above	26 (5.8%)
Work Nature	
- IT Management	102 (22.8%)
- IT Consultant	72 (16.1%)
- IT Operation Services	82 (18.3%)
- IT Software Development	93 (20.8%)
- IT Technical Services	55 (12.3%)
- Non IT Professional	43 (9.6%)
Job Position	
- Individual Contributor	81 (18.1%)
- Supervisor	77 (17.2%)
- Manager	98 (21.9%)
- Senior Manager	60 (13.4%)
- Vice President	39 (8.7%)
- Management / C-Level	24 (5.4%)
- Others	68 (15.2%)
Number of Direct and Indirect Staff	
- 0	110 (24.6%)
- 1 - 10	205 (45.9%)
- 11 - 20	69 (15.4%)
- 21 - 50	42 (9.4%)
- 51 - 100	8 (1.8%)
- 101 - 200	4 (0.9%)
- 201 - 500	5 (1.1%)
- 501 or above	4 (0.9%)

Source: Compiled by Author

For the reasons for considering ITO, Table 4.2 is listed the result of ranking the reason for considering ITO. The most important reason was "Cost Saving" at 38.9%, followed by 26% of "Improve Productivity and Efficiency". The report would have a different insight if the ranking result were cross-tabulated with the participants' job positions. Table 4.3 is listed the result of the cross-tabulation of the most important reason and the participants' job positions. From a senior position (senior manager to C-level) perspective, the most important reason was "Transitioning to New Systems or new technology" as 39.1%. However, 64.1% of "Transfer Business or IT operations Risk" was selected by the below senior position (Manager to Individual Contributor). According to the result, the participants who work at the operational level want to transfer their risk by considering the ITO. However, the management level had different considerations for ITO. The detail of the ranking result is shown in Appendix C.

Table 4.2: Summary of Ranking of Reasons for Considering ITO

	Cost Saving	Improve Productivity and Efficiency	Transfer Business or IT operations Risk	Transitioning to New Systems or new technology	Other
Most Important Reason	38.9%	26.0%	17.4%	14.3%	3.4%
2nd Reason	23.0%	34.7%	19.5%	21.0%	1.8%
3rd Reason	17.4%	23.5%	34.7%	21.0%	3.4%
4th Reason	18.3%	12.1%	23.7%	36.9%	8.9%
Least Important Reason	2.2%	3.8%	4.7%	6.7%	82.6%

Source: Compiled by Author

Table 4.3: Cross-tabulation between ITO's Most Important Reason and Job Positions

The most important reason for considering IT outsourcing					
Job Position	Cost Saving	Improve Productivity and Efficiency	Transfer Business or IT operations Risk	Transitioning to New Systems or new technology	Other
Individual Contributor	23.0%	19.8%	10.3%	12.5%	13.3%
Supervisor	15.5%	21.6%	19.2%	10.9%	20.0%
Manager	16.1%	22.4%	34.6%	21.9%	20.0%
Senior Manager	12.1%	11.2%	16.7%	18.8%	6.7%
Vice President	6.9%	9.5%	9.0%	10.9%	13.3%
Management / C-Level	5.7%	2.6%	3.8%	9.4%	13.3%
Others	20.7%	12.9%	6.4%	15.6%	13.3%

Source: Compiled by Author

4.3 Statistical Analysis

The statistical analysis is investigating the patterns, correlation, and trends using quantitative data (Festing and Altman, 2002). According to the discussion in above section, parametric tests were used to test the data.

4.3.1 Independent Sample T-Test

When comparing the means of two unrelated groups, the independent sample t-test is used to see whether the groups vary statistically on the same dependent variable (Allen, 2017). If the p-value is less than 0.05, the group means are statistically significantly. If the p-value is larger than 0.05, the result is not significant (Loughin, 2004).

The independent sample t-test was used to understand whether IT outsourcing success differed based on FSI experience. The dependent variable is “IT outsourcing success” and the independent variable is “FSI experience”, which has two groups: “FSI” and “non FSI”. The result of the test is listed in Figure 4.1. According to the result, both groups had a similar mean and standard deviation in descriptive statistics. However, the table “Independent Samples Test” in Figure 4.1 provided the actual results. In this analysis, the sig. value of Levene’s Test is greater than 0.05. Therefore, the null hypothesis does not be rejected. So, the line “Equal variances assumed” data should be read. In the column “significance” in the table, the p-value of one-sided and two-sided is lower than 0.05. It represented that the group means are statistically significantly different. Thus, the participants who had FSI experience that has higher IT outsourcing success levels than the participants who had non-FSI experience.

Figure 4.1: Result of Independent Sample T-Test between ITOS and Participant Groups (FSI and non-FSI)

Group Statistics					
	FSI Experience	N	Mean	Std. Deviation	Std. Error Mean
Average of ITOS	Yes	241	4.5643	.84811	.05463
	No	206	4.2852	.84661	.05899

Independent Samples Test											
Levene's Test for Equality of Variances						t-test for Equality of Means					
		F	Sig.	t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Average of ITOS	Equal variances assumed	.294	.588	3.471	445	<.001	<.001	.27912	.08041	.12109	.43715
	Equal variances not assumed			3.472	434.471	<.001	<.001	.27912	.08040	.12110	.43714

Source: Compiled by Author

In addition, the level of regulatory policy was based on FSI experience, which is also interesting to determine in this study. The regulatory awareness is whether has a significant difference between these two groups (FSI and non-FSI) of participants. Figure 4.2 is listed the independent t-test result between regulatory factors and participant groups. In the column “significance” of the independent samples test table in Figure 4.2, the p-value of one-sided and two-sided was lower than 0.05. It represented that the group means are statistically significantly different. Thus, the participants who had FSI experienced higher, with a mean value of 4.55.

Figure 4.2: Result of Independent Sample T-Test between RP and Participant Groups (FSI and non-FSI)

Group Statistics					
FSI Experience		N	Mean	Std. Deviation	Std. Error Mean
Average of RP	Yes	241	4.5519	.82847	.05337
	No	206	4.2743	.88243	.06148

Independent Samples Test										
Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower Upper
Average of RP	Equal variances assumed	.243	.622	3.427	445	<.001	<.001	.27760	.08101	.11838 .43681
	Equal variances not assumed			3.410	424.465	<.001	<.001	.27760	.08141	.11757 .43762

Source: Compiled by Author

The above independent t-test result concluded that FSI experience significantly influences regulatory policy and IT outsourcing success. This result has assisted us in formulating the recommendations.

4.3.2 One-way ANOVA Analysis

One-way ANOVA is performed to determine if there are any statistically significant differences between the means of 3 or more unrelated independent groups (Kim, 2017). It was used in this study to identify a statistically significant difference in the number of ITO experience participants in ITOS. The analysis result is listed in Table 4.4 (The detailed analysis result is shown in Appendix G). The highest mean is the group “11 – 20” at 5, followed by “21 or above” at 4.7656. The Sig. (p) value is less than 0.05, which means there is a statistically

significant difference between the mean of the different groups of No. of ITO experience variable. In the Multiple Comparisons of the table, further information was provided to understand which groups differed. There is a statistically significant difference in ITOS between groups of ITO experience that Sig. (p) value is less than 0.05 in Multiple Comparisons. The pair of groups were marked as red color fonts in the table. It concluded that the ITOS is statistically significantly higher when participants in the group “1-5”, “6-10”, and “11-20” compared to “0”, as well as group “11-20” compared to “1-5”. The rest of the pairs were not statistically significant.

Table 4.4: Result of One-Way ANOVA between No. of ITO Experience and ITOS

Descriptives		
No. of ITO Experience	Mean	Std. Deviation
0	4.1633	0.88405
1 - 5	4.4401	0.81919
6 - 10	4.5732	0.87090
11 - 20	5.0000	0.64780
21 or above	4.7656	0.64852

ANOVA		
	F	Sig.
Between Groups	7.835	<.001

Multiple Comparisons		
No. of ITO Experience	No. of ITO Experience	Sig.
0	1 - 5	0.032
	6 - 10	0.005
	11 - 20	<.001
	21 or above	0.052
1 - 5	0	0.032
	6 - 10	0.742
	11 - 20	0.007
	21 or above	0.561
6 - 10	0	0.005
	1 - 5	0.742
	11 - 20	0.125
	21 or above	0.916
11 - 20	0	<.001
	1 - 5	0.007
	6 - 10	0.125
	21 or above	0.895
21 or above	0	0.052
	1 - 5	0.561
	6 - 10	0.916
	11 - 20	0.895

Source: Compiled by Author

4.3.3 Reliability Analysis

Reliability analysis refers to how consistently a technique assesses something. The measurement is regarded as trustworthy if the same result can be consistently obtained using the same techniques under the same conditions (Taan and Hajjar, 2018). The internal consistency of the questions according to their constructs is tested by reliability analysis. The most used dependability metric is Cronbach's Alpha. It serves as a gauge for the accuracy of the measurement tools. It is between 0 and 1. Cronbach's Alpha, a measure of acceptable internal consistency, should be higher than 0.7. (Tavakol and Dennick, 2011).

The data were collected from the questionnaire; all questions (Appendix B) of the independent and dependent variables conducted were the reliability test for validation. The summary of the reliability test is listed in Table 4.5, and the detail of the reliability analysis are shown in Appendix F.

Table 4.5: Summary of Reliability Test

	Label	No. of Questions	Overall Cronbach's Alpha
Perceived Information Security Risk Factors	ISR	4	0.825
Quality of Service Provider	QSP	4	0.823
Contract Management	CM	4	0.804
Internal Contract Experience	ICE	4	0.824
Communication	COM	4	0.801
Regulatory Policy	RP	4	0.809
IT Outsourcing Success	ITOS	4	0.839

Source: Compiled by Author

4.3.4 Correlation and Regression Analysis

The Pearson Correlation Coefficient measures the degree and direction of the relationship between two variables that are at least assessed on an interval scale (Komaroff, 2020). If there is a substantial link between the independent and dependent variables, it may be found using Pearson's correlation. A line of greatest fit is attempted via the data of two variables. The letter r indicates the connection between the two variables; a value between -1 and +1 is used to quantify it (Akoglu, 2018). There is a strong positive association since the r is close to 1.

Conversely, a strong negative association is indicated if the r value is near -1 (Akoglu, 2018). Besides correlation, the statistical concept of regression describes models that predict the value

between variables (Bangdiwala, 2018). For example, predict the dependent variable's value based on the independent variable's particular value.

The correlation and linear regression between independent and dependent variables in this study were compared individually to determine whether they have a significant relationship. The data were collected under the same variable and used an average value to analyze the relationship between the two variables. In addition, the relationship was plotted in a graphical representation. The detail of the analysis result is shown in Appendix H.

4.3.4.1 Perceived Information Security Risk and IT Outsourcing Success

The Perceived Information Security Risk (ISR) is IT operational, information security, and financial risks in ITO. The result of the correlation test between Perceived Information Security Risk (ISR) and IT Outsourcing Success (ITOS) is listed in Table 4.6. The significance (Sig.) value of the result is less than 0.05, indicating a relationship between ISR and ITOS. After the relationship was proven, the Pearson correlation coefficient (r) could be assessed to interpret the strength of the relationship. The r value is 0.715, close to 1, and indicates a strong positive relationship if $r > 0.7$ (Akoglu, 2018).

Table 4.6: Pearson's Correlation for ISR and ITSO

		Average of ISR	Average of ITOS
Average of ISR	Pearson Correlation	1	.715**
	Sig. (1-tailed)		<.001
	N	447	447
Average of ITOS	Pearson Correlation	.715**	1
	Sig. (1-tailed)	<.001	
	N	447	447
**. Correlation is significant at the 0.01 level (1-tailed).			

Source: Compiled by Author

Figure 4.3 shows a simple linear regression graph between ISR and ITOS. A straight line that relates the independent variable X (ISR) and dependent variable Y (ITOS) was based on the mathematical formula for a straight line as below.

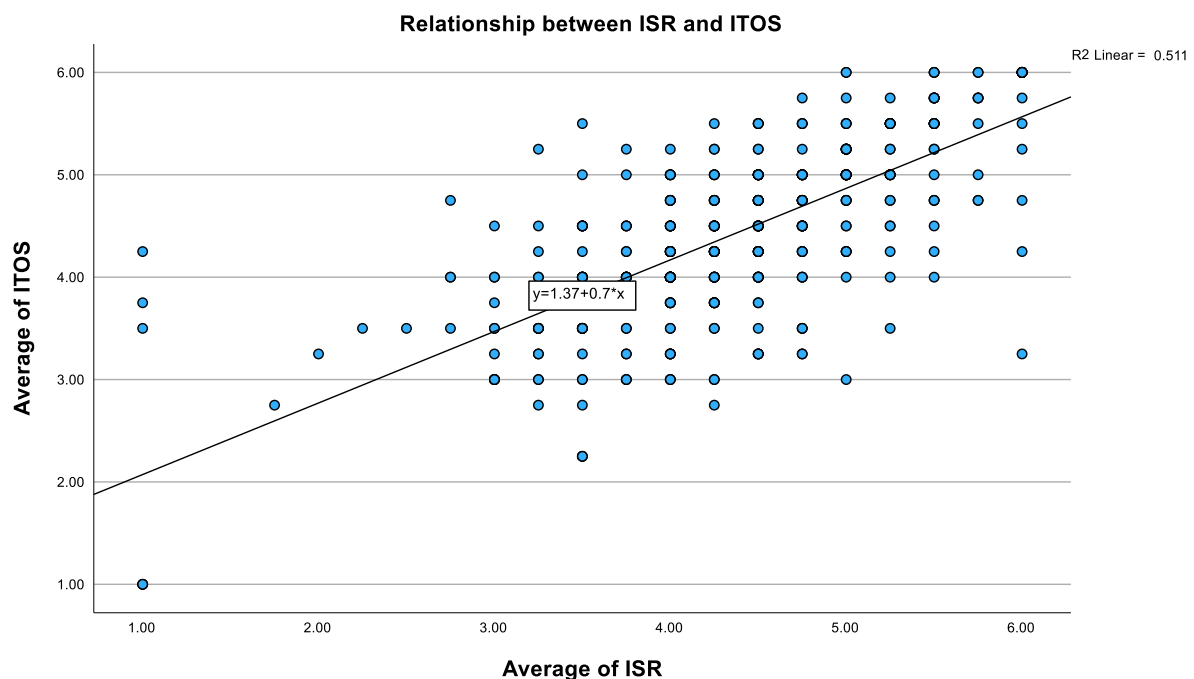
The formula for simple linear regression:

$$Y = B_0 + B_1X_1$$

where B_0 is called the intercept and B_1 is called the slope (Bangdiwala, 2018).

The graph shows a positive relationship with R^2 of 0.511, implying that 51.1% of the total variation in the dependent variable (ITOS) can be explained by the independent variable (ISR) in this model. 0.7 of the slopes of the equation in the graph's straight line. It means the ITOS is increased by 0.7 for a 1-unit change in the ISR.

Figure 4.3: Graph of the Linear Regression between ISR and ITSO



Source: Compiled by Author

Thus, the hypothesis (H1) that “Perceived Information Security Risk significantly affects ITO success in FSI” was supported.

4.3.4.2 Quality of Service Provider and IT Outsourcing Success

Table 4.7 is shown the significance (Sig.) value that is less than 0.05 in the correlation test between Quality of Service Provider (QSP) and IT Outsourcing Success (ITOS). It indicated a positive correlation between QSP and ITOS, and 0.773 of the r value was a strong

relationship. Figure 4.4 shows a positive relationship with R² of 0.598, implying that the QSP can explain 59.8% of the total variation in ITOS in this model. 0.78 of the slopes of the equation in the graph's straight line. It means that the ITOS is increased by 0.78 for a 1-unit change in the QSP.

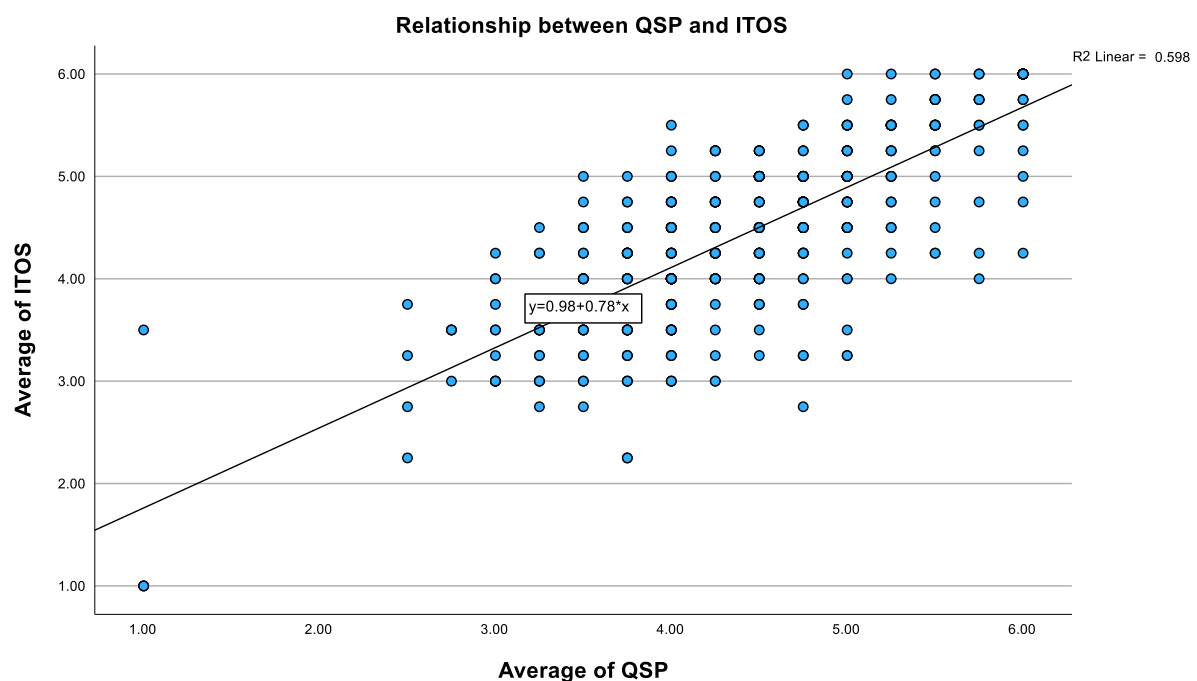
Thus, the hypothesis (H2) that “The Quality of Service Provider has a significant effect on ITO success” was supported.

