Developing Sustainable Outsourcing Strategies for Facilities Management: A Study of Educational Facilities in Hong Kong

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STRUCTURED ABSTRACT

Purpose
Strategic-level support is crucial for the smooth adoption of a sustainable facilities management (FM) supply chain. Many firms, regardless of industry, aim for outsourcing success. However, poor performance from outsourced service providers remains a challenge. This study explores the concept of outsourcing relationships in FM and investigates the design of sustainable outsourcing strategies by analysing five theoretical perspectives: Transaction Cost Economics, Agency Cost Theory, Resource Dependency Theory, Entrepreneurial Action Theory, and Social Exchange Theory.

Design/Methodology/Approach
This study utilises a quantitative approach based on two questionnaire surveys. Data were collected from 38 clients and 34 service providers to evaluate FM outsourcing strategies within educational facilities in Hong Kong. The research examines the effectiveness of outsourcing relationships and sustainability factors in FM service delivery.

Findings
The study highlights the impact of FM outsourcing strategies on four commonly outsourced service areas in Hong Kong: building maintenance, security, cleaning, and catering. Insights from both clients and service providers reveal that a well-structured outsourcing model can improve performance, enhance sustainability, and contribute to economic, social, and environmental objectives. The design influencing outsourcing strategies in the four FM contracts relates to the key procedures and business rules concerning the process maturity of agency cost theory from both clients and service providers.

Originality
This paper provides a novel discussion on sustainable outsourcing strategies in FM outsourcing services through a quantitative approach. By integrating multiple theoretical perspectives, the study offers valuable insights into optimising outsourcing relationships to promote sustainability and long-term success in FM operations. The research limitations include size of questionnaire survey, only four main FM outsourcing services, non-financial aspects of the FM outsourcing contracts and single higher tertiary education industry.

Keywords
Facilities Management (FM), Outsourcing Services, Outsourcing Strategies, Sustainable Outsourcing, Educational Facilities.

1. INTRODUCTION
The significance of outsourcing is to reduce costs in terms of scale and expenditure. In the past decade, many private and public commercial building owners have hired specialists or registered contractors through total or phased outsourcing to relieve financial burdens (Yik and Fai, 2005). Lai et al. (2008) report that the amount of cost saving in outsourcing would be smaller than that of energy cost for commercial buildings. Nevertheless, a commercial building owner is still willing to outsource when there is an occurrence of a net benefit on an increase in rental income or a reduction in the Operation and Maintenance cost. Without a doubt, both

private organisations and post-secondary educational institutions in Hong Kong are also required to reduce costs in a severely competitive business environment. The latter needs to have balanced budgets and may find opportunities to cut costs by outsourcing. The importance of FM as a means of encouraging learning has been emphasised by a majority of higher-education-related FM studies (Amaratunga and Baldry, 1999; Fianchini, 2006). Kok et al. (2011) contend that, from the FM perspective, facilities services have a critical and direct effect on academic performance, while other services (e.g., building design, physical layout, building fit-out, internal decoration, plants, and catering) have an indirect influence on the educational process but have an impact on staff and student satisfaction. There is also potential for facilities management and maintenance services to create value, especially for higher education institutions (Kok et al., 2011; Vidalakis et al., 2013; Nielsen et al., 2019). The organisations can improve their revenue by increasing user satisfaction with FM services, thus attracting more students (Lok and Baldry, 2015).

The outsourcing strategies are that FM client- and service-provider-strategists apply in their FM outsourcing contracts. Sound FM outsourcing strategies can be developed by identifying success factors, which will enhance FM outsourcing services, positively impacting profits and contributing to the economic objectives of sustainable development while also adding social and environmental value (Lok et al., 2021). The aim of this study is to explore sustainable management of outsourcing relationships in facilities management for educational institutions from the perspectives of both clients and service providers. Sustainable facilities management (FM) can significantly influence user perception, satisfaction, and productivity. However, there is a limited understanding of the outsourcing performance of FM service providers. This study focuses on the problem of unsatisfactory outsourcing services within the facilities management sector.

In undertaking a comprehensive study to identify successful factors for achieving satisfactory FM outsourcing services, the present study has made a timely contribution to filling in the gap. The current study suggests that sound FM outsourcing strategies can enhance FM outsourcing services, positively affecting profits and thus contributing to the economic, social, and environmental objectives of sustainable development. In addition, a tailor-made FM framework—Contingency Outsourcing Relationship (CORE) model—is introduced. This model is used to identify the relationship between a client and an FM service provider in the four categories (i.e., in-house, technical expertise, commitment, and common goals) and to reflect the importance of the outsourcing category of an organisation.

2.0 LITERATURE REVIEW

Kadir et al. (2025) discuss common issues in healthcare outsourcing, particularly a lack of transparency in contract documents, insufficient communication among stakeholders, and poor relationships between clients and contractors. These challenges, however, are also prevalent in various other outsourcing applications. The literature indicates that outsourcing strategies often stem from the desire to concentrate on fewer, more manageable core activities (Skinner, 1969). Effective management of outsourcing relationships, as well as the outsourcing process itself, is a crucial topic in outsourcing research. Companies seek to enhance their efficiency by outsourcing non-core activities to specialized providers (Harland et al., 2005). Abdullah (2013) explains that outsourcing facilities management comes with various risks that can significantly affect operations. These risks may include issues such as the failure to deliver critical services, underperformance by the service provider, financial shortfalls, cultural misalignment, loss of expertise, and labor-related risks. It is recommended that corporations, public sectors, and nations develop outsourcing strategies to minimize the risk of long-term disadvantages that can arise from the cumulative impact of poor outsourcing decisions, as highlighted by Bettis et al. (1992).

Various research studies have suggested that FM service provider performance depends on the outsourcing arrangements (Lehtonen and Salonen, 2005; Cigolini et al., 2011; Anker Jensen et al., 2012; Plane and Green., 2012). Outsourcing can be defined as procuring services from external providers and this paper addresses the reasons to opt for outsourcing as an effective and efficient approach to the management of resources. It also provides insights into the future of outsourcing, given that correct management of the outsourcing process ensures the delivery of positive outcomes. The following sections review the concept of outsourcing success in facilities management. It outlines the design of FM outsourcing strategies and shows the importance of understanding these designs in the context of Hong Kong's currently most widely implemented outsourcing arrangements for educational facilities (Lok et al., 2018).

Lok (2021) examined the effectiveness of critical success factors in outsourcing strategies for four facilities management services—building maintenance, security, cleaning, and catering—in educational institutions, from both clients' and service providers' perspectives. This study further examines whether the outsourcing strategies for four FM services—building maintenance, security, cleaning, and catering—in educational facilities are effectively sustainable from both clients' and service providers' perspectives.

Klungseth, N.J. and Haugen, T.B. (2017) explore whether we understand more about optimal models for in-house versus outsourcing FM after 25 years of applied research and developing best practices. In this study, there are five suggested conceptual outsourcing models: one drawn from the logistics industry by Boer et al. (2006); four types of outsourced-outsourcer relationships in different fields proposed by Franceschini et al. (2003); a model of outsourcing relationship management in the IT industry presented by Gottschalk and Solli-Sæther (2006); research on strategic outsourcing in the field of operations and supply-chain management by Holcomb and Hitt (2007); and a framework of four types of outsourcing relationships in the IT industry proposed by Kishore et al. (2003). In short, the five outsourcing models are updated in various industries such as logistics, different fields, IT, operations management and supply-chain management, but each of which has its own deficiencies.

In statistical terms, this study tests whether there is a statistically significant difference amongst group means of the design of FM outsourcing strategies of the four types of outsourcing services. To test and analyse the hypothesis, a quantitative research approach is utilised in this study. The categorical independent variable is the four different groups of outsourcing contracts. The quantitative dependent variable is the design of FM outsourcing strategies regarding four FM outsourcing relationship dimensions for outsourcing strategies. Creating a specific model for outsourcing relationships in facilities management may not provide a complete solution, but it can help clarify and interpret the complex and often hidden scenarios involved, such as the reasons behind outsourcing failures (Plane and Green, 2012; Lok et al., 2018).