Table 4.7: Pearson's Correlation for QSP and ITSO

		Average of QSP	Average of ITOS
Average of QSP	Pearson Correlation	1	.773**
	Sig. (1-tailed)		<.001
	N	447	447
Average of ITOS	Pearson Correlation	.773**	1
	Sig. (1-tailed)	<.001	
	N	447	447
**. Correlation is significant at the 0.01 level (1-tailed).			

Source: Compiled by Author

Figure 4.4: Graph of the Linear Regression between QSP and ITSO



Source: Compiled by Author

4.3.4.3 Contract Management and IT Outsourcing Success

For the correlation test result between Contract Management (CM) and ITOS, significance (Sig.) < 0.05 and $r = 0.747$ in Table 4.8. It represented that there has a strong positive relationship between CM and ITOS. Thus, the hypothesis (H3) that “Contract Management significantly affects ITO success” was supported.

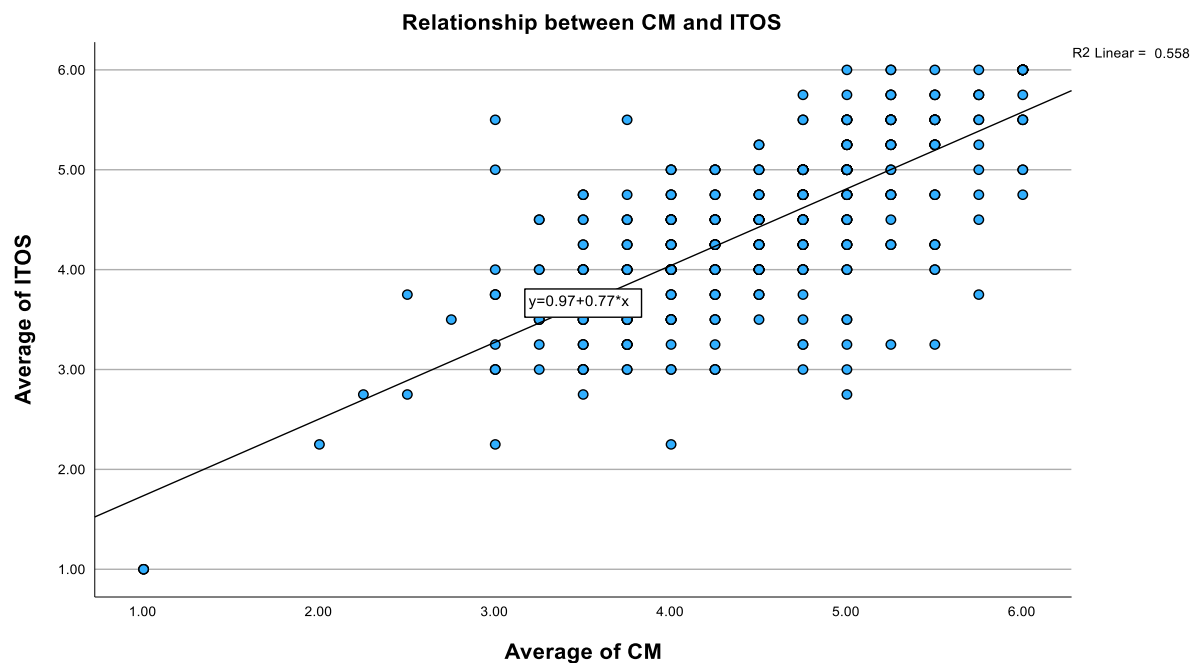
Table 4.8: Pearson’s Correlation for CM and ITSO

		Average of CM	Average of ITOS
Average of CM	Pearson Correlation	1	.747**
	Sig. (1-tailed)		<.001
	N	447	447
Average of ITOS	Pearson Correlation	.747**	1
	Sig. (1-tailed)	<.001	
	N	447	447
**. Correlation is significant at the 0.01 level (1-tailed).			

Source: Compiled by Author

Figure 4.5 shows a positive relationship with R^2 of 0.558 which implies that 55.8% of the total variation in ITOS can be explained by the CM in this model. 0.77 of the slopes of the equation in the graph’s straight line. It means that the ITOS is increased by 0.77 for a 1-unit change in the CM.

Figure 4.5: Graph of the Linear Regression between CM and ITSO



Source: Compiled by Author

4.3.4.4 Internal Contract Experience and IT Outsourcing Success

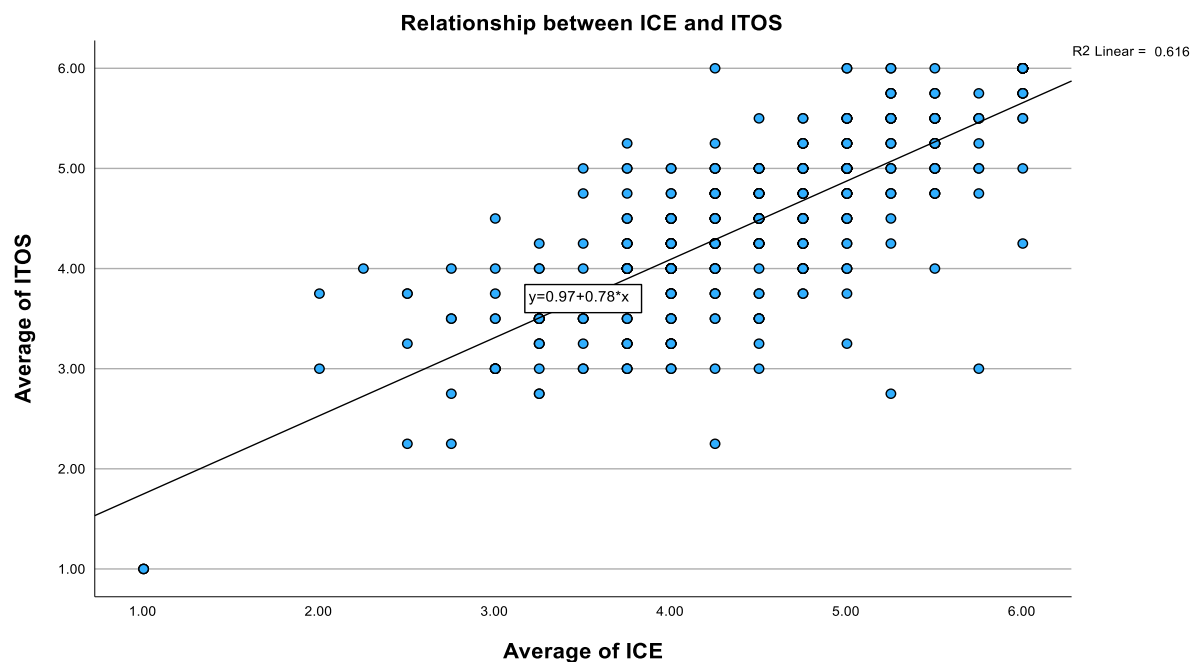
Table 4.9 is shown the significance (Sig.) value that is less than 0.05 in the correlation test between Internal Contract Experience (ICE) and ITOS. It indicated a positive correlation between ICE and ITOS, and 0.785 of the r value is close to 1 with a strong relationship. In Figure 4.6, a positive relationship with R^2 of 0.616 which implies that 61.6% of the total variation in ITOS can be explained by the ICE in this model. 0.78 of the slopes of the equation in the graph's straight line. It means that the ITOS is increased by 0.78 for a 1-unit change in the ICE. Thus, the hypothesis (H4) that "Internal Contract Experience has a significant effect on ITO success" was supported.

Table 4.9: Pearson's Correlation for ICE and ITSO

		Average of ICE	Average of ITOS
Average of ICE	Pearson Correlation	1	.785**
	Sig. (1-tailed)		<.001
	N	447	447
Average of ITOS	Pearson Correlation	.785**	1
	Sig. (1-tailed)	<.001	
	N	447	447
**. Correlation is significant at the 0.01 level (1-tailed).			

Source: Compiled by Author

Figure 4.6: Graph of the Linear Regression between ICE and ITSO



Source: Compiled by Author

4.3.4.5 Communication and IT Outsourcing Success

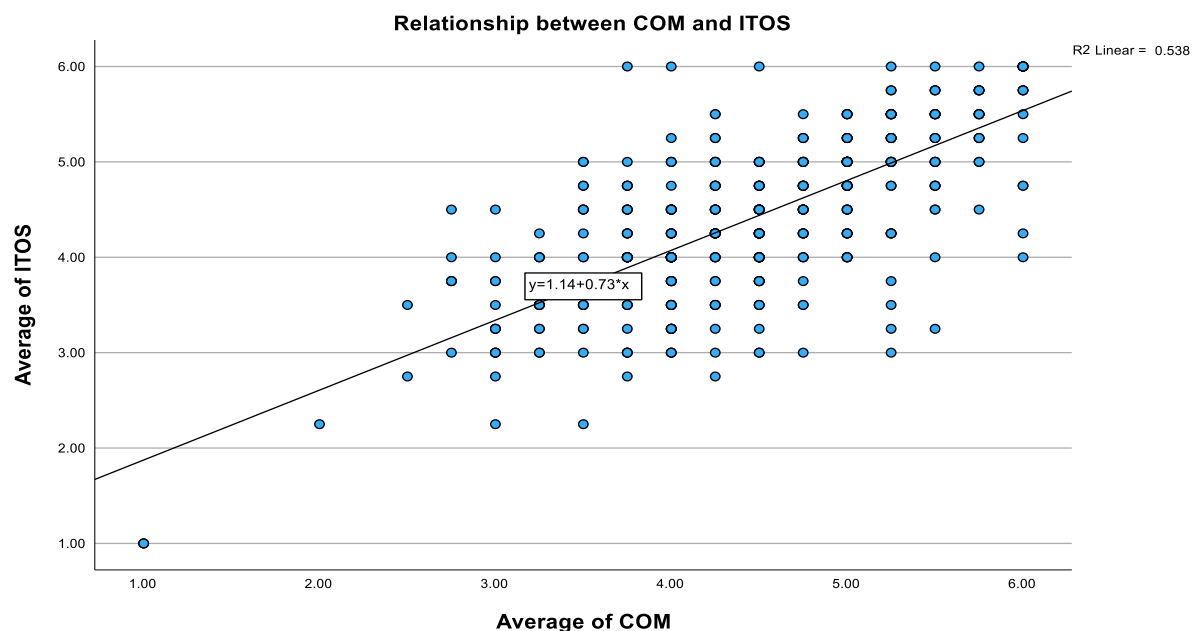
Table 4.10 is shown the significance (Sig.) value that is less than 0.05 in the correlation test between Communication (COM) and ITOS. It indicated a positive correlation between COM and ITOS, and 0.733 of the r value is close to 1 with a strong relationship. In Figure 4.7, a positive relationship with R^2 of 0.538 implies that the COM can explain 53.8% of the total variation in ITOS in this model. 0.73 of the slopes of the equation in the graph's straight line. It means that the ITOS is increased by 0.73 for a 1-unit change in the COM. Thus, the hypothesis (H5) that "Communication significantly affects ITO success" was supported.

Table 4.10: Pearson's Correlation for COM and ITSO

		Average of COM	Average of ITOS
Average of COM	Pearson Correlation	1	.733**
	Sig. (1-tailed)		<.001
	N	447	447
Average of ITOS	Pearson Correlation	.733**	1
	Sig. (1-tailed)	<.001	
	N	447	447
**. Correlation is significant at the 0.01 level (1-tailed).			

Source: Compiled by Author

Figure 4.7: Graph of the Linear Regression between COM and ITSO



Source: Compiled by Author

4.3.4.6 Regulatory Policy and IT Outsourcing Success

Regulatory Policy (RP) is government regulation in ITO. For the correlation test result between RP and ITOS, significance (Sig.) < 0.05 and $r = 0.751$ in Table 4.11. It represented that there has a strong positive relationship between RP and ITOS. The graph shows in Figure 4.8, a positive relationship with R^2 of 0.564 which implies that 56.4% of the total variation in the ITOS can be explained by the RP in this model. 0.75 of the slopes of the equation in the graph's straight line. It means that the ITOS is increased by 0.75 for a 1-unit change in the RP. Thus,

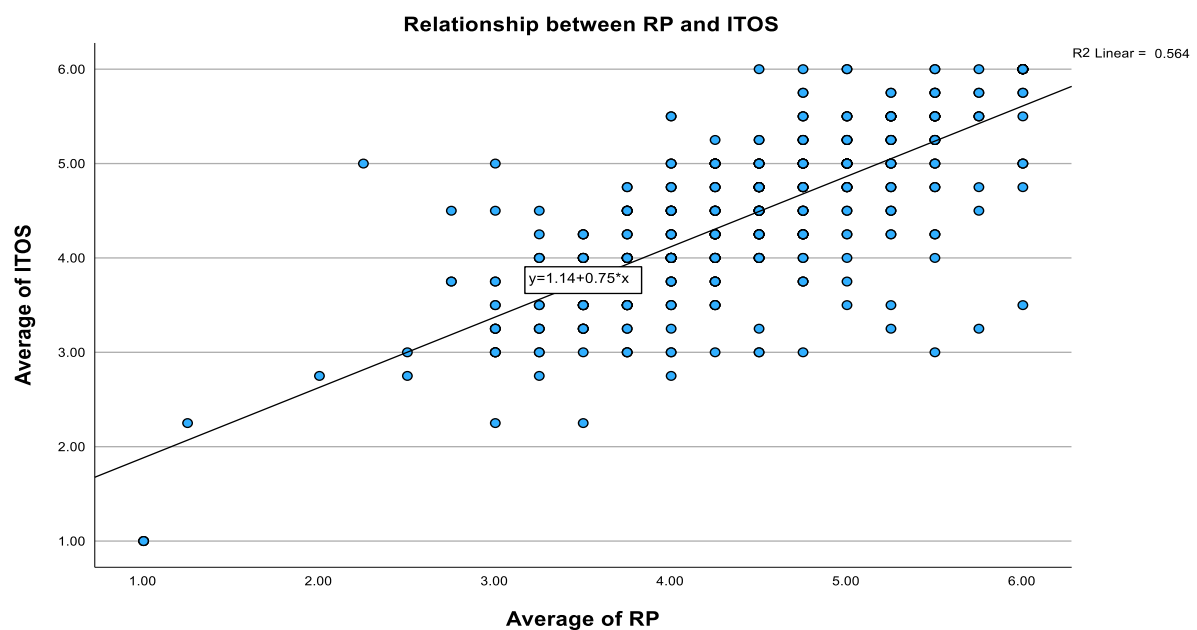
the hypothesis (H6) that “Regulatory Policy significantly affects ITO success in FSI” was supported.

Table 4.11: Pearson’s Correlation for RP and ITSO

		Average of RP	Average of ITOS
Average of RP	Pearson Correlation	1	.751**
	Sig. (1-tailed)		<.001
	N	447	447
Average of ITOS	Pearson Correlation	.751**	1
	Sig. (1-tailed)	<.001	
	N	447	447
**. Correlation is significant at the 0.01 level (1-tailed).			

Source: Compiled by Author

Figure 4.8: Graph of the Linear Regression between RP and ITSO



Source: Compiled by Author

4.3.5 Multiple Regression Analysis

Multiple regression analyzes the relationship between one dependent variable and two or more independent variables (Moore et al., 2006). It is similar to simple linear regression as it predicts the value of dependent variables but uses more than one dependent variable to formulate the equation.

The formula for multiple regression:

$$Y = B_0 + B_1X_1 + B_2X_2 + \dots + B_nX_n$$

where $X_1, X_2, \dots, X_n$ are the n independent variables (Moore et al., 2006).

In simple linear regression, the six factors were determined to have a positive relationship between ITOS individually. However, the research model in this study should be considered as a whole, so the multiple linear regression test needs to be conducted to effect multiple predictors of outcome variables. The independent variable (ITOS) is predicted as the value based on six independent variables (ISR, QSP, CM, ICE, COM, and RP). Finally, two factors (ISR and CM) were removed due to Sig. > 0.05 during the analysis process, and only factors of QSP, ICE, COM, and RP are significant independent variables. Figure 4.9 shows the result of multiple linear regression and detail analysis result is shown in Appendix I.

In the model summary table in Figure 4.9, 0.854 of R-value (multiple correlation coefficient) is a very strong correlation. The R square (R^2) is 0.730, which implies that 73% of data variation can be explained by this model, which is very large. The group of independent variables reliably predicts the ITOS because of the Sig. (p) value in the ANOVA table is less than 0.05. Overall, the regression model statistically significantly predicts the outcome variable. All Sig. (p) value of retained independent variables is less than 0.05 in the Coefficients table. The QSP, ICE, COM, and RP contribute statistically significantly to the model. The column “B” of the Unstandardized Coefficients is the value of increment in ITOS for a 1-unit change in the corresponding independent variables. After the multiple regression test was conducted, the final formula was shown below.

$$Y = 0.224 + 0.337*QSP + 0.332*ICE + 0.089*COM + 0.193*RP$$

Figure 4.9: Final Result of Multiple Linear Regression Test

Model Summary ^b		
Model	R	R Square
1	0.854 ^a	0.730

a. Predictors: (Constant), Average of ICE, Average of QSP, Average of RP, Average of COM
b. Dependent Variable: Average of ITOS

ANOVA ^a		
	F	Sig.
Regression	298.248	<.001 ^b

a. Dependent Variable: Average of ITOS
b. Predictors: (Constant), Average of ICE, Average of QSP, Average of RP, Average of COM

Coefficients ^a		
Model	Unstandardized Coefficients (B)	Sig.
(Constant)	0.224	0.073
Average of QSP	0.337	<.001
Average of RP	0.193	<.001
Average of COM	0.089	0.047
Average of ICE	0.332	<.001

a. Dependent Variable: Average of ITOS

Source: Compiled by Author

4.3.6 Summary of Statistical Analysis

There had several relationships been determined in the above analysis. Table 4.12 summarizes the statistical tests with the results for further discussion. The result shows that all independent variables in this study are success factors of ITO in FSI. However, only QSP, ICE, COM, and RP are critical success factors of the research model in this research.