2.1 Critical Analysis of Facilities Management Outsourcing Models

Nardelli and Rajala (2018) explored the understanding of business model innovation within supplier-client relationships, focusing on interorganizational collaboration and value creation in facilities management (FM) ecosystems. While there are various outsourcing models, the discussion on outsourcing performance, particularly in the context of FM outsourcing relationships, is limited. It is essential to develop a specific outsourcing relationship model tailored for facilities management. Before the construction of this kind of model, it is significant to discuss the various possible kinds of outsourcing failures. Barthelemy (2003) highlights that most failed outsourcing efforts are linked to one or more of seven specific problems. Additionally, companies are often hesitant to acknowledge or report outsourcing failures.. Hätönen and Eriksson (2009) claim that dynamic management of outsourcing

relationships is of crucial managerial interest. Also, management of outsourcing relationships with key suppliers likely becomes increasingly necessary (Kakabadse and Kakabadse, 2002).
In this research, five outsourcing models are introduced, originating in the logistics, IT, operations management, and supply chain management industries, but each has their limitations. Kishore et al. (2003) noted that there are several outsourcing models across various fields, and the contingency outsourcing model applied in the IT industry is referred to as the Four Outsourcing Relationship Types (FORT) framework. For instance, in the IT industry, outsourcing relationship management does not fully address the varying relationships between clients and service providers at different stages of the outsourcing process. Similarly, in logistics, prescriptive decision-making models often fail to align accurately with real-world outsourcing practice. Furthermore, the four outsourced-outsourcer relationship type model does not adequately capture the evolution of outsourcing relationships (Lok and Baldry, 2015). As a result, a framework of four outsourcing relationship types (FORT) was proposed in the IT sector, with its rationale considered highly applicable to the FM industry (Lok and Baldry, 2015). This FORT model is used to provide insight into the kinds of outsourcing relationships that exist between clients and service providers. The most critical attribute of this model is that it investigates the evolution of organisations' outsourcing relationships. Outsourcing relationships are dynamic; they are liable to change and evolve because of changes in the external environment and clients' internal requirements (Kishore et al., 2003).
The characteristics of the FORT model are grounded in the contingency approach, which posits that there is no one-size-fits-all solution to outsourcing. Instead, the most effective approach depends on various factors. Although the contingency theory has its limitations, it is useful for more accurately predicting the future of facilities management (FM) outsourcing relationships and improving the quality of future FM outsourcing services (Lok et al., 2018). Therefore, a firm's FM services must be appropriately integrated into the external environment and market conditions. This FORT model is suitable and original because the proposed model covers the relationships between outsourcing types and outsourcing practices. Outsourcing should be considered more as management of relationships with service providers rather than as a simple subcontract for commodities. In addition, organisations need to have a clear plan for their future movement within the FORT framework.

2.2 The FORT Model in Facilities Management

In the context of the IT industry, the effectiveness of the FORT framework is contingent upon certain conditions and may not be universally applicable. For example, it may be influenced by circumstances such as the nature of outsourcing relationships, industry dynamics or specific organisational contexts. Finch (2012) states that outsourcing relationships increasingly involve mutual support and nurturing processes, and the survival of organizations relies on restructuring and developing their predictive strategies. This may include enhancement of customer relations, improved supplier relationships and the improvement of product or service offerings. Figure 1 indicates the FORT framework's application to the FM industry. This tailor-made proposed FM framework is called the Contingency Outsourcing Relationship (CORE) model (Lok et al., 2020). Lok et al. (2020) explain the principle and application of the CORE model, which is capable of identifying the relationship between a client and an FM service provider in four categories (i.e., in-house, technical expertise, commitment and common goals). The rationale of the CORE model reflects the importance of the outsourcing category of an organisation.