Table 4.12: Summary of Statistical Analysis Results

Statistically Significant Difference

Statistically Significant Difference	Significance level	Support / Reject
IT outsourcing success is higher based on participants who had FSI experience.	$p < 0.001$	Supported
FSI experience significantly influences regulatory policy and IT outsourcing success.	$p < 0.001$	Supported
IT outsourcing success is higher based on number of ITO experience:		
"1 - 5" compared to "0"	$p = 0.032$	Supported
"6 - 10" compared to "0"	$p = 0.005$	Supported
"11 - 20" compared to "0"	$p < 0.001$	Supported
"11 - 20" compared to "1 - 5"	$p = 0.007$	Supported

Simple Linear Regression Test

Hypothesis	Significance level	Support / Reject
H1. Perceived Information Security Risk significantly affects ITO success in FSI.	$p < 0.001$	Supported
H2. The Quality of Service Provider has a significant effect on ITO success.	$p < 0.001$	Supported
H3. Contract Management significantly affects ITO success.	$p < 0.001$	Supported
H4. Internal Contract Experience has a significant effect on ITO success.	$p < 0.001$	Supported
H5. Communication significantly affects ITO success.	$p < 0.001$	Supported
H6. Regulatory Policy significantly affects ITO success in FSI.	$p < 0.001$	Supported

Multiple Regression Test

Research Model	Significance level	Support / Reject
Perceived Information Security Risk (ISR)	$p = 0.180$	Rejected
Quality of Service Provider (QSP)	$p < 0.001$	Supported
Contract Management (CM)	$p = 0.525$	Rejected
Internal Contract Experience (ICE)	$p < 0.001$	Supported
Communication (COM)	$p = 0.047$	Supported
Regulatory Policy (RP)	$p < 0.001$	Supported

Source: Compiled by Author

5. Discussion

The analysis showed that part of the independent variables significantly affected IT outsourcing success in this research model. The success of outsourced IT is affected by the Quality of Service Provider (QSP), Internal Contract Experience (ICE), Communication (COM), and Regulatory Policy (RP). The Perceived Information Security Risk (ISR) and Contract Management (CM) variables have been rejected in statistical tests that mean an insignificant relationship with IT outsourcing success (ITOS). The result of each variable will be discussed in the following.

5.1 Hypothesis 1 (H1): Perceived Information Security Risk significantly affects ITO success in FSI - Rejected

The Perceived Information Security Risk is an important factor in ITO. This factor had been determined significant in IT outsourcing success in the simple linear regression test but not in the multiple regression test. The simple linear regression test result reflected that the participants agree that this factor is a significant factor for IT outsourcing success. However, it is an ideal situation for a one-to-one relationship. The factors in factual ITO projects affect each other simultaneously. It could probably be affected by other factors while conducting a joint test. The multiple regression test improves the accuracy of predicted values of the research model. In the literature review, Al Hadwer, A. et al. (2021) claimed that security factors significantly influence organizations to outsource IT services. Hanafizadeh, P. and Zare Ravasan, A. (2018a) emphasized that security and privacy risks are one of the most significant ITO risks in FSI. However, in literature review papers, researchers have not put the information security risk factors into their research model to prove the relationship.

According to the importance of information security risk and the result of a simple linear regression test insights, there potentially have significant findings in the demographic population. Therefore, a further determination was processed by splitting the demographic groups of the number of IT outsourcing experiences (Refer to Table 4.1). A significant relationship was found in the demographic groups: ITO experience has been more than 10 times (Appendix I). Around 10% of participants were more than 10 times of ITO experience. The participants probably have higher information security risk awareness if they had more experience in ITO. It is because they may suffer related issues in previous ITO projects. Approximately 90% of ITO experience was lower than 10 times. Therefore, the reason for

information security risk factors in ITO can be explained without a significant relationship in this study.

5.2 Hypothesis 2 (H2): The Quality of Service Provider has a significant effect on ITO success - Supported

The service provider's quality is critical in ITO. According to the analysis result for H2, these factors significantly affected the ITO success from the participant's point of view. It was supported after conducting simple linear and multiple regression tests. 0.337 (Figure 4.9) of the unstandardized coefficient (B) was determined in a multiple regression test. The result aligned with their ranking result for considering ITO reasons in Table 4.2. The participants selected "Improve Productivity and Efficiency" as the ranking of the top 3, approximately 84.2% and 71.6% of "Transfer Business or IT operations Risk". It reflected that the participants believed the quality was necessary for ITO and affected the result of ITO. In Table 4.3, the job positions are below senior manager, who selected "Improve Productivity and Efficiency" and "Transfer Business or IT operations Risk" over 60%. Those positions have been impacted by ITO directly in terms of performance and responsibility if the service provider's quality is not good enough or cannot meet their expectation.

The result of these factors was consistent with the other researchers (Lee, 2001; Lane and van der Vyver, 2005; Wibisono et al., 2019). Lee, J.-N. (2001) found significant results of knowledge sharing from the service provider on IT outsourcing success. The outsourcing partnership also highlighted the significance of organizational capabilities in information exchange. The capacity of a service buyer to acquire, use, and integrate knowledge is crucial. Wibisono, Y. Y. et al. (2019) had a similar result of partnership quality that influenced ITO project success. In this study, the same result was found as 81.6% (Appendix D) of the participants selected the response as "Agree" or above in QSP4 of the survey related to knowledge sharing. The QSP in this study was found not only in knowledge sharing but also in the capabilities of service providers, which is not included in the other researchers. The other data collected in QSP for assessing the capabilities of service providers was that over 73% (Appendix D) of the participants selected the response as "Agree" or above. As this higher percentage of positive responses, the positive relationship was identified in H2. Moreover, the service provider's capabilities impact the impression from the service buyer and affect the service buyer's trust in the service provider in IT. Lane, M. and van der Vyver, G. (2005)

identified trust that affected the partnership in ITO in their research. It was also mentioned by focus group member E in the discussion that the service provider's quality is based on their performance and project result. It accumulated and affected the service buyer's confidence in service providers in ITO. Therefore, it is an essential index to decide whether outsourced IT is continuous.

5.3 Hypothesis 3 (H3): Contract Management significantly affects ITO

success - Rejected

Contract management had similar results to the Perceived Information Security Risk factor, passing the simple linear regression test but not the multiple regression test. This result is inconsistent with the other researchers (Hodosi, Kaye and Rusu, 2015; Erdoğan, 2020). However, Hodosi, G., Kaye, R. and Rusu, L. (2015) found contract that was a success factor in ITO based on the opinions from six senior management-level of difference companies. Therefore, the sample sizes may not be representative of the factual situation. Erdoğan, D. (2020) identified contract factors that significantly affected IT outsourcing success but only used a one-to-one method to test the relationship. There is no evidence to show a significant result if the other factors in the model are correlated for analysis.

This study identified significant findings in multiple regression tests when a split demographic group of “Total number of employees in company in Hong Kong” (Refer to Table 4.1). IT outsourcing success is significant if the total number of employees is more than 500. Regarding the total number of employees in the company, the companies belong to the medium or large scale of companies if more than 500 employees. The standard outsourcing contracts have been well defined in advance. Moreover, formal procurement and legal teams governed and reviewed the procurement processes. The comprehensive contract could reduce the problems and risks. Therefore, the success rate probably increased in IT outsourcing. So, a significant relationship was found when analyzing the demographic groups that are more than 500 employees or above. However, around 79% of the total number of employees is lower than 500, the majority of this demographic group. Thus, it affected the final result as insignificant.

5.4 Hypothesis 4 (H4): Internal Contract Experience has a significant effect on ITO success - Supported

Internal Contract Experience was another factor significantly related to IT outsourcing success in the research model (H4). These factors are related to the capabilities of participants for preparing the content of the contract of ITO. The simple linear and multiple regression tests determined these factors a significance with 0.332 (Figure 4.9) of the unstandardized coefficient (B) of the multiple regression test. The result aligned with the finding related to contract experience from Yadav, V. and Metri, B. A. (2010) that identified high-quality contract formulation can mitigate risks associated with outsourcing, which have capabilities to identify the roles and responsibilities, coverage, SLA, and awareness of the risks.

The one-way ANOVA test in section 4.3.2 also found a significant difference in the number of ITO experiences that affect the success of ITO. The groups of “11 – 20”, “6 – 10”, and “1 – 5” had significant difference compared to “0”, and these 3 groups were occupied 68.6% of populations. Moreover, the mean of the number of “11 – 20” (5.0) ITO experiences was higher than “0” (4.16), “1 – 5” (4.44), and “6 – 10” (4.57) with a significant difference, that means it has a higher rate to success in ITO. Thus, Internal Contract Experience has significant associated with ITO success. However, there was an interesting result for the “21 or above” group compared to the other groups without a significant difference. In general cases, more ITO experience should have a success rate in outsourcing projects. This result can probably be due to two reasons. First, the participants’ experience may be mature enough from previous outsourcing experience, so “21 or above” has no significant difference from the other groups. Alternatively, the outsourcing scale was large or more complicated, so the objectives do not be achieved easier. It could be identified the outsourcing scale in future research.

5.5 Hypothesis 5 (H5): Communication significantly affects ITO success - Supported

The communication factors are messages exchanged between the stakeholders in the ITO process. It was a significant factor affecting IT outsourcing success (H5), and 0.089 (Figure 4.9) was found as the unstandardized coefficient (B) of the multiple regression test. This result aligned with many studies (Kumar and Palvia, 2002; Alexandrova, 2012; Ishizaka and Blakiston, 2012; Cha and Kim, 2018). Ishizaka, A. and Blakiston, R. (2012) identified these factors and emphasized that proper communication was needed to ensure the outsourcing

projects' success. The right person with the proper level should be involved in the communication loop. Cha, K.-J. and Kim, Y. S. (2018) claimed that effective communication could be identified and alleviated during working with the service provider. Especially the service provider provided their service with geographical distances and cultural differences.

The participants were asked about their preference for the service provider's working region. 83.6% (Appendix D, COM1) of participants preferred the service provider working in the same region with the same time zone. 83.3% (Appendix D, COM2) of participants preferred using a service provider who speaks the same first language. The result reflected that the participants wanted to reduce the communication barrier in IT outsourcing. For example, the participants can quickly contact the service provider for any urgent issues if they are in the same time zone. Moreover, the language barrier is also a problem in ITO projects. The service provider and service buyer cannot communicate effectively due to the language barrier, which causes misunderstandings during the service period. As a result, the outsourced project is probably failing in the end. Both answers reflected that communication is a crucial element in ITO with a significant relationship.

5.6 Hypothesis 6 (H6): Regulatory Policy significantly affects ITO success in FSI - Supported

The regulatory policy is the set of rules or policies from government regulation. The result has shown that this factor is significantly related to IT outsourcing success in the research model (H6) with 0.193 (Figure 4.9) of the unstandardized coefficient (B) in the multiple regression test. It is a significant element for FSI in Hong Kong. Hong Kong Monetary Authority (HKMA) has a comprehensive policy on FSI because the companies in FSI hold massive assets from customers. If there was severe financial loss or service interruption will affect a large group of people in Hong Kong and the reputation of the international financial center. Therefore, HKMA has different regulations for controlling third-party risk management. For instance, "General Principles for Technology Risk Management" provide a guideline for managing technology risk that includes the general control principle for outsourcing (HKMA, 2003). These guidelines must be compliant when companies are considering outsourcing services for their business operations.

In the independent T-test (section 4.3.1), two unrelated groups (FSI and non-FSI participants) were compared to determine the significant difference in regulatory policy factors. The non-

FSI participants usually do not need to consider the regulatory policy requirement in their industry. On the other hand, the regulatory policy was a mandatory element for FSI participants while operating their businesses. So, FSI participants' regulatory policy awareness was higher than non-FSI participants. It also reflected in the mean of analysis result, 4.55 mean of FSI participants was higher than the 4.27 mean of non-FSI participants for the regulatory policy factor.

5.7 Summary of Discussion

All independent variables of this study were discussed above and determined which factors affected the success of outsourced IT in FSI through the interpretation of the different tests' results. Two factors cannot be proven as significant in the test in this research model. However, it does not mean these two factors are not affected IT outsourcing success. Instead, it reflected that these two factors could not be proven under this research model. The result may be different if other than these six factors are included in the research model. However, there is a limitation in the timeframe of this study. Therefore, these six factors with inconsistent results in the literature review have been selected in this study.

Now, the research questions in section one can be answered by this study. Three research questions are recapped below.

RQ1: To identify critical success factors that impact ITO in FSI.

ITO success in FSI is based on “Quality of Service Provider”, “Internal Contract Experience”, “Communication”, and “Regulatory Policy” factors.

RQ2: To identify IT security risk factors that impact ITO success.

It has no significant relationship associated with IT outsourcing success. However, IT security risks are still recommended to consider while conducting the ITO because it potentially impacts the assets and reputation of the organization.

RQ3: To identify regulatory policy factors that impact ITO success.

It has a significant relationship associated with IT outsourcing success.

The above analysis and discussion have provided insight into improving the IT outsourcing success rate. Therefore, some recommendations are proposed in the next section to improve the success rate of outsourced IT in FSI in Hong Kong.

6. Recommendations

Outsourced IT services have been operating in the market for several decades. Companies enjoy the benefits and sustain competitive advantages if they outsource their IT functions or operations successfully. Otherwise, the companies will get a contrary result, such as financial loss, increased operations risk, and reputation damage. According to the analysis in section 4, the final formula was determined for the outcome of this research model. The unstandardized coefficient (B) value reflects the incremental ITOS for a 1-unit change in the corresponding independent variable. The B values of QSP, ICE, RP, and COM factors are 0.337, 0.332, 0.193, and 0.089, respectively. Thus, the IT outsourcing success rate will be significantly increased if QSP and ICE can be improved more effectively. The recommendations are based on the above result to propose below.

1. Build-up Vendor Evaluation Framework

The service buyer may assess certain criteria to identify which service provider can most effectively assist in achieving its business objectives since the service provider manages the outsourced IT activities for the service buyer. Create a thorough vendor assessment to assess possible service providers in an orderly manner and assess their appropriateness and any hazards they could provide to service purchasers. The evaluation criteria should include competency, reputation and position in the industry, performance history, professionalism, attitude, risk factors, price, and geographical location (Taherdoost and Brard, 2019). It is a framework to objectively assist service buyers in selecting their service provider. The vendor evaluation mitigates the uncertainty and risk associated with service provider performance (Talluri, Narasimhan and Nair, 2006). The service providers' capabilities can be determined directly or indirectly in evaluation. For instance, service buyers can directly determine the service providers' competency and attitude through face-to-face interviews and indirectly assess their reputation and position in the industry for evaluation.

Moreover, the information in the evaluation and the final result can be transformed as the reference for formulating the corresponding clauses, terms and conditions of IT outsourcing contracts. It ensures the evaluation items that will exist and entitle to enjoy it in the outsourcing period. The evaluation also addresses the due diligence regulatory requirement of third-party risk management from the Hong Kong regulator for FSI. Thus, the vendor

evaluation improves three factors that are “Quality of Service Provider”, “Internal Contract Experience”, “Communication”, and “Regulatory Policy”.

2. Enhancement for Knowledge Management

The IT outsourcing experience can be accumulated from different outsourcing projects, even if the project is a success or failure. Especially the issues or items that have yet to be catered to in previous outsourcing projects. This credible experience could help the service buyers to improve IT outsourcing in the next project. The experience can be transformed into knowledge that should be formally recorded and filed for training a successor or used as a reference by the other staff. To enhance knowledge management and facilitate knowledge sharing and exchanging between the staff (Rahimli, 2012). These assets will be kept in the organization even though the staff has left the company. For instance, the non-FSI participants need to be higher awareness of regulatory policy, which was determined in a previous statistical test. Suppose new staff without FSI experience proceed IT outsourcing project. In that case, this staff can refer to this knowledge pool to understand what should paid attention to related regulations in IT outsourcing. Moreover, the staff uses this knowledge pool as a reference for enriching the experience of contract preparation. Therefore, this proposal not only improves the “Internal Contract Experience” but also the “Regulatory Policy”.

3. Enhance Performance Monitoring

If vendor evaluation is used as a preventive action in IT outsourcing failure, performance monitoring is a detective action for reducing the failure rate of IT outsourcing. The service provider even has passed the vendor evaluation and awarded the outsourcing contract. However, the outsourced project may fail because of a lack of sustainability in service performance that continuously delivers high-quality services over time (Plugge, Bouwman and Molina-Castillo, 2013). Therefore, performance monitoring is necessary to measure the performance of service providers regularly. Moreover, it has a positive effect on service quality in outsourcing (Mat et al., 2011). If the trend of the performance over time against the SLA researched the alert threshold, the service buyer awareness of the performance issue has increased and discusses it with the service provider for taking remediation. In addition, some key areas should be monitored during the service period, such as timely response and reporting, problem-solving lead-time, staff turnover, and on-time delivery. The performance review sessions also offer opportunities for both parties to share

information and solve the issues in daily operations. It improves the “Quality of Service Provider” and “Communication” factors.

7. Limitation & Future Research

This research methodology had some limitations that may have affected the results.