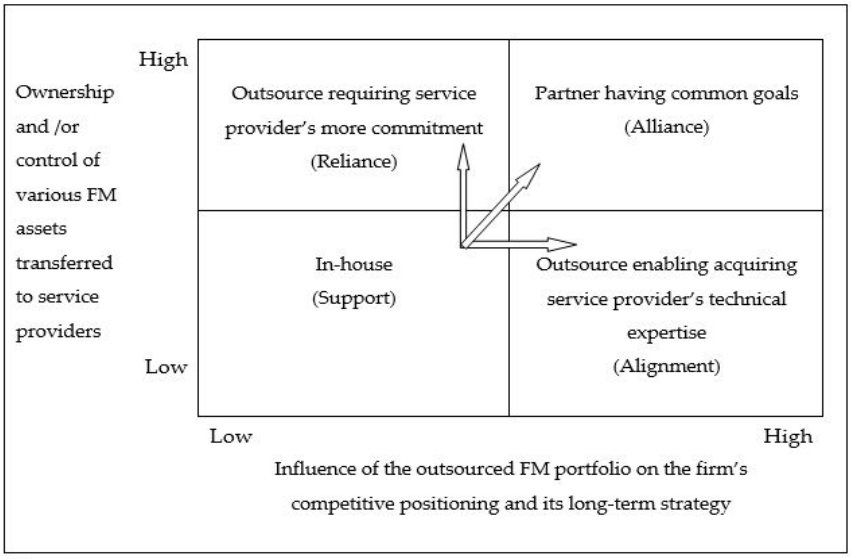


Figure 1. The evolution of the CORE model from the FORT framework, Source: Lok et al. (2020)

This study examines the CORE model in the specific context of the FM industry. Lok et al. (2020) provide a more detailed review of the dimensions of the CORE model from each axis—ownership, control, competitive positioning, and long-term strategies including the outsourcing category (In-house) of the ownership dimension, outsourcing category (technical expertise) of the control dimension, outsourcing category (commitment) of the competitive positioning dimension and outsourcing category (common goals) of the long-term strategies dimension. Regarding the working mechanism of the FORT model as below, this FORT model is relevant to the FM research context.

2.3 Design for Outsourcing Strategies

Five theories (i.e., the Theory of Transaction cost economics, Agency cost theory, Resource dependency theory, Theory of Entrepreneurial Actions, and Social Exchange theory) have been employed to measure outsourcing manoeuvres. There is an analysis of the outsourcing relationship from these theoretical perspectives about the relationships between the strategic manoeuvres identified and the different dimensions of an outsourcing relationship. Table 1 summarises the theories discussed, and the key concepts used.

Table 1. Summary of corollaries on outsourcing relationship

Theory / Concept	**Key Concepts / Strategic Manoeuvres**	**Corollaries on Clients' and Service providers' evaluations**	**Questionnaire Survey constructs**
Transaction Cost Economics	Reduced asset specificity by Minimising customisation	Regarding minimising customisation rendered to them are not different	Section E (a1 - a4) • Compared to other organizations our outsourced process requires technical skills that are relatively unique. • To provide outsourcing service external vendors would have to make substantial investments in their efforts to tailor to our needs. • Extensive business knowledge that is specific to our business environment is required for our vendor to manage the outsourced operations. • We requested the vendor to modify its process significantly to adapt to our unique operational routines and requirements.
Agency Cost Theory	Reduced monitoring cost by enhancing process maturity Mitigation of residual loss by retaining in-house competence	Regarding enhancing process maturity rendered to them are not different. Regarding retaining in-house competence rendered to them are not different.	Section E (b1 - b3) • Key procedures and business rules are documented and visible to parties involved. • The process is well defined and institutionalized. • The process boundary is clearly demarcated. Section E (e1 - e3) • We have a team of in-house staff who are able to replicate and expand the outsourced process if necessary. • We continue to retain internal competence to backup the outsourced process. • We can easily bring the outsourced process in-house if necessary.
Resource Dependency Theory	Diluting supplier concentration through multiple sourcing	Regarding multiple sourcing rendered to them are not different.	Section E (d1 - d3) • For the specified process we have a policy of contracting with multiple outsourcing vendors. • We have partitioned the process and outsourced different components to different vendors. • We have built up relationships with a few outsourcing vendors to contract out our process.

	Reduced switching costs through vendor interoperability.	Regarding leveraging on vendor interoperability rendered to them are not different.	Section E (c1 - c4) • The application platform provided by our outsourcing vendor offers a wide variety of information to end users through multiple channels. • The software application provided by our outsourcing vendor is compatible and interoperable across multiple platforms. • The application platform provided by our outsourcing vendor is electronically linked and seamlessly connected with the end users in our organization. • Software modules can easily be added to, modified, or removed from the application platform provided by our outsourcing vendor.
Entrepreneurial Actions	Enhanced entrepreneurial capability through proactive sensing.	Regarding proactive sensing rendered to them are not different.	Section E (f1 - f4) • Our executives always update themselves about the dynamics of outsourcing vendor's market to take advantage of new opportunities. • Our executives always initiate actions to which our outsourcing vendor responds. • Our executives are quick to alert our outsourcing vendor when new products and services are offered in the marketplace. • Our executives always encourage our outsourcing vendor to explore new opportunities and innovative ideas.
Social Exchange Theory	Building relational reciprocity through enhanced partnership quality	Regarding enhancing partnership quality rendered to them are not different.	Section E (g1 - g4) • We and our outsourcing vendor make decisions that are mutually beneficial. • We and our outsourcing vendor share the benefits and risks in our outsourcing arrangement. • We and our outsourcing vendor have compatible cultures and policies. • We and our outsourcing vendor perform our agreements and promises very well.

Facilities professionals can evaluate outsourcing services in facilities management by utilising key performance indicators that align with sustainable digitalization and established standards. According to Lok et al. (2023), ISO FM standards encompass various facilities management services, including strategy and policy development. This study's research question focuses on how the design of sustainable facilities management outsourcing strategies impacts the FM services in Hong Kong's higher education sector. The study examines four primary types of outsourcing contracts: building maintenance, security, cleaning, and catering.
This hypothesis explores the relationship between design for outsourcing strategies and the four types of FM outsourcing contracts. The proposed hypothesis is outlined below:

H0: The outsourcing strategies designed for clients and service providers, based on five theories—Transaction Cost Economics, Agency Cost Theory, Resource Dependency Theory, Theory of Entrepreneurial Actions, and Social Exchange Theory—are consistent regardless of the types of current outsourcing contracts, such as Building Maintenance, Security, Cleaning, and Catering.

3.0 METHODOLOGY

The choice of research methodology is influenced by the researcher's philosophical assumptions, beliefs, and convictions (Opoku et al., 2016). According to Lok and Baldry (2015), researchers in the field of management need to employ various strategies. Yin (2003) argues that the selection of a research strategy should depend on the specific research context. In this study, a quantitative research approach was adopted, guided by positivistic assumptions (Bryman, 2012). The quantitative method aims to capture reality through an objective lens. In this study, a selected group of FM professionals from the local industry participated in questionnaire surveys, serving as a representative sample of the entire population. Two questionnaire surveys to clients and service providers were carried out with experienced industry practitioners in Hong Kong. Both questionnaires included the same four parts of relationship dimensions, but the number and content of the questions were different with respect to the perspectives of clients and service providers. This paper focuses on the section on the design of outsourcing strategies in the questionnaire.

The design for FM outsourcing strategies of the four kinds of FM outsourcing contracts (i.e., building maintenance, security, cleaning, and catering) were rated by the respondents. The responses were measured using a 5-point Likert scale with 1 being “Very bad”, 2 “Bad”, 3 “Neutral”, 4 “Good” and 5 “Very good”.

The prospective respondents were identified from various sources including public academic institutes, private organisations, quasi-government associations and FM professional institutes. Next, electronic questionnaires were distributed to eligible respondents, including those with at least three years of FM-related work experience in facilities and property management or general FM service contracts. Random sampling of the survey was carried out through the connection of four local facilities and property management professional institutes including International Facilities Management Association (Hong Kong), Hong Kong Institute of Surveyors, Hong Kong Institute of Facility Management and Hong Kong Institute of Housing through conferences and seminars and also related property and real estate departments of four tertiary academic working environments including University of Hong Kong, The Hong Kong Polytechnic University, City University of Hong Kong and Hong Kong Institute of Vocational Education. There was also an enclosed information sheet giving a brief introduction to the project and a description of the expected contributions with informed consent from participants.

To broaden the scope of data collection to include all universities and tertiary institutes in Hong Kong would require significant time, effort, and financial resources. In this study, self-administered questionnaires were deemed an appropriate method for gathering data from respondents. Therefore, a snowball sampling strategy was employed to reach participants from the identified universities and tertiary institutes. In total, 175 electronic questionnaires were sent: 92 to clients and 83 to service providers. On the clients' side, 38 respondents returned the completed questionnaires, representing a 41.3% response rate. On the service providers' side, 34 respondents were returning the completed questionnaires, representing a 40.9% response rate. Together, these represent an overall response rate of 41.1%. All respondents are experienced FM practitioners, having gained their experience in Hong Kong or overseas.

3.1 Facilities Management Experience

About 60.5% of client respondents and 79.4% of service provider respondents have three years or more of FM-related experience. However, 39.5% of client respondents and 20.6% of service provider respondents respectively have less than three years of FM-related experience.