1. This study cannot verify the scale of IT outsourcing with complexity. Additional data is needed to determine the relationship between the number of IT outsourcing experiences, the scale and complexity of outsourcing projects, and IT outsourcing success.
2. The snowball sampling method might have provided some biased information due to the characteristics of this sampling method. For example, the participants in the snowball structure may be coworkers or former coworkers. The participants most likely have similar ITO experience or results. Thus, the representation of this sample may be biased toward a particular population group and cannot reflect the whole demographic population in the industry. The Stratified sampling would be the more representable method that divides companies in FSI into subgroup and select a sample from each subgroup. Thus, a more extensive research scale will be required to understand the whole population, which will be more appropriate for the industry to understand the need and construct any policy.
3. In the multiple regression test, the factors interacted with each other's and had different results from simple linear regression. Even though the factors cannot be determined as significant in this research model with other factors, these factors may have a positive result if tested with factors other than these six factors. There has no sufficient time to involve all possible potential factors in the research model due to the time frame being limited to around 6 six months.

For future research, the scale of outsourced IT and the complexity of outsourced projects should be involved in studies to determine the relationship between success and failure. Second, the critical success factors have been identified in this research, but the reasons for ITO failure have yet to be identified in this study. It would be exciting to research the relationship between critical success factors and the reason for failure in ITO. The research will focus on the service buyers and whether they know those critical success factors. The service buyers do not seem aware that it to cause failure, or they are aware of it but have not taken any actions to secure the result of ITO. It could be explored in further research to improve the success rate in ITO. Third, a large-scale study with a sufficient time frame is needed to involve more potential independent variables or combinations in the research. It may be more accurate for critical success factors in IT outsourcing.

8. Conclusion

IT outsourcing is a common operating model in different industries in the world. The organization considers IT outsourcing to sustain its competitive advantage and focus on its core business. Especially, technology is rapidly changing, and cloud services are more prevalent in recent five years. Therefore, the demand for IT outsourcing will increase in the future. However, the success rate of IT outsourcing is approximately 60%. This research was conducted to determine the critical success factors affecting IT outsourcing for improving the success rate. This study is focused on ITO in FSI in Hong Kong and found that “Quality of Service Provider”, “Internal Contract Experience”, “Communication”, and “Regulatory Policy” factors support IT outsourcing success. The findings also state that the participants in FSI have high regulations awareness with better ITO results. Some areas related to the above factors can be improved to increase the IT outsourcing success rate. The recommendations were proposed at the end of the study for success rate improvement to ensure the organizations enjoy the benefits of IT outsourcing.

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Appendix A – Focus Group Questions

1. Why do you choose to outsource? Any benefits are other than cost reduction.
 - a. In what ways do you believe outsourcing is positive for the FSI?
 - b. In what ways do you believe outsourcing is negative for the FSI?
2. Have you experienced the hidden cost of the outsourcing project after handing it over to the vendor?
3. From your perspective, what are the critical success factors for IT Outsourcing in Financial Service Industry (FSI) in Hong Kong?
4. Why do you consider the factors in question 1 critical?
5. If the top 5 factors need to be ranked, which 5 factors will you be chosen with the ranking?
6. How do you evaluate the outsourcing was a successful result?
7. Is increasing regulation in the FSI having an impact on outsourcing? How does it impact outsourcing?
8. What will information security items be considered in IT outsourcing?
9. What is a good quality of a partner relationship?
10. Does technical and environmental impact IT outsourcing? How does it impact it?

Appendix B – Survey Questions

Survey Questions of Independent and Dependent Variables	Reference
Perceived Information Security Risk Factors	
ISR1: IT outsourcing service providers have specialized functions and services. 資訊科技外判服務商具有專長的領域和服務。	(Hanafizadeh and Zare Ravasan, 2018)
ISR2: IT outsourcing can reduce IT operations' impact due to staff turnover. 外判資訊科技可以減少公司人員流失而對資訊科技運維的影響。	(Hanafizadeh and Zare Ravasan, 2018)
ISR3: IT outsourcing service providers have more resources (expertise and tools) for responding if any incidents occur. 資訊科技外判服務商擁有較多資源(專家及工具)，當事故發生時能快速應對。	(Bhatti, Mubarak and Nagalingam, 2017)
ISR4: We have controls to protect the company's data from being disclosed and abused by service providers during the service period. 我們有控制措施來保護公司的數據，在服務期間不會被外判服務商洩露和濫用。	(Bhatti, Mubarak and Nagalingam, 2017)
Quality of Service Provider	
QSP1: IT outsourcing service providers have professional certificates for assessing their capabilities objectively. 資訊科技外判服務商擁有專業的證書，能客觀地評估他們的能力。	New Create for this Study
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. 外判服務商的客戶群是公司衡量其能力及相關行業經驗的依據之一。	(Han et al., 2013)
QSP3: The experience of service providers can assist us in implementing a new computer system and in-house training staff. 外判服務商的經驗可協助我們實施新電腦系統及內部培訓員工。	(Han et al., 2013)
QSP4: Service providers share the knowledge of systems and the potential risks, reducing the failure rate in IT operations. 外判服務商分享對系統的操作經驗及潛在風險，可降低資訊科技運維中的故障率。	(Han et al., 2013)
Contract Management	
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. 合同中訂明外判服務商的專家數量，確保在合同期內獲得合理的服務水平。	New Create for this Study
CM2: The arrangement of out-of-scope work is defined in the contract to reduce disputation during the contract period. 合同中訂明了工作範圍以外的安排，以減少合同期內的爭議。	(Karimi-Alaghehband and Rivard, 2020)
CM3: Service providers must bear the primary responsibility and liabilities for outsourced IT systems or services during the contract period. 外判服務商在合同期內對外包的系統或服務須承擔主體責任和義務。	(Karimi-Alaghehband and Rivard, 2020)
CM4: 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. 外判的服務水平協議 (SLA) 與公司的SLA保持一致，可確保公司的利益，並避免因過高的服務水平而產生不必要的費用。	(Karimi-Alaghehband and Rivard, 2020)
Internal Contract Experience	
ICE1: We have the capability to determine the scope of work in detail for IT outsourcing. 我們能列出外判中所有需要的工作範圍。	(Karimi-Alaghehband and Rivard, 2020)
ICE2: We know how to write service level agreements (SLAs) for contracts to outsource IT work. 我們僅編寫外判合同中的服務水平協議 (SLAs)。	(Karimi-Alaghehband and Rivard, 2020)
ICE3: We consider the nursing period in IT outsourcing contracts to prevent additional costs due to the uncertainties in the transition stages of IT outsourcing. 我們在外判合同中加入過渡期，保障期間因不確定的因素而產生額外成本。	(Gewald and Dibbern, 2009)
ICE4: We have the capability to negotiate with determine the scope of work in detail for IT outsourcing. 我們僅與外判服務商協商條款和條件，為公司獲得最大利益。	(Hsu, Ray and Li-Hsieh, 2014)
Communication	
COM1: IT outsourcing service providers and we are working in the same time zone region that can contact each other easier. 外判服務商和我們在同一時區的地域工作，可以容易與對方聯繫。	(Hsu, Ray and Li-Hsieh, 2014)
COM2: I prefer service providers that speak the same first language as me. 我喜歡聘用說母語的外判服務商。	New Create for this Study
COM3: The communication between the service providers and us is timely. 外判服務商與我們之間的溝通是及時的。	(Han, Lee and Seo, 2008)
COM4: The communication between the service providers and us is accurate. 外判服務商與我們之間的溝通是準確的。	(Han, Lee and Seo, 2008)
Regulatory Policy	
RP1: Company facing compliance requirements, outsourcing IT can reduce the stress on in-house staff and handing over the responsibility to service providers. 公司面對合規要求，外判可以減輕內部員工的壓力，並將責任轉移給外判服務商。	(Hsu, Ray and Li-Hsieh, 2014)
RP2: Service providers' experience serving companies in the Financial Services Industry and knowledge of regulation to avoid regulation policies violation during the service period. 外判服務商有金融業服務的經驗及了解監管政策，可避免在服務期間違反監管條例。	New Create for this Study
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. 國際性或規模較大的外判服務商已獲取各類安全及數據保護認證，有利於公司在服務期內滿足監管要求。	New Create for this Study
RP4: Service providers reduce subcontracting to other service providers. It facilitates the company to manage third-party risk in regulation policy. 外判服務商減少分判給其他服務商，有利公司處理監管條例下對第三方風險的管理。	New Create for this Study
IT Outsourcing Success	
ITOS1: Our service provider often completes tasks that meet our expectations. 外判服務商能完成任務，並達到我們預期。	(Han et al., 2013)
ITOS2: We acquired expert services from service providers and transferred risks to them. 我們從外判服務商獲得專業的服務，並將風險轉移給他們。	(Han et al., 2013)
ITOS3: We are satisfied with our overall benefits from IT outsourcing. 我們對資訊科技外判所獲得的好處感到滿意。	(Han et al., 2013)
ITOS4: In general, We are satisfied with IT outsourcing service. 整體來說，我們對資訊科技外判服務感到滿意。	(Han et al., 2013)

Appendix C – Frequencies Analysis Result - Demographic

C.1 Demographic Data

FSI Working Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A.Yes	241	53.9	53.9	53.9
	B.No	206	46.1	46.1	100.0
	Total	447	100.0	100.0	

Number of ITO Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A.0	124	27.7	27.7	27.7
	B.1 - 5	196	43.8	43.8	71.6
	C.6 - 10	82	18.3	18.3	89.9
	D.11 - 20	29	6.5	6.5	96.4
	E.21 or above	16	3.6	3.6	100.0
	Total	447	100.0	100.0	

Current Working Sector

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A.Accountancy, Banking, Finance, or Insurance	73	16.3	16.3	16.3
	B.Computing or IT	207	46.3	46.3	62.6
	C.Healthcare	32	7.2	7.2	69.8
	D.Marketing	41	9.2	9.2	79.0
	E.Property or Construction	19	4.3	4.3	83.2
	F.Retail	10	2.2	2.2	85.5
	G.Transport or Logistics	7	1.6	1.6	87.0
	H.Other	58	13.0	13.0	100.0
	Total	447	100.0	100.0	

Total Number of Employees in Company in Hong Kong

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A.1 - 50	154	34.5	34.5	34.5
	B.51 - 100	89	19.9	19.9	54.4
	C.101 - 250	61	13.6	13.6	68.0
	D.251 - 500	50	11.2	11.2	79.2
	E.501 - 1,000	41	9.2	9.2	88.4
	F.1,001 - 1,500	16	3.6	3.6	91.9
	G.1,501 - 2,500	15	3.4	3.4	95.3
	H.2,501 or above	21	4.7	4.7	100.0
	Total	447	100.0	100.0	

Total Number of Employees in the IT Department in Hong Kong

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A.1 - 20	200	44.7	44.7	44.7
	B.21 - 50	134	30.0	30.0	74.7
	C.51 - 100	51	11.4	11.4	86.1
	D.101 - 200	36	8.1	8.1	94.2
	E.201 or above	26	5.8	5.8	100.0
	Total	447	100.0	100.0	

Work Nature

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A.IT Management	102	22.8	22.8	22.8
	B.IT Consultant	72	16.1	16.1	38.9
	C.IT Operation Services	82	18.3	18.3	57.3
	D.IT Software Development	93	20.8	20.8	78.1
	E.IT Technical Services	55	12.3	12.3	90.4
	F.Non IT Professional	43	9.6	9.6	100.0
	Total	447	100.0	100.0	

Job Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A.Individual Contributor	81	18.1	18.1	18.1
	B.Supervisor	77	17.2	17.2	35.3
	C.Manager	98	21.9	21.9	57.3
	D.Senior Manager	60	13.4	13.4	70.7
	E.Vice President / Director	39	8.7	8.7	79.4
	F.Management / C-Level	24	5.4	5.4	84.8
	G.Other	68	15.2	15.2	100.0
	Total	447	100.0	100.0	

Number of Direct and Indirect Staff

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A.0	110	24.6	24.6	24.6
	B.1 - 10	205	45.9	45.9	70.5
	C.11 - 20	69	15.4	15.4	85.9
	D.21 - 50	42	9.4	9.4	95.3
	E.51 - 100	8	1.8	1.8	97.1
	F.101 - 200	4	.9	.9	98.0
	G.201 - 500	5	1.1	1.1	99.1
	H.501 or above	4	.9	.9	100.0
	Total	447	100.0	100.0	

C.2 Reason for Considering ITO

Summary of Reason for considering ITO

	Cost Saving	Improve Productivity and Efficiency	Transfer Business or IT Operations Risk	Transitioning to New System or New Technology	Other
Most Important Reason	38.9%	26.0%	17.4%	14.3%	3.4%
2nd Reason	23.0%	34.7%	19.5%	21.0%	1.8%
3rd Reason	17.4%	23.5%	34.7%	21.0%	3.4%
4th Reason	18.3%	12.1%	23.7%	36.9%	8.9%
Least Important Reason	2.2%	3.8%	4.7%	6.7%	82.6%

Reason for considering ITO - Cost Saving

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most Important Reason	174	38.9	38.9	38.9
	2nd Reason	103	23.0	23.0	62.0
	3rd Reason	78	17.4	17.4	79.4
	4th Reason	82	18.3	18.3	97.8
	Least Important Reason	10	2.2	2.2	100.0
	Total	447	100.0	100.0	

Reason for considering ITO - Improve Productivity and Efficiency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most Important Reason	116	26.0	26.0	26.0
	2nd Reason	155	34.7	34.7	60.6
	3rd Reason	105	23.5	23.5	84.1
	4th Reason	54	12.1	12.1	96.2
	Least Important Reason	17	3.8	3.8	100.0
	Total	447	100.0	100.0	

Reason for considering ITO - Transfer Business or IT Operations Risk

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most Important Reason	78	17.4	17.4	17.4
	2nd Reason	87	19.5	19.5	36.9
	3rd Reason	155	34.7	34.7	71.6
	4th Reason	106	23.7	23.7	95.3
	Least Important Reason	21	4.7	4.7	100.0
	Total	447	100.0	100.0	

Reason for considering ITO - Transitioning to New System or New Technology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most Important Reason	64	14.3	14.3	14.3
	2nd Reason	94	21.0	21.0	35.3
	3rd Reason	94	21.0	21.0	56.4
	4th Reason	165	36.9	36.9	93.3
	Least Important Reason	30	6.7	6.7	100.0
	Total	447	100.0	100.0	

Reason for considering ITO - Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most Important Reason	15	3.4	3.4	3.4
	2nd Reason	8	1.8	1.8	5.1
	3rd Reason	15	3.4	3.4	8.5
	4th Reason	40	8.9	8.9	17.4
	Least Important Reason	369	82.6	82.6	100.0
	Total	447	100.0	100.0	

Appendix D – Frequencies Analysis Result -Independent Variables

Frequencies Analyze – Independent Variables

ISR1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	1.6	1.6	1.6
	Very Disagree	10	2.2	2.2	3.8
	Disagree	42	9.4	9.4	13.2
	Agree	164	36.7	36.7	49.9
	Very Agree	150	33.6	33.6	83.4
	Strongly Agree	74	16.6	16.6	100.0
	Total	447	100.0	100.0	

ISR2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	12	2.7	2.7	2.7
	Very Disagree	11	2.5	2.5	5.1
	Disagree	77	17.2	17.2	22.4
	Agree	166	37.1	37.1	59.5
	Very Agree	127	28.4	28.4	87.9
	Strongly Agree	54	12.1	12.1	100.0
	Total	447	100.0	100.0	

ISR3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	1.8	1.8	1.8
	Very Disagree	8	1.8	1.8	3.6
	Disagree	69	15.4	15.4	19.0
	Agree	140	31.3	31.3	50.3
	Very Agree	155	34.7	34.7	85.0
	Strongly Agree	67	15.0	15.0	100.0
	Total	447	100.0	100.0	

ISR4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	1.8	1.8	1.8
	Very Disagree	8	1.8	1.8	3.6
	Disagree	65	14.5	14.5	18.1
	Agree	148	33.1	33.1	51.2
	Very Agree	143	32.0	32.0	83.2
	Strongly Agree	75	16.8	16.8	100.0
	Total	447	100.0	100.0	

QSP1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	1.3	1.3	1.3
	Very Disagree	17	3.8	3.8	5.1
	Disagree	69	15.4	15.4	20.6
	Agree	141	31.5	31.5	52.1
	Very Agree	158	35.3	35.3	87.5
	Strongly Agree	56	12.5	12.5	100.0
	Total	447	100.0	100.0	

QSP2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.1	1.1	1.1
	Very Disagree	6	1.3	1.3	2.5
	Disagree	43	9.6	9.6	12.1
	Agree	149	33.3	33.3	45.4
	Very Agree	171	38.3	38.3	83.7
	Strongly Agree	73	16.3	16.3	100.0
	Total	447	100.0	100.0	

QSP3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	1.3	1.3	1.3
	Very Disagree	15	3.4	3.4	4.7
	Disagree	49	11.0	11.0	15.7
	Agree	165	36.9	36.9	52.6
	Very Agree	141	31.5	31.5	84.1
	Strongly Agree	71	15.9	15.9	100.0
	Total	447	100.0	100.0	

QSP4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.1	1.1	1.1
	Very Disagree	11	2.5	2.5	3.6
	Disagree	66	14.8	14.8	18.3
	Agree	165	36.9	36.9	55.3
	Very Agree	137	30.6	30.6	85.9
	Strongly Agree	63	14.1	14.1	100.0
	Total	447	100.0	100.0	

CM1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.7	.7	.7
	Very Disagree	13	2.9	2.9	3.6
	Disagree	59	13.2	13.2	16.8
	Agree	142	31.8	31.8	48.5
	Very Agree	156	34.9	34.9	83.4
	Strongly Agree	74	16.6	16.6	100.0
	Total	447	100.0	100.0	