3.2 Professions

With regard to clients' professions, 18.4% are chartered builders;10.5% are chartered surveyors and chartered building services engineers; 7.89% are IFMA's certified facility manager; 5.26% are registered professional housing manager; 10.5% are professionals in built environment and 36.84% are without profession.

Concerning service providers' professions, 14.7% are chartered builders and chartered surveyors, and 5.88% are chartered building services engineers. Regarding IFMA's certified facility managers and registered professional housing managers, these two professions accounted for 11.76% of respondents.17.6% are professionals in built environment and 23.52% are without profession.

3.3 Facilities Management Services Contracts

According to the clients' findings, building maintenance, security, and cleaning contracts account for 31%, 28%, and 25% of FM contracts, respectively, while catering contracts make up 9%. From the service providers' perspective, 39% of awarded contracts are for building maintenance, 25% for security, and 17% for cleaning and catering combined. Other types of outsourcing contracts, including capital projects, IT, landscaping, horticulture, and high-risk waste management, represent between 1% and 3% for both clients and service providers.

4.0 RESULTS OF SUSTAINABLE FM OUTSOURCING STRATEGIES

This section presents the analysis of the quantitative research data. The design for outsourcing strategies are discussed in more detail in terms of features and criticisms. The CORE model described four outsourcing relationship dimensions (Lok and Baldry, 2015). As mentioned earlier, the four dimensions (i.e., ownership of FM assets, control of FM assets, competitive position, and long-term plan) have been employed to measure the design. In this study, the respondents were asked to provide opinions on and evaluate the four outsourcing relationship dimensions for the design of strategies. The descriptive statistics of the items in each category are discussed in the following paragraphs. Besides the statistical tests, frequency distributions were also used in this study. They were obtained for all the personal data or classification variables. They have been used to summarise the responses to each question and to produce descriptive information on the data collected such as means, standard deviations and frequencies of the responses. These statistical summaries are displayed in tabular form.

4.1 Design for Outsourcing Strategies

Five theories (i.e., the Theory of Transaction Cost Economics, Agency Cost Theory, Resource Dependency Theory, Theory of Entrepreneurial Actions, and Social Exchange Theory) have been employed to measure outsourcing manoeuvres.

In this study, the respondents were asked to provide opinions and to evaluate the five outsourcing theories for the design of the strategies. A five-point Likert scale has been used ranging from 1 = very unimportant to 5 = very important. The descriptive statistics of the items in each theory are discussed in the following paragraphs. Table 2 provides an overview of clients and service providers in four types of FM outsourcing contracts.

Table 2. Profile of clients and service providers in four types of FM Outsourcing contracts.

Types of FM Outsourcing Contracts	Number of Clients	Number of Service providers
(i) Building Maintenance	26	23
(ii) Security	23	15
(iii) Cleaning	21	10
(iv) Catering	8	10
[(i)+(ii)+ (iii)+(iv)+ others]	Total N=83	Total N=59

4.2 Theory of Transaction Cost Economics

On client results, it can be seen from Table 3 that the means of respondents range from 3.58 to 3.68 on the various items relating to minimising process customisation. The highest mean was indicated by the FM outsourcing catering contract regarding the item "Requesting the vendor to modify its process significantly" (Mean =4), while the lowest mean was indicated by the FM outsourcing building maintenance contract regarding the item "Own unique technical skills" (Mean = 3.38)"

For service providers, it can be seen from the results presented in Table 3 that the means of respondents range from 3.53 to 3.76 on the various items relating to minimising process customisation. The highest mean was indicated by the FM outsourcing cleaning and catering contracts regarding the item "Requesting to modify its process significantly" (Mean =4), while the lowest mean was indicated by the FM outsourcing security contract regarding the item "Extensive business knowledge specific to clients' business environment " (Mean = 3.33).

Table 3. Selection of design regarding the Theory of Transaction cost economics on clients' and service providers' outsourcing strategies.