CM2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.7	.7	.7
	Very Disagree	14	3.1	3.1	3.8
	Disagree	49	11.0	11.0	14.8
	Agree	136	30.4	30.4	45.2
	Very Agree	160	35.8	35.8	81.0
	Strongly Agree	85	19.0	19.0	100.0
	Total	447	100.0	100.0	

CM3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	.9	.9	.9
	Very Disagree	9	2.0	2.0	2.9
	Disagree	60	13.4	13.4	16.3
	Agree	138	30.9	30.9	47.2
	Very Agree	151	33.8	33.8	81.0
	Strongly Agree	85	19.0	19.0	100.0
	Total	447	100.0	100.0	

CM4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.1	1.1	1.1
	Very Disagree	6	1.3	1.3	2.5
	Disagree	59	13.2	13.2	15.7
	Agree	135	30.2	30.2	45.9
	Very Agree	167	37.4	37.4	83.2
	Strongly Agree	75	16.8	16.8	100.0
	Total	447	100.0	100.0	

ICE1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.1	1.1	1.1
	Very Disagree	12	2.7	2.7	3.8
	Disagree	59	13.2	13.2	17.0
	Agree	157	35.1	35.1	52.1
	Very Agree	146	32.7	32.7	84.8
	Strongly Agree	68	15.2	15.2	100.0
	Total	447	100.0	100.0	

ICE2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.1	1.1	1.1
	Very Disagree	12	2.7	2.7	3.8
	Disagree	58	13.0	13.0	16.8
	Agree	154	34.5	34.5	51.2
	Very Agree	154	34.5	34.5	85.7
	Strongly Agree	64	14.3	14.3	100.0
	Total	447	100.0	100.0	

ICE3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.1	1.1	1.1
	Very Disagree	16	3.6	3.6	4.7
	Disagree	59	13.2	13.2	17.9
	Agree	136	30.4	30.4	48.3
	Very Agree	161	36.0	36.0	84.3
	Strongly Agree	70	15.7	15.7	100.0
	Total	447	100.0	100.0	

ICE4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	1.8	1.8	1.8
	Very Disagree	9	2.0	2.0	3.8
	Disagree	53	11.9	11.9	15.7
	Agree	140	31.3	31.3	47.0
	Very Agree	160	35.8	35.8	82.8
	Strongly Agree	77	17.2	17.2	100.0
	Total	447	100.0	100.0	

COM1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	1.3	1.3	1.3
	Very Disagree	7	1.6	1.6	2.9
	Disagree	60	13.4	13.4	16.3
	Agree	127	28.4	28.4	44.7
	Very Agree	165	36.9	36.9	81.7
	Strongly Agree	82	18.3	18.3	100.0
	Total	447	100.0	100.0	

COM2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	1.3	1.3	1.3
	Very Disagree	14	3.1	3.1	4.5
	Disagree	55	12.3	12.3	16.8
	Agree	139	31.1	31.1	47.9
	Very Agree	133	29.8	29.8	77.6
	Strongly Agree	100	22.4	22.4	100.0
	Total	447	100.0	100.0	

COM3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.7	.7	.7
	Very Disagree	16	3.6	3.6	4.3
	Disagree	59	13.2	13.2	17.4
	Agree	134	30.0	30.0	47.4
	Very Agree	158	35.3	35.3	82.8
	Strongly Agree	77	17.2	17.2	100.0
	Total	447	100.0	100.0	

COM4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.7	.7	.7
	Very Disagree	12	2.7	2.7	3.4
	Disagree	61	13.6	13.6	17.0
	Agree	151	33.8	33.8	50.8
	Very Agree	142	31.8	31.8	82.6
	Strongly Agree	78	17.4	17.4	100.0
	Total	447	100.0	100.0	

RP1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	1.3	1.3	1.3
	Very Disagree	19	4.3	4.3	5.6
	Disagree	67	15.0	15.0	20.6
	Agree	136	30.4	30.4	51.0
	Very Agree	153	34.2	34.2	85.2
	Strongly Agree	66	14.8	14.8	100.0
	Total	447	100.0	100.0	

RP2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.1	1.1	1.1
	Very Disagree	13	2.9	2.9	4.0
	Disagree	58	13.0	13.0	17.0
	Agree	142	31.8	31.8	48.8
	Very Agree	156	34.9	34.9	83.7
	Strongly Agree	73	16.3	16.3	100.0
	Total	447	100.0	100.0	

RP3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	1.3	1.3	1.3
	Very Disagree	16	3.6	3.6	4.9
	Disagree	61	13.6	13.6	18.6
	Agree	148	33.1	33.1	51.7
	Very Agree	142	31.8	31.8	83.4
	Strongly Agree	74	16.6	16.6	100.0
	Total	447	100.0	100.0	

RP4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	.9	.9	.9
	Very Disagree	11	2.5	2.5	3.4
	Disagree	56	12.5	12.5	15.9
	Agree	144	32.2	32.2	48.1
	Very Agree	160	35.8	35.8	83.9
	Strongly Agree	72	16.1	16.1	100.0
	Total	447	100.0	100.0	

ITOS1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.7	.7	.7
	Very Disagree	15	3.4	3.4	4.0
	Disagree	63	14.1	14.1	18.1
	Agree	158	35.3	35.3	53.5
	Very Agree	141	31.5	31.5	85.0
	Strongly Agree	67	15.0	15.0	100.0
	Total	447	100.0	100.0	

ITOS2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	1.8	1.8	1.8
	Very Disagree	17	3.8	3.8	5.6
	Disagree	59	13.2	13.2	18.8
	Agree	138	30.9	30.9	49.7
	Very Agree	167	37.4	37.4	87.0
	Strongly Agree	58	13.0	13.0	100.0
	Total	447	100.0	100.0	

ITOS3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.1	1.1	1.1
	Very Disagree	12	2.7	2.7	3.8
	Disagree	55	12.3	12.3	16.1
	Agree	152	34.0	34.0	50.1
	Very Agree	161	36.0	36.0	86.1
	Strongly Agree	62	13.9	13.9	100.0
	Total	447	100.0	100.0	

ITOS4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	.9	.9	.9
	Very Disagree	7	1.6	1.6	2.5
	Disagree	44	9.8	9.8	12.3
	Agree	151	33.8	33.8	46.1
	Very Agree	163	36.5	36.5	82.6
	Strongly Agree	78	17.4	17.4	100.0
	Total	447	100.0	100.0	

Appendix E – Cross-Tabulation Analysis Result

Cross-tabulation

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
DG8 * DG2a:Cost Saving	447	100.0%	0	0.0%	447	100.0%
DG8 * DG2b:Improve Productivity and Efficiency	447	100.0%	0	0.0%	447	100.0%
DG8 * DG2c:Transfer Business or IT Operations Risk	447	100.0%	0	0.0%	447	100.0%
DG8 * DG2d:Transitioning to New System or New Technology	447	100.0%	0	0.0%	447	100.0%
DG8 * DG2e:Other	447	100.0%	0	0.0%	447	100.0%

DG8 * DG2a:Cost Saving Crosstabulation

			DG2a:Cost Saving					Total
			Most Important Reason	2nd Reason	3rd Reason	4th Reason	Least Important Reason	
DG8	A.Individual Contributor	Count	40	16	11	13	1	81
		% within DG2a:Cost Saving	23.0%	15.5%	14.1%	15.9%	10.0%	18.1%
	B.Supervisor	Count	27	20	11	14	5	77
		% within DG2a:Cost Saving	15.5%	19.4%	14.1%	17.1%	50.0%	17.2%
	C.Manager	Count	28	33	27	10	0	98
		% within DG2a:Cost Saving	16.1%	32.0%	34.6%	12.2%	0.0%	21.9%
	D.Senior Manager	Count	21	14	9	16	0	60
		% within DG2a:Cost Saving	12.1%	13.6%	11.5%	19.5%	0.0%	13.4%
	E.Vice President / Director	Count	12	5	10	9	3	39
		% within DG2a:Cost Saving	6.9%	4.9%	12.8%	11.0%	30.0%	8.7%
	F.Management / C-Level	Count	10	6	3	5	0	24
		% within DG2a:Cost Saving	5.7%	5.8%	3.8%	6.1%	0.0%	5.4%
	G.Other	Count	36	9	7	15	1	68
		% within DG2a:Cost Saving	20.7%	8.7%	9.0%	18.3%	10.0%	15.2%
Total		Count	174	103	78	82	10	447
		% within DG2a:Cost Saving	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

DG8 * DG2b:Improve Productivity and Efficiency Crosstabulation

			DG2b:Improve Productivity and Efficiency					Total
			Most Important Reason	2nd Reason	3rd Reason	4th Reason	Least Important Reason	
DG8	A.Individual Contributor	Count	23	36	17	5	0	81
		% within DG2b:Improve Productivity and Efficiency	19.8%	23.2%	16.2%	9.3%	0.0%	18.1%
	B.Supervisor	Count	25	21	14	14	3	77

	% within DG2b:Improve Productivity and Efficiency	21.6%	13.5%	13.3%	25.9%	17.6%	17.2%
C.Manager	Count	26	28	26	17	1	98
	% within DG2b:Improve Productivity and Efficiency	22.4%	18.1%	24.8%	31.5%	5.9%	21.9%
D.Senior Manager	Count	13	20	16	7	4	60
	% within DG2b:Improve Productivity and Efficiency	11.2%	12.9%	15.2%	13.0%	23.5%	13.4%
E.Vice President / Director	Count	11	7	13	5	3	39
	% within DG2b:Improve Productivity and Efficiency	9.5%	4.5%	12.4%	9.3%	17.6%	8.7%
F.Management / C-Level	Count	3	11	4	3	3	24
	% within DG2b:Improve Productivity and Efficiency	2.6%	7.1%	3.8%	5.6%	17.6%	5.4%
G.Other	Count	15	32	15	3	3	68
	% within DG2b:Improve Productivity and Efficiency	12.9%	20.6%	14.3%	5.6%	17.6%	15.2%
Total	Count	116	155	105	54	17	447
	% within DG2b:Improve Productivity and Efficiency	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

DG8 * DG2c:Transfer Business or IT Operations Risk Crosstabulation

			DG2c:Transfer Business or IT Operations Risk					Total
			Most Important Reason	2nd Reason	3rd Reason	4th Reason	Least Important Reason	
DG8	A.Individual Contributor	Count	8	11	33	26	3	81
		% within DG2c:Transfer Business or IT Operations Risk	10.3%	12.6%	21.3%	24.5%	14.3%	18.1%
	B.Supervisor	Count	15	16	24	17	5	77
		% within DG2c:Transfer Business or IT Operations Risk	19.2%	18.4%	15.5%	16.0%	23.8%	17.2%
	C.Manager	Count	27	15	26	25	5	98
		% within DG2c:Transfer Business or IT Operations Risk	34.6%	17.2%	16.8%	23.6%	23.8%	21.9%
	D.Senior Manager	Count	13	12	21	13	1	60
		% within DG2c:Transfer Business or IT Operations Risk	16.7%	13.8%	13.5%	12.3%	4.8%	13.4%
	E.Vice President / Director	Count	7	13	8	9	2	39
		% within DG2c:Transfer Business or IT Operations Risk	9.0%	14.9%	5.2%	8.5%	9.5%	8.7%
	F.Management / C-Level	Count	3	2	9	7	3	24
		% within DG2c:Transfer Business or IT Operations Risk	3.8%	2.3%	5.8%	6.6%	14.3%	5.4%
	G.Other	Count	5	18	34	9	2	68
		% within DG2c:Transfer Business or IT Operations Risk	6.4%	20.7%	21.9%	8.5%	9.5%	15.2%
Total		Count	78	87	155	106	21	447
		% within DG2c:Transfer Business or IT Operations Risk	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

DG8 * DG2d:Transitioning to New System or New Technology Crosstabulation

DG2d:Transitioning to New System or New Technology						
Most Important Reason	2nd Reason	3rd Reason	4th Reason	Least Important Reason	Total	

DG8	A.Individual Contributor	Count	8	16	19	31	7	81
		% within DG2d:Transitioning to New System or New Technology	12.5%	17.0%	20.2%	18.8%	23.3%	18.1%
	B.Supervisor	Count	7	18	24	25	3	77
		% within DG2d:Transitioning to New System or New Technology	10.9%	19.1%	25.5%	15.2%	10.0%	17.2%
	C.Manager	Count	14	20	19	34	11	98
		% within DG2d:Transitioning to New System or New Technology	21.9%	21.3%	20.2%	20.6%	36.7%	21.9%
	D.Senior Manager	Count	12	13	12	18	5	60
		% within DG2d:Transitioning to New System or New Technology	18.8%	13.8%	12.8%	10.9%	16.7%	13.4%
	E.Vice President / Director	Count	7	14	6	9	3	39
		% within DG2d:Transitioning to New System or New Technology	10.9%	14.9%	6.4%	5.5%	10.0%	8.7%
	F.Management / C-Level	Count	6	5	4	9	0	24
		% within DG2d:Transitioning to New System or New Technology	9.4%	5.3%	4.3%	5.5%	0.0%	5.4%
	G.Other	Count	10	8	10	39	1	68
		% within DG2d:Transitioning to New System or New Technology	15.6%	8.5%	10.6%	23.6%	3.3%	15.2%
Total		Count	64	94	94	165	30	447
		% within DG2d:Transitioning to New System or New Technology	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

DG8 * DG2e:Other Crosstabulation

			DG2e:Other				Total
			Most Important Reason	2nd Reason	3rd Reason	4th Reason	
DG8	A.Individual Contributor	Count	2	2	1	6	81
		% within DG2e:Other	13.3%	25.0%	6.7%	15.0%	18.1%
	B.Supervisor	Count	3	2	4	7	77
		% within DG2e:Other	20.0%	25.0%	26.7%	17.5%	17.2%
	C.Manager	Count	3	2	0	12	98
		% within DG2e:Other	20.0%	25.0%	0.0%	30.0%	21.9%
	D.Senior Manager	Count	1	1	2	6	60
		% within DG2e:Other	6.7%	12.5%	13.3%	15.0%	13.4%
	E.Vice President / Director	Count	2	0	2	7	39
		% within DG2e:Other	13.3%	0.0%	13.3%	17.5%	8.7%
	F.Management / C-Level	Count	2	0	4	0	24
		% within DG2e:Other	13.3%	0.0%	26.7%	0.0%	5.4%
	G.Other	Count	2	1	2	2	68
		% within DG2e:Other	13.3%	12.5%	13.3%	5.0%	15.2%
Total		Count	15	8	15	40	447
		% within DG2e:Other	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix F – Reliability Analysis Result

All Variables

Reliability Statistics

Cronbach's Alpha	N of Items
.964	28

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ISR1	119.93	419.589	.683	.962
ISR2	120.18	418.536	.664	.963
ISR3	120.00	418.359	.686	.962
ISR4	119.99	419.453	.654	.963
QSP1	120.07	418.660	.679	.962
QSP2	119.85	420.116	.709	.962
QSP3	119.99	418.148	.700	.962
QSP4	120.05	418.850	.701	.962
CM1	119.94	419.592	.680	.962
CM2	119.86	418.985	.689	.962
CM3	119.89	418.622	.694	.962
CM4	119.89	418.892	.709	.962
RP1	120.04	417.819	.676	.962
RP2	119.95	419.480	.668	.963
RP3	120.01	417.482	.691	.962
RP4	119.93	420.242	.671	.963
COM1	119.88	419.987	.657	.963
COM2	119.89	422.884	.550	.964
COM3	119.93	418.139	.697	.962
COM4	119.95	416.787	.743	.962
ICE1	120.00	420.022	.667	.963
ICE2	119.99	418.993	.699	.962
ICE3	119.97	417.903	.696	.962
ICE4	119.92	417.610	.704	.962
ITOS1	120.02	418.096	.715	.962
ITOS2	120.04	419.281	.655	.963
ITOS3	119.98	418.612	.716	.962
ITOS4	119.85	418.567	.743	.962

Perceived Information Security Risk Factors (ISR)

Reliability Statistics

Cronbach's Alpha	N of Items
.825	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ISR1	13.05	7.354	.682	.766
ISR2	13.30	7.253	.640	.784
ISR3	13.13	7.195	.679	.766
ISR4	13.11	7.518	.601	.802

Quality of Service Provider (QSP)

Reliability Statistics

Cronbach's Alpha	N of Items
.823	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QSP1	13.33	6.678	.647	.777
QSP2	13.11	7.208	.617	.790
QSP3	13.24	6.718	.651	.775
QSP4	13.30	6.740	.672	.765

Contract Management (CM)

Reliability Statistics

Cronbach's Alpha	N of Items
.804	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CM1	13.58	6.702	.613	.758
CM2	13.50	6.555	.639	.746
CM3	13.53	6.559	.633	.748
CM4	13.53	6.864	.592	.768

Internal Contract Experience (ICE)

Reliability Statistics

Cronbach's Alpha	N of Items
.824	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ICE1	13.34	7.440	.581	.808
ICE2	13.34	7.117	.662	.772
ICE3	13.32	6.903	.668	.769
ICE4	13.26	6.844	.684	.762

Communication (COM)

Reliability Statistics

Cronbach's Alpha	N of Items
.801	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
COM1	13.45	7.194	.602	.757
COM2	13.46	7.128	.554	.782
COM3	13.51	6.932	.653	.732
COM4	13.52	7.026	.652	.733

Regulatory Policy (RP)

Reliability Statistics

Cronbach's Alpha	N of Items
.809	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
RP1	13.33	7.084	.609	.770
RP2	13.24	7.054	.659	.746
RP3	13.30	6.872	.664	.743
RP4	13.22	7.569	.576	.784

IT Outsourcing Success (ITOS)

Reliability Statistics

Cronbach's Alpha	N of Items
.839	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ITOS1	13.36	7.014	.657	.802
ITOS2	13.37	6.934	.630	.815
ITOS3	13.32	6.929	.695	.785
ITOS4	13.19	7.039	.706	.782

Appendix G – One-Way ANOVA Analysis Result

Descriptives

Average of ITOS

No. of ITO Experience	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0	124	4.1633	.88405	.07939	4.0062	4.3205	1.00	6.00
1 - 5	196	4.4401	.81919	.05851	4.3247	4.5555	2.25	6.00
6 - 10	82	4.5732	.87090	.09617	4.3818	4.7645	2.25	6.00
11 - 20	29	5.0000	.64780	.12029	4.7536	5.2464	3.50	6.00
21 or above	16	4.7656	.64852	.16213	4.4201	5.1112	3.25	5.75
Total	447	4.4357	.85785	.04057	4.3559	4.5154	1.00	6.00

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Average of ITOS	Based on Mean	1.628	4	442	.166
	Based on Median	1.811	4	442	.126
	Based on Median and with adjusted df	1.811	4	417.559	.126
	Based on trimmed mean	1.636	4	442	.164

ANOVA

Average of ITOS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21.730	4	5.433	7.835	<.001
Within Groups	306.483	442	.693		
Total	328.213	446			

ANOVA Effect Sizes^a

		Point Estimate	95% Confidence Interval	
			Lower	Upper
Average of ITOS	Eta-squared	.066	.023	.108
	Epsilon-squared	.058	.014	.100
	Omega-squared Fixed-effect	.058	.014	.100
	Omega-squared Random-effect	.015	.004	.027

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Average of ITOS

Tukey HSD

(I) No. of ITO Experience	(J) No. of ITO Experience	Mean		Sig.	95% Confidence Interval	
		Difference (I-J)	Std. Error		Lower Bound	Upper Bound
0	1 - 5	-.27674*	.09555	.032	-.5385	-.0150
	6 - 10	-.40986*	.11852	.005	-.7345	-.0852
	11 - 20	-.83669*	.17176	<.001	-1.3072	-.3662
	21 or above	-.60232	.22120	.052	-1.2082	.0036
1 - 5	0	.27674*	.09555	.032	.0150	.5385
	6 - 10	-.13312	.10952	.742	-.4331	.1669
	11 - 20	-.55995*	.16567	.007	-1.0137	-.1062
	21 or above	-.32557	.21651	.561	-.9186	.2675
6 - 10	0	.40986*	.11852	.005	.0852	.7345
	1 - 5	.13312	.10952	.742	-.1669	.4331
	11 - 20	-.42683	.17991	.125	-.9196	.0659
	21 or above	-.19245	.22758	.916	-.8158	.4309
11 - 20	0	.83669*	.17176	<.001	.3662	1.3072
	1 - 5	.55995*	.16567	.007	.1062	1.0137
	6 - 10	.42683	.17991	.125	-.0659	.9196
	21 or above	.23438	.25932	.895	-.4759	.9447
21 or above	0	.60232	.22120	.052	-.0036	1.2082
	1 - 5	.32557	.21651	.561	-.2675	.9186
	6 - 10	.19245	.22758	.916	-.4309	.8158
	11 - 20	-.23437	.25932	.895	-.9447	.4759

*. The mean difference is significant at the 0.05 level.

Homogeneous Subsets

Average of ITOS

Tukey HSD^{a,b}

No. of ITO Experience	N	Subset for alpha = 0.05		
		1	2	3
0	124	4.1633		
1 - 5	196	4.4401	4.4401	
6 - 10	82	4.5732	4.5732	4.5732
21 or above	16		4.7656	4.7656
11 - 20	29			5.0000
Sig.		.172	.394	.141

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 40.868.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Appendix H – Simple Linear Regression Analysis Result

H.1 Analysis

ISR

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Average of ISR ^b		. Enter

a. Dependent Variable: Average of ITOS

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.715 ^a	.511	.510	.60072

a. Predictors: (Constant), Average of ISR

b. Dependent Variable: Average of ITOS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	167.626	1	167.626	464.507	<.001 ^b
	Residual	160.587	445	.361		
	Total	328.213	446			

a. Dependent Variable: Average of ITOS

b. Predictors: (Constant), Average of ISR

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta				Tolerance	VIF
1	(Constant)	1.373	.145			9.477	<.001		
	Average of ISR	.699	.032	.715		21.552	<.001	1.000	1.000

a. Dependent Variable: Average of ITOS

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	Average of ISR
1	1	1.981	1.000	.01	.01
	2	.019	10.101	.99	.99

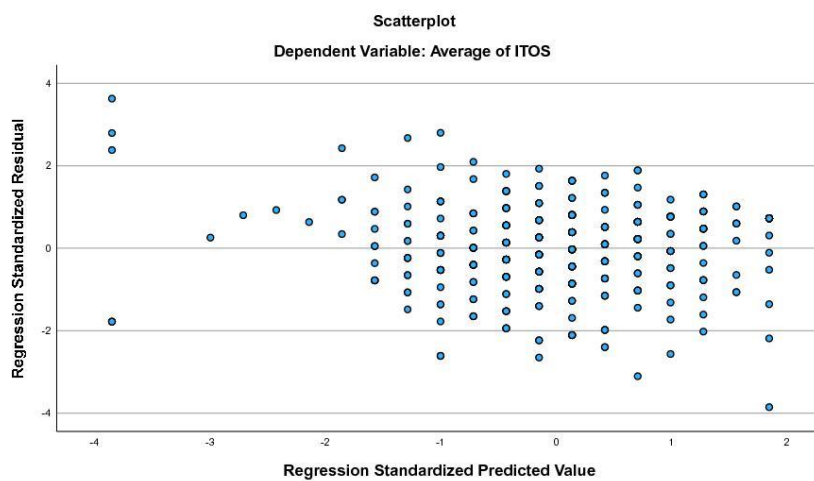
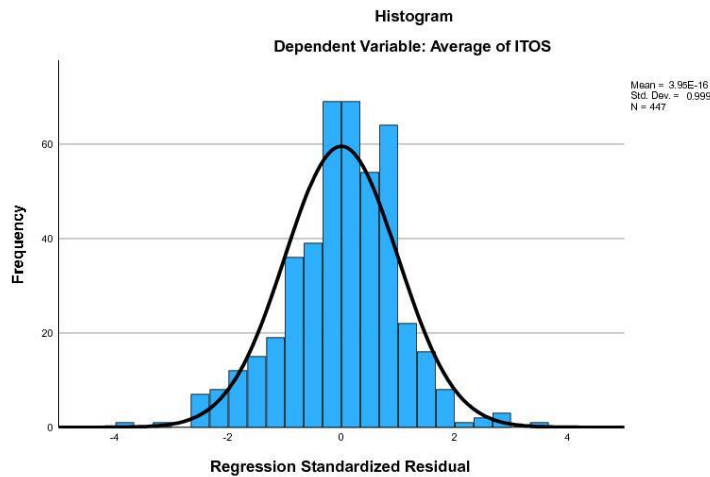
a. Dependent Variable: Average of ITOS

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.0721	5.5664	4.4357	.61306	447
Residual	-2.31644	2.17785	.00000	.60005	447
Std. Predicted Value	-3.855	1.844	.000	1.000	447
Std. Residual	-3.856	3.625	.000	.999	447

a. Dependent Variable: Average of ITOS

Charts



QSP

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Average of QSP ^b		. Enter

a. Dependent Variable: Average of ITOS

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.773 ^a	.598	.597	.54477

a. Predictors: (Constant), Average of QSP

b. Dependent Variable: Average of ITOS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	196.149	1	196.149	660.936	<.001 ^b
	Residual	132.065	445	.297		
	Total	328.213	446			

a. Dependent Variable: Average of ITOS

b. Predictors: (Constant), Average of QSP

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.979	.137		7.147	<.001		
	Average of QSP	.783	.030	.773	25.709	<.001	1.000	1.000

a. Dependent Variable: Average of ITOS

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	Average of QSP
1	1	1.982	1.000	.01	.01
	2	.018	10.533	.99	.99

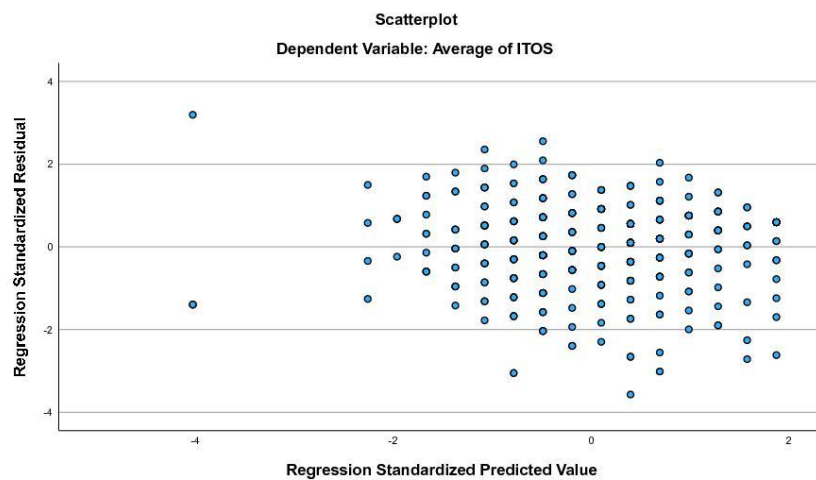
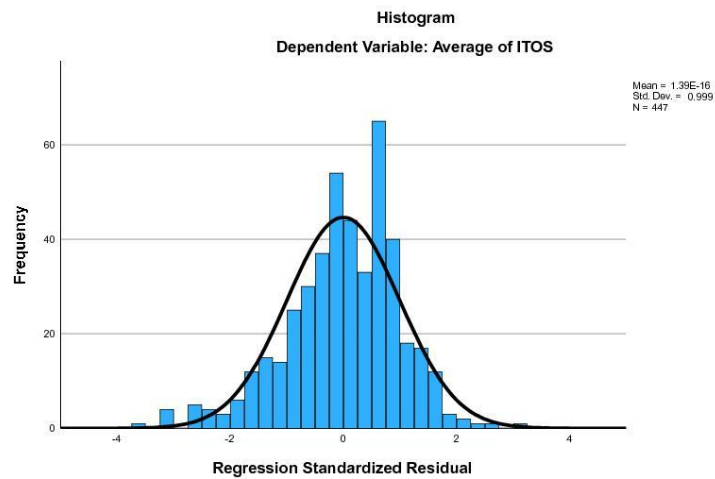
a. Dependent Variable: Average of ITOS

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.7616	5.6768	4.4357	.66317	447
Residual	-1.94801	1.73842	.00000	.54416	447
Std. Predicted Value	-4.032	1.872	.000	1.000	447
Std. Residual	-3.576	3.191	.000	.999	447

a. Dependent Variable: Average of ITOS

Charts



CM

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Average of CM ^b		. Enter

a. Dependent Variable: Average of ITOS

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.747 ^a	.558	.557	.57089

a. Predictors: (Constant), Average of CM

b. Dependent Variable: Average of ITOS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	183.181	1	183.181	562.048	<.001 ^b
	Residual	145.033	445	.326		
	Total	328.213	446			

a. Dependent Variable: Average of ITOS

b. Predictors: (Constant), Average of CM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.969	.149		6.515	<.001		
	Average of CM	.768	.032	.747	23.708	<.001	1.000	1.000

a. Dependent Variable: Average of ITOS

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	Average of CM
1	1	1.983	1.000	.01	.01
	2	.017	10.923	.99	.99

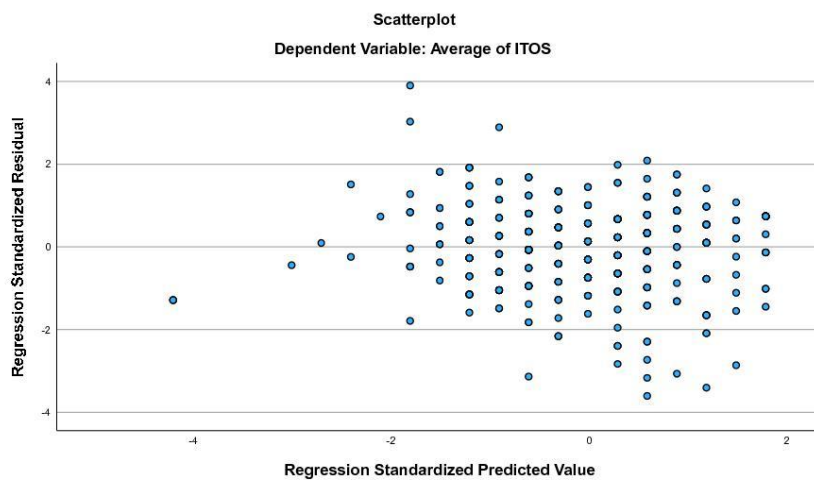
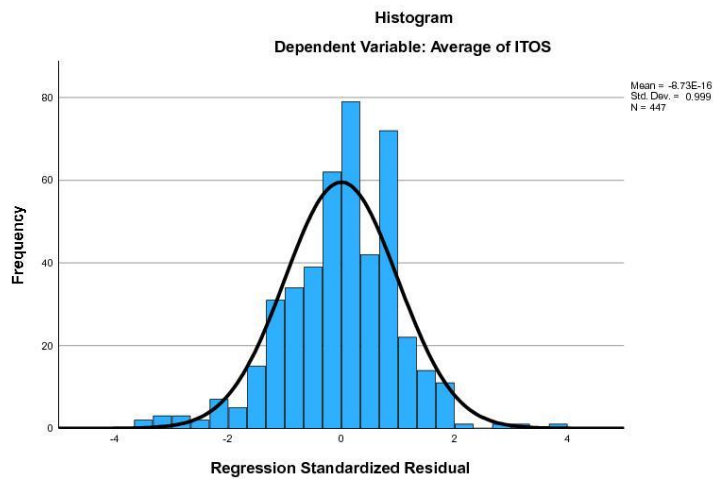
a. Dependent Variable: Average of ITOS

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.7371	5.5787	4.4357	.64087	447
Residual	-2.06039	2.22626	.00000	.57025	447
Std. Predicted Value	-4.211	1.784	.000	1.000	447
Std. Residual	-3.609	3.900	.000	.999	447

a. Dependent Variable: Average of ITOS

Charts



ICE

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Average of ICE ^b		. Enter

a. Dependent Variable: Average of ITOS

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.785 ^a	.616	.615	.53218

a. Predictors: (Constant), Average of ICE

b. Dependent Variable: Average of ITOS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	202.183	1	202.183	713.884	<.001 ^b
	Residual	126.031	445	.283		
	Total	328.213	446			

a. Dependent Variable: Average of ITOS

b. Predictors: (Constant), Average of ICE

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)	.968	.132		7.325	<.001		
	Average of ICE	.781	.029	.785	26.719	<.001	1.000	1.000

a. Dependent Variable: Average of ITOS

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Average of ICE
1	1	1.982	1.000	.01	.01
	2	.018	10.407	.99	.99

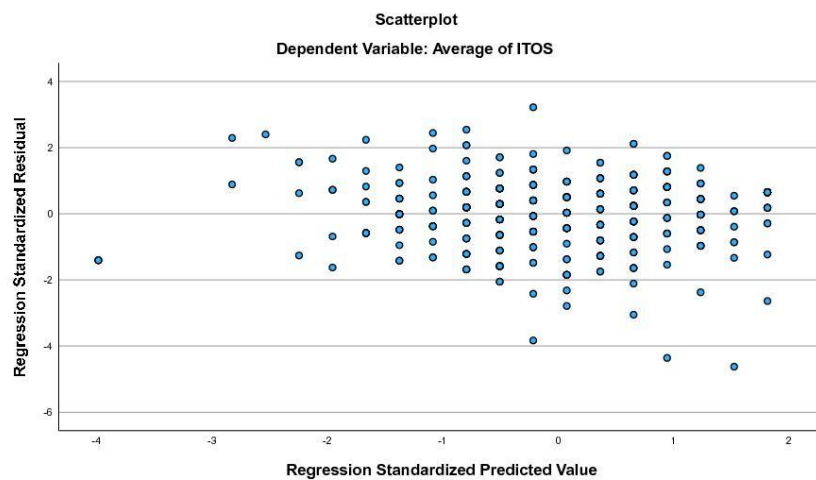
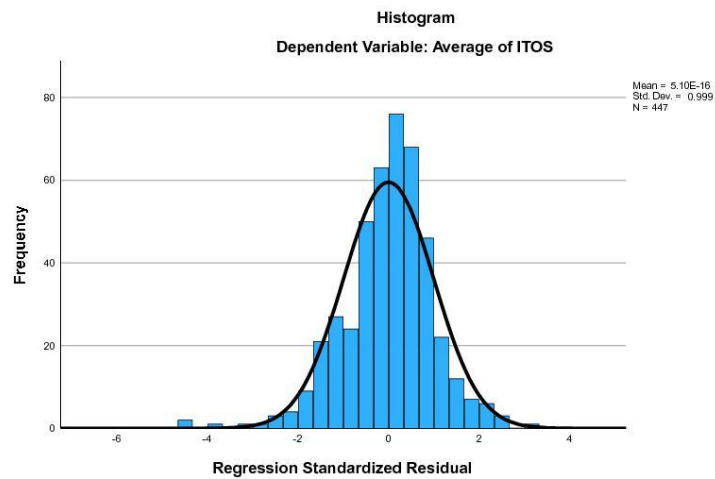
a. Dependent Variable: Average of ITOS

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.7496	5.6561	4.4357	.67329	447
Residual	-2.46081	1.71114	.00000	.53158	447
Std. Predicted Value	-3.989	1.813	.000	1.000	447
Std. Residual	-4.624	3.215	.000	.999	447

a. Dependent Variable: Average of ITOS

Charts



COM

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Average of COM ^b		. Enter

a. Dependent Variable: Average of ITOS

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.733 ^a	.538	.537	.58394

a. Predictors: (Constant), Average of COM

b. Dependent Variable: Average of ITOS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	176.475	1	176.475	517.546	<.001 ^b
	Residual	151.738	445	.341		
	Total	328.213	446			

a. Dependent Variable: Average of ITOS

b. Predictors: (Constant), Average of COM

Coefficients^a

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.141	.147		7.742	<.001		
	Average of COM	.733	.032	.733	22.750	<.001	1.000	1.000

a. Dependent Variable: Average of ITOS

Collinearity Diagnostics^a

		Eigenvalu	Condition Index	Variance Proportions	Average of COM
Model	Dimension	e		(Constant)	
1	1	1.982	1.000	.01	.01
	2	.018	10.580	.99	.99