Types of FM Outsourcing Contracts		Minimising Process Customisation							
		Clients				Service provider			
		(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
(i) Building Maintenance	Mean	**3.38**	3.65	3.46	3.69	3.46	3.54	3.62	3.65
	Std. D.	0.9	0.98	0.99	1.01	0.8	0.75	0.84	0.87
(ii) Security	Mean	3.48	3.7	3.52	3.61	3.4	3.47	**3.33**	3.8
	Std. D.	0.73	0.82	0.73	0.84	0.71	0.72	0.6	0.54
(iii) Cleaning	Mean	3.52	3.67	3.48	3.57	3.6	3.5	3.6	4
	Std. D.	0.68	0.86	0.75	0.87	0.8	0.81	0.66	0.45
(iv) Catering	Mean	3.63	3.75	3.75	**4**	3.6	3.4	3.8	**4**
	Std. D.	0.52	0.71	0.46	0.76	0.8	0.66	0.75	0.45
[(i)+(ii)+ (iii)+(iv)+ others]	Mean	**3.58**	3.66	**3.58**	**3.68**	**3.53**	3.59	3.68	**3.76**
	Std. D.	0.79	0.88	0.92	0.93	0.81	0.73	0.87	0.81

Remarks: Section E of questionnaire
Clients' (a) Minimising Process Customisation (1) Own unique technical skills; (2) Providing outsourcing service to external vendors to make substantial investments; (3) Extensive business knowledge specific to our business environment and (4) Requesting the vendor to modify its process significantly;

Service provider's (a) Minimising Process Customisation (1) Own unique technical skills; (2) Outsourcing service external vendors to make substantial investments; (3) Extensive business knowledge (4) Modify its process significantly.

4.3 Agency Cost Theory

It can be seen from the client results presented in Table 4 that the means of respondents range from 3.16 to 4.16 on the various items relating to process maturity and in-house competence. The highest mean was indicated by the FM outsourcing catering contract regarding the item "Documented and visible Key procedures and business rules" (Mean =4.13), while the lowest mean was indicated by the FM outsourcing cleaning contract regarding the item "Easily bring the outsourced process in-house" (Mean =2.9)".
From the service provider results presented in Table 4, it can be seen that the means of respondents range from 3.24 to 3.97 on the various items relating to process maturity and in-house competence. The highest mean was indicated by the FM outsourcing cleaning and catering contracts regarding the item "Documented and visible Key procedures and business rules" (Mean =4.2), while the lowest mean was indicated by the FM outsourcing security and catering contracts regarding the item "Clients easily bringing the outsourced process in-house" (Mean =3).

Table 4. Selection of design regarding Agency cost theory on clients' and service providers' outsourcing strategies.

		Process Maturity clients			**In-House Competence clients**			**Process Maturity service providers**			**In-House Competence service providers**		
Types of FM Outsourcing Contract		(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
(i) Building Maintenance	Mean	4.08	3.81	3.73	3.42	3.58	3.19	3.96	3.81	3.73	3.31	3.19	3.19
	Std. D.	0.89	0.9	0.92	1.17	1.03	1.02	0.76	0.88	0.9	0.95	0.96	0.88
(ii) Security	Mean	4	3.74	3.7	3.43	3.43	3	4	3.6	3.6	3.33	3.13	**3**
	Std. D.	0.85	0.86	0.88	1.08	0.84	0.9	0.73	0.8	0.8	0.79	0.81	0.89
(iii) Cleaning	Mean	4.1	3.81	3.81	3.33	3.38	**2.9**	**4.2**	3.9	4	3.4	3.3	3.2
	Std. D.	0.77	0.81	0.81	1.2	0.86	1	0.6	0.54	0.63	0.8	0.78	0.98
(iv) Catering	Mean	**4.13**	3.75	3.63	3	3.38	3.25	**4.2**	3.9	4	3.3	3.3	**3**
	Std. D.	0.83	0.89	0.74	1.2	1.06	1.16	0.6	0.54	0.45	0.78	0.78	0.77
[(i)+(ii)+ (iii)+(iv)+ others]	Mean	**4.16**	3.89	3.79	3.45	3.61	**3.16**	**3.97**	3.79	3.76	3.38	3.29	**3.24**
	Std. D.	0.79	0.8	0.78	1.08	0.95	0.97	0.71	0.8	0.84	0.87	0.89	0.88

Remarks: Section E of questionnaire
Clients' and Service providers' (b) Process Maturity (1) Documented and visible Key procedures; (2) Well-defined and institutionalized process; (3) Clearly demarcated process boundary;