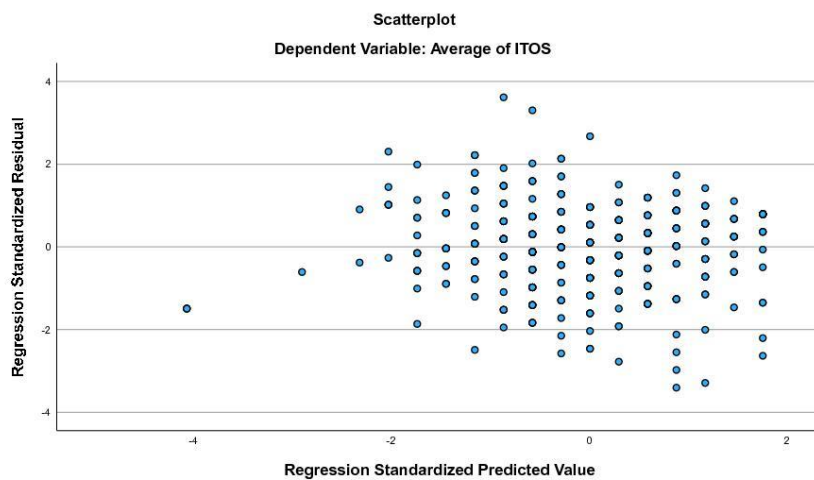
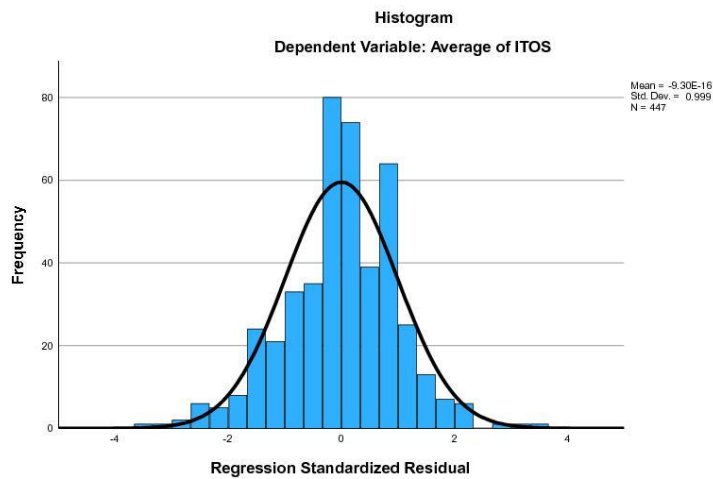
a. Dependent Variable: Average of ITOS

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.8742	5.5387	4.4357	.62903	447
Residual	-1.98904	2.11030	.00000	.58328	447
Std. Predicted Value	-4.072	1.754	.000	1.000	447
Std. Residual	-3.406	3.614	.000	.999	447

a. Dependent Variable: Average of ITOS

Charts



RP

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Average of RP ^b		. Enter

a. Dependent Variable: Average of ITOS

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.751 ^a	.564	.563	.56725

a. Predictors: (Constant), Average of RP

b. Dependent Variable: Average of ITOS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	185.025	1	185.025	575.020	<.001 ^b
	Residual	143.188	445	.322		
	Total	328.213	446			

a. Dependent Variable: Average of ITOS

b. Predictors: (Constant), Average of RP

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)	1.138	.140		8.118	<.001		
	Average of RP	.746	.031	.751	23.980	<.001	1.000	1.000

a. Dependent Variable: Average of ITOS

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Average of RP
1	1	1.981	1.000	.01	.01
	2	.019	10.349	.99	.99

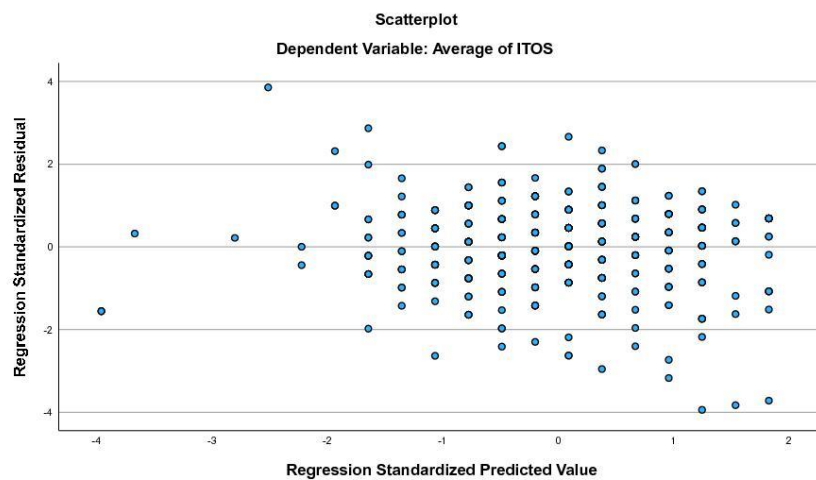
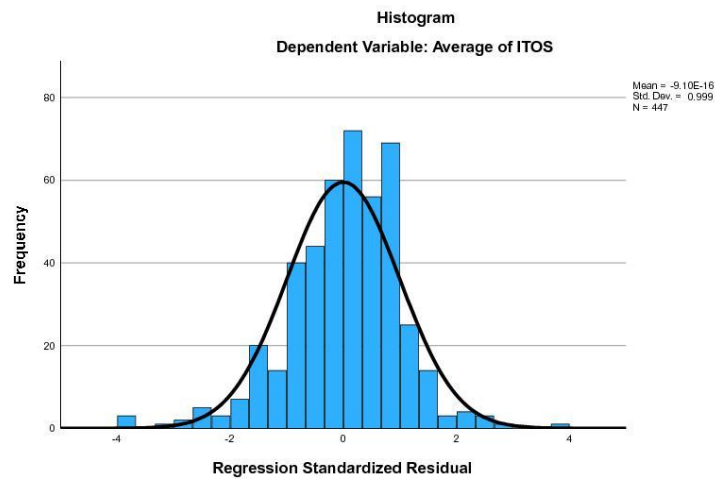
a. Dependent Variable: Average of ITOS

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.8831	5.6106	4.4357	.64409	447
Residual	-2.23789	2.18499	.00000	.56661	447
Std. Predicted Value	-3.963	1.824	.000	1.000	447
Std. Residual	-3.945	3.852	.000	.999	447

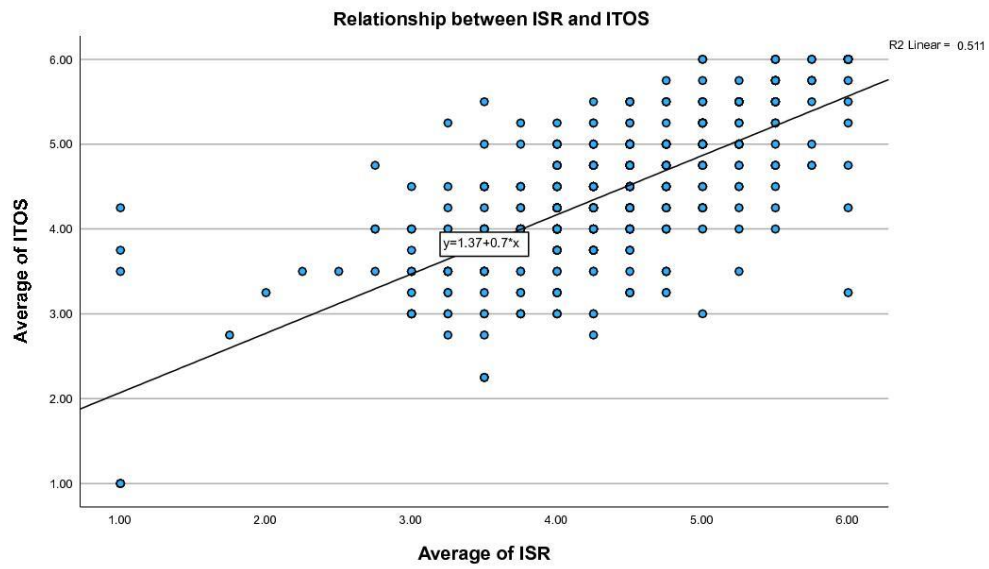
a. Dependent Variable: Average of ITOS

Charts

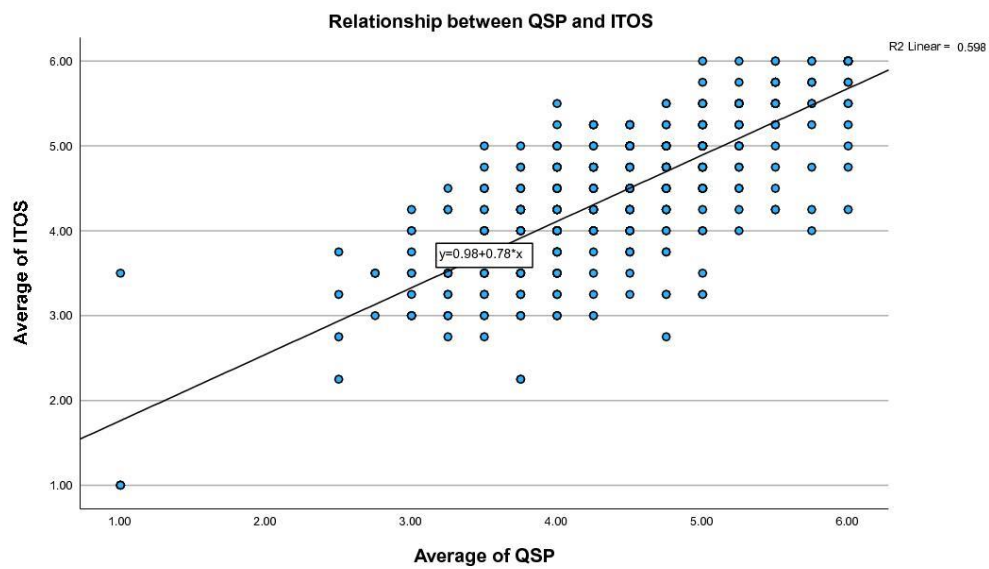


H.2 Graph

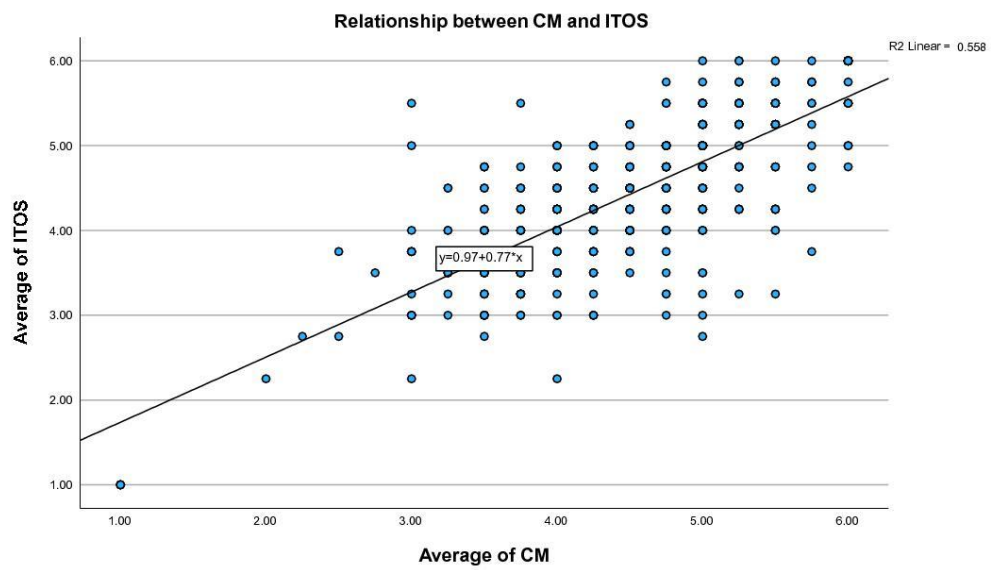
ISR



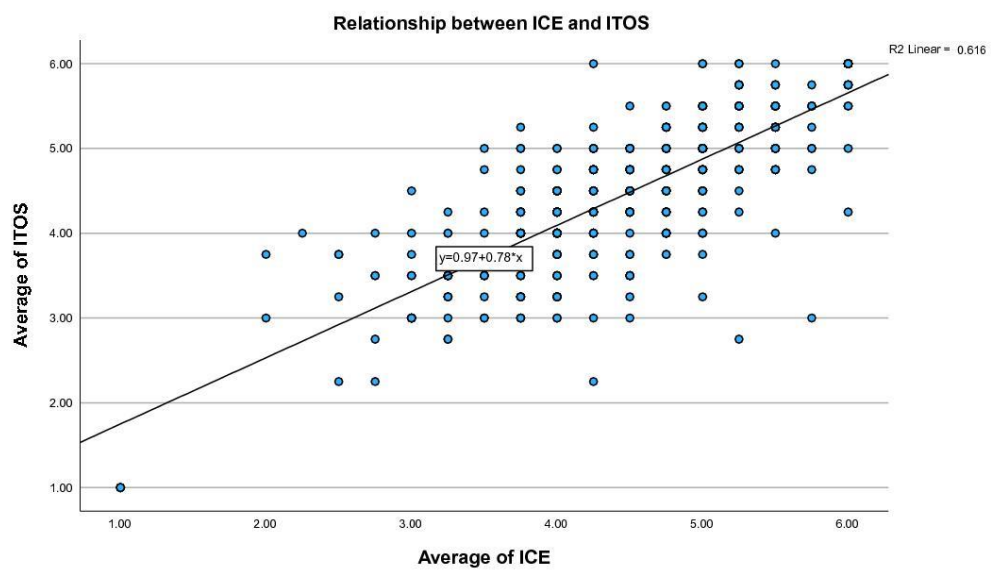
QSP



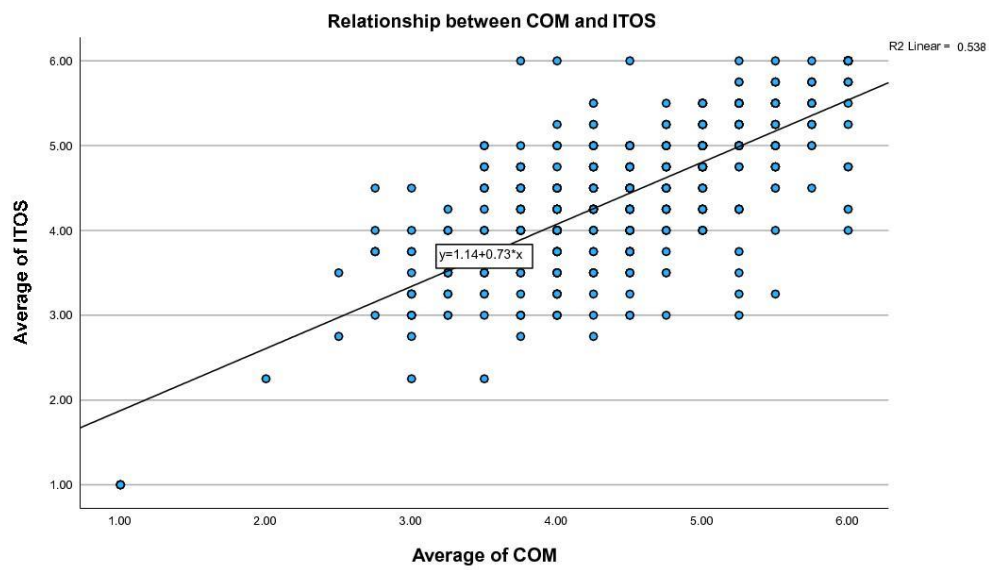
CM



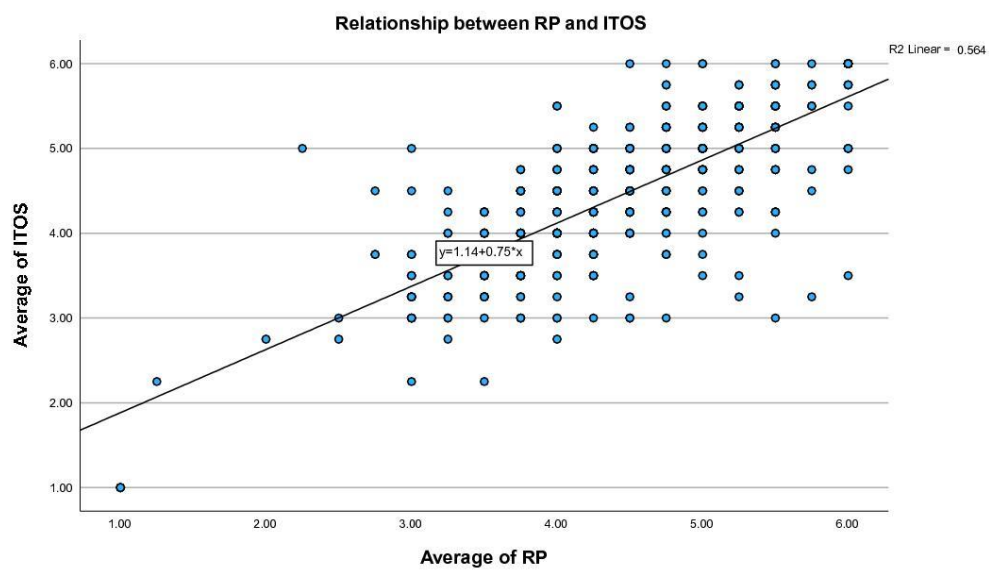
ICE



COM



RP



Appendix I – Multiple Regression Analysis Result

Round 1 Analysis

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Average of ICE, Average of ISR, Average of RP, Average of COM, Average of QSP, Average of CM ^b		. Enter

a. Dependent Variable: Average of ITOS

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.855 ^a	.731	.727	.44794

a. Predictors: (Constant), Average of ICE, Average of ISR, Average of RP, Average of COM, Average of QSP, Average of CM

b. Dependent Variable: Average of ITOS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	239.928	6	39.988	199.292	<.001 ^b
	Residual	88.286	440	.201		
	Total	328.213	446			

a. Dependent Variable: Average of ITOS

b. Predictors: (Constant), Average of ICE, Average of ISR, Average of RP, Average of COM, Average of QSP, Average of CM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.197	.126		1.558	.120		
	Average of ISR	.054	.046	.055	1.176	.240	.281	3.559
	Average of QSP	.292	.050	.288	5.786	<.001	.247	4.051
	Average of CM	.033	.052	.032	.636	.525	.238	4.201
	Average of RP	.175	.045	.176	3.865	<.001	.295	3.392
	Average of COM	.087	.045	.087	1.938	.053	.300	3.330
	Average of ICE	.316	.046	.317	6.912	<.001	.290	3.443

a. Dependent Variable: Average of ITOS

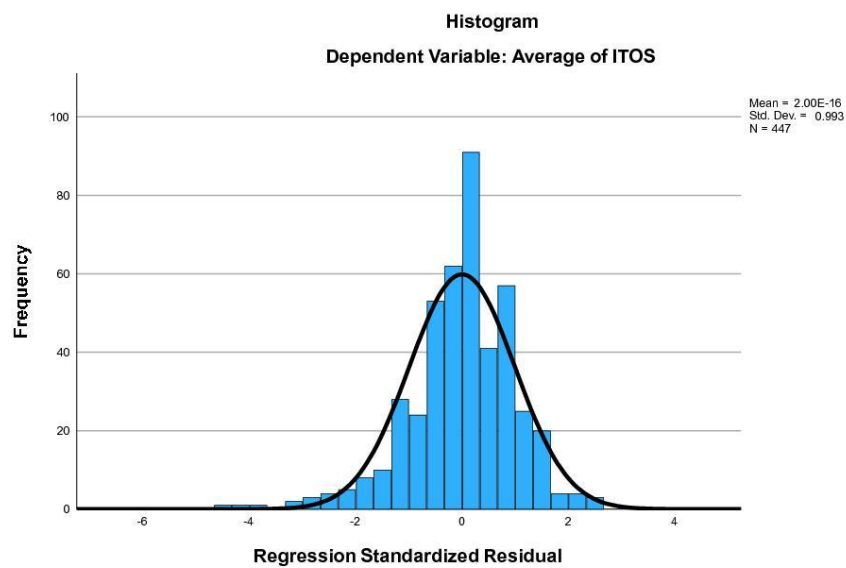
Collinearity Diagnostics ^a										
Model	Dimension	Eigenvalue	Condition	(Constant)	Variance Proportions					
			Index		Average of ISR	Average of QSP	Average of CM	Average of RP	Average of COM	Average of ICE
1	1	6.929	1.000	.00	.00	.00	.00	.00	.00	.00
	2	.024	16.852	.99	.02	.01	.01	.01	.00	.01
	3	.016	20.883	.01	.27	.09	.00	.05	.14	.09
	4	.010	26.755	.00	.01	.03	.05	.67	.18	.14
	5	.008	29.017	.00	.08	.15	.00	.00	.39	.63
	6	.006	32.709	.00	.11	.00	.92	.26	.03	.00
	7	.006	34.211	.00	.51	.71	.03	.01	.25	.12
a. Dependent Variable: Average of ITOS										

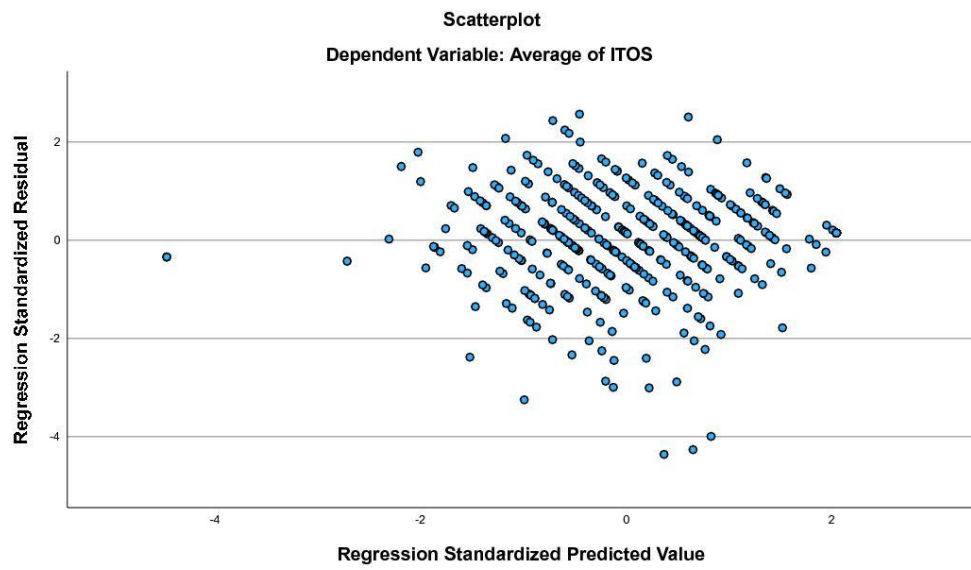
a. Dependent Variable: Average of ITOS

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.1529	5.9341	4.4357	.73345	447
Residual	-1.95333	1.14972	.00000	.44492	447
Std. Predicted Value	-4.476	2.043	.000	1.000	447
Std. Residual	-4.361	2.567	.000	.993	447

a. Dependent Variable: Average of ITOS

Charts





Round 2 Analysis

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Average of ICE, Average of ISR, Average of RP, Average of COM, Average of QSP ^b		. Enter

a. Dependent Variable: Average of ITOS

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.855 ^a	.731	.728	.44764

a. Predictors: (Constant), Average of ICE, Average of ISR, Average of RP, Average of COM, Average of QSP

b. Dependent Variable: Average of ITOS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	239.846	5	47.969	239.393	<.001 ^b
	Residual	88.367	441	.200		
	Total	328.213	446			

a. Dependent Variable: Average of ITOS

b. Predictors: (Constant), Average of ICE, Average of ISR, Average of RP, Average of COM, Average of QSP

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.206	.125		1.649	.100		
	Average of ISR	.060	.045	.061	1.343	.180	.294	3.398
	Average of QSP	.298	.049	.294	6.042	<.001	.257	3.887
	Average of RP	.184	.043	.185	4.290	<.001	.328	3.051
	Average of COM	.092	.044	.092	2.070	.039	.309	3.241
	Average of ICE	.321	.045	.322	7.143	<.001	.300	3.334

a. Dependent Variable: Average of ITOS

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	(Constant)	Variance Proportions				
					Average of ISR	Average of QSP	Average of RP	Average of COM	Average of ICE
1	1	5.936	1.000	.00	.00	.00	.00	.00	.00
	2	.024	15.717	.99	.02	.01	.02	.01	.01
	3	.016	19.329	.01	.29	.10	.05	.15	.10
	4	.009	25.068	.00	.00	.02	.93	.17	.12
	5	.008	26.861	.00	.08	.16	.00	.40	.65
	6	.006	31.625	.00	.61	.71	.00	.28	.12

a. Dependent Variable: Average of ITOS

Residuals Statistics^a

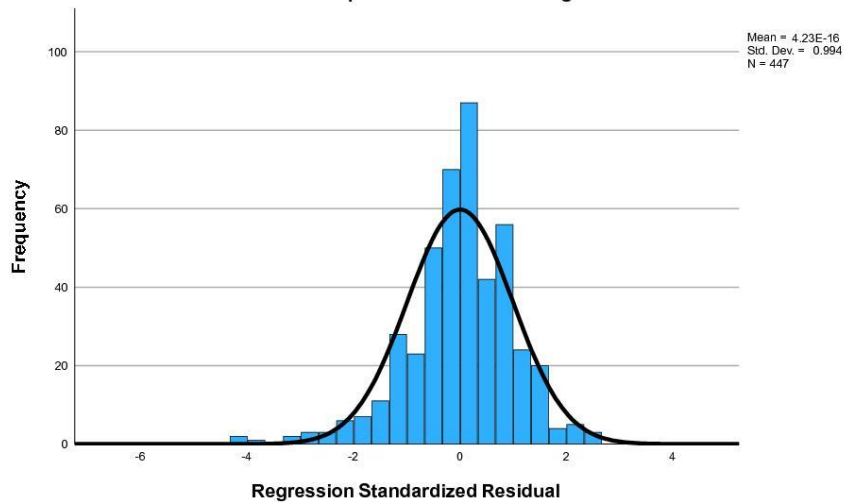
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.1611	5.9345	4.4357	.73333	447
Residual	-1.93771	1.15335	.00000	.44512	447
Std. Predicted Value	-4.465	2.044	.000	1.000	447
Std. Residual	-4.329	2.577	.000	.994	447

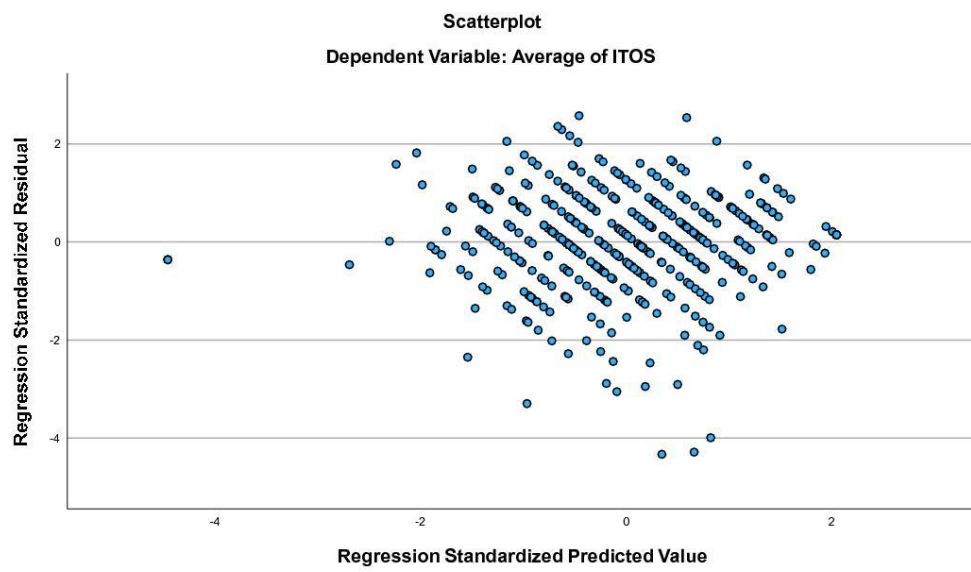
a. Dependent Variable: Average of ITOS

Charts

Histogram

Dependent Variable: Average of ITOS





Round 3 Analysis

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Average of ICE, Average of QSP, Average of RP, Average of COM ^b		. Enter

a. Dependent Variable: Average of ITOS

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.854 ^a	.730	.727	.44804

a. Predictors: (Constant), Average of ICE, Average of QSP, Average of RP, Average of COM

b. Dependent Variable: Average of ITOS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	239.485	4	59.871	298.248	<.001 ^b
	Residual	88.728	442	.201		
	Total	328.213	446			

a. Dependent Variable: Average of ITOS

b. Predictors: (Constant), Average of ICE, Average of QSP, Average of RP, Average of COM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.224	.125		1.796	.073		
	Average of QSP	.337	.040	.332	8.361	<.001	.387	2.582
	Average of RP	.193	.042	.195	4.571	<.001	.337	2.968
	Average of COM	.089	.044	.089	1.996	.047	.310	3.231
	Average of ICE	.332	.044	.333	7.503	<.001	.310	3.225

a. Dependent Variable: Average of ITOS

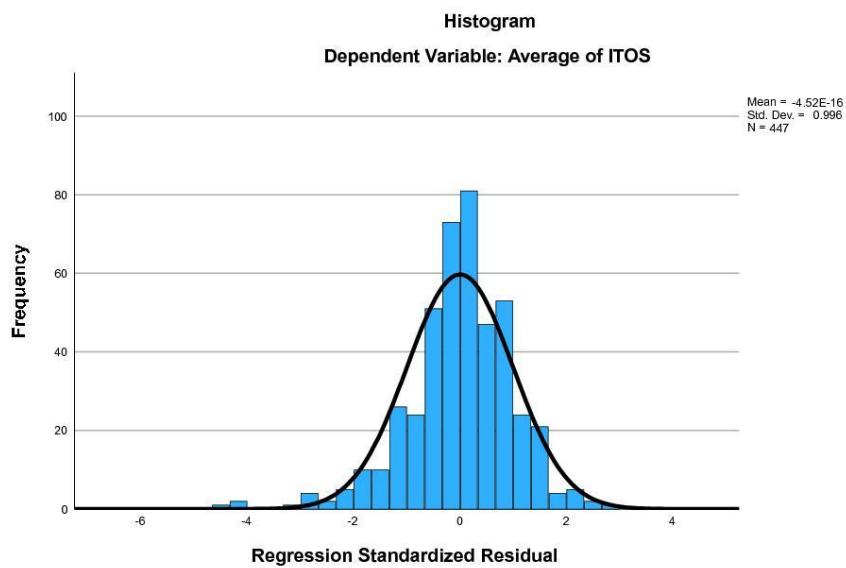
Collinearity Diagnostics ^a								
Model	Dimension	Eigenvalue	Condition Index	(Constant)	Variance Proportions			
					Average of QSP	Average of RP	Average of COM	Average of ICE
1	1	4.949	1.000	.00	.00	.00	.00	.00
	2	.023	14.558	.99	.02	.03	.02	.03
	3	.011	21.289	.01	.90	.00	.09	.19
	4	.009	22.896	.00	.07	.96	.17	.09
	5	.008	25.253	.00	.01	.01	.72	.69

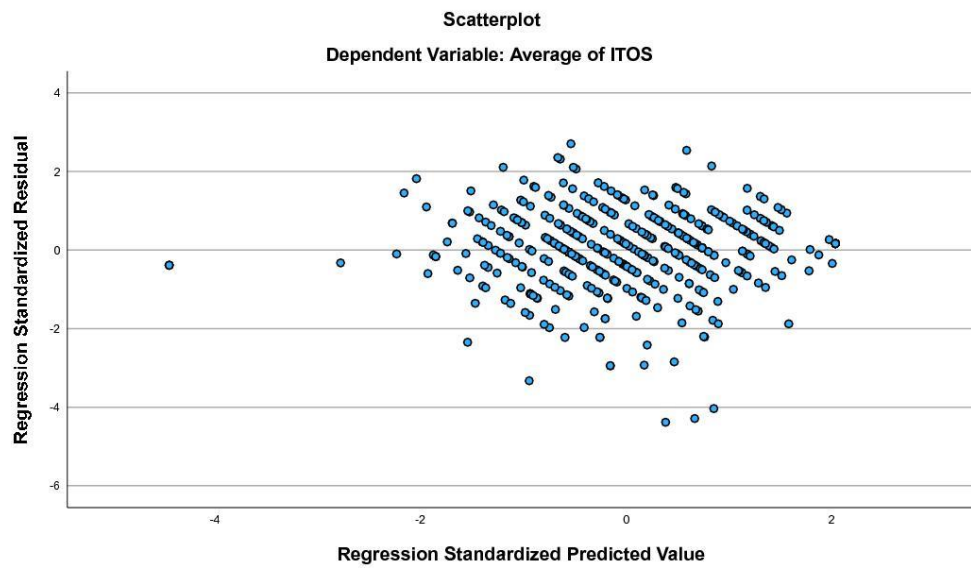
a. Dependent Variable: Average of ITOS

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.1740	5.9255	4.4357	.73278	447
Residual	-1.96412	1.21136	.00000	.44603	447
Std. Predicted Value	-4.451	2.033	.000	1.000	447
Std. Residual	-4.384	2.704	.000	.996	447

a. Dependent Variable: Average of ITOS

Charts





Filtered Demographic Group

1. Filtered "No. of ITO Experience" > 10 times or above

		Coefficients ^{a,b}					Collinearity Statistics	
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Tolerance	VIF
		B	Std. Error	Beta				
1	(Constant)	-.679	.848		-.800	.437		
	Average of ISR	1.131	.175	.865	6.449	<.001	1.000	1.000
2	(Constant)	-.656	.692		-.947	.361		
	Average of ISR	.757	.195	.578	3.886	.002	.540	1.852
	Average of RP	.364	.128	.422	2.837	.014	.540	1.852

a. Dependent Variable: Average of ITOS

b. Selecting only cases for which DG3 > 11 - 20

2. Filtered "Job Position" >= Vice President or above

		Coefficients ^{a, b}					Collinearity Statistics	
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Tolerance	VIF
		B	Std. Error	Beta				
1	(Constant)	.627	.238		2.638	.009		
	Average of CM	.836	.052	.817	16.097	<.001	1.000	1.000
2	(Constant)	.406	.220		1.843	.068		
	Average of CM	.535	.074	.523	7.223	<.001	.407	2.459
	Average of QSP	.362	.069	.381	5.262	<.001	.407	2.459
3	(Constant)	.309	.212		1.454	.148		
	Average of CM	.331	.090	.324	3.660	<.001	.249	4.011
	Average of QSP	.307	.067	.324	4.558	<.001	.386	2.588
	Average of RP	.282	.078	.294	3.632	<.001	.297	3.369

a. Dependent Variable: Average of ITOS

b. Selecting only cases for which DG8 >= Vice President