Clients' and Service providers'(e) In-house Competence (1) team of in-house staff; (2) internal competence to backup and (3) Easily bring the outsourced process in-house;

4.4 Resource Dependency Theory

From the client results presented in Table 5, it can be seen that the means of respondents range from 3.13 to 3.79 on the various items relating to vendor interoperability and multiple sourcing to vendors. The highest mean was indicated by the FM outsourcing cleaning contract regarding the item "Building up relationships with a few outsourcing vendors" (Mean =3.76), while the lowest mean was indicated by the FM outsourcing catering contract regarding the item "Electronically linked and seamlessly connected application platform provided by our outsourcing vendor" (Mean =2.75).

It can be seen from the service provider results presented in Table 5 that the means of respondents range from 3.32 to 3.56 on the various items relating to vendor interoperability and multiple sourcing to vendors. The highest mean was indicated by the FM outsourcing cleaning and catering contracts regarding the item "Clients building up relationships with a few outsourcing vendors" (Mean =3.9), while the lowest mean was indicated by the FM outsourcing security contract regarding the item "Offering a wide variety of information" (Mean = 3.2); FM outsourcing cleaning and catering contracts regarding the item "Electronically linked and seamlessly connected application platform provided by us & Software module easily be added to, modified, or removed" (Mean = 3.2).

Table 5. Selection of design regarding Resource dependency theory on clients' and service providers' outsourcing strategies

Types of FM Outsourcing Contracts		Vendor Interoperability clients				Multiple Sourcing to vendors clients			Vendor Interoperability service providers				Multiple Sourcing to vendors service providers		
		(1)	(2)	(3)	(4)	(1)	(2)	(3)	(1)	(2)	(3)	(4)	(1)	(2)	(3)
(i) Building Maintenance	Mean	3.46	3.31	3.12	3.23	3.5	3.42	3.69	3.42	3.35	3.46	3.35	3.62	3.5	3.46
	Std. D.	1.03	1.05	1.07	0.95	0.81	0.9	0.88	0.74	0.92	0.93	0.96	0.68	0.75	0.84
(ii) Security	Mean	3.26	2.96	3	3.17	3.3	3.17	3.65	3.2	3.4	3.27	3.13	3.33	3.4	3.33
	Std. D.	0.92	0.88	0.95	1.03	0.7	0.89	0.83	0.75	0.95	1	1.02	0.7	0.71	0.79
(iii) Cleaning	Mean	3.29	3	3	3.19	3.29	3.19	**3.76**	3.4	3.7	**3.2**	**3.2**	3.8	3.6	**3.9**
	Std. D.	0.9	0.89	0.95	0.98	0.72	0.87	0.77	0.66	0.78	0.87	1.08	0.6	0.66	0.54
(iv) Catering	Mean	3.25	3.13	**2.75**	3	3.38	3.38	3.75	3.4	3.6	**3.2**	**3.2**	3.8	3.7	**3.9**
	Std. D.	1.16	0.99	1.16	1.31	0.52	0.74	0.71	0.66	0.66	0.75	0.98	0.6	0.64	0.54
[(i)+(ii)+ (iii)+(iv)+ others]	Mean	3.45	3.21	**3.13**	3.29	3.5	3.45	**3.79**	3.44	3.38	3.38	**3.32**	**3.56**	3.5	3.5
	Std. D.	0.95	0.96	0.99	0.93	0.8	0.86	0.81	0.74	0.94	0.91	0.93	0.74	0.78	0.85

Remarks: Section E of questionnaire

Clients' and Service providers'(c) Vendor Interoperability (1) offering a wide variety of information; (2) Compatible and interoperable software application; (3) Electronically linked and seamlessly connected platform; (4) Software module easily;

Clients' and Service providers' (d) Multiple Sourcing to vendors (1) policy of contracting with multiple outsourcing vendors; (2) Outsourced different components and (3) Building up relationships with a few outsourcing vendors;

4.5 Theory of Entrepreneurial Actions

From the client results presented in Table 6, the means of respondents range from 3.39 to 3.55 on the various items relating to proactive sensing. The highest mean was indicated by the FM

outsourcing building maintenance contract regarding the item "Our executives always encourage our outsourcing vendor to explore new opportunities and innovative ideas" (Mean =3.58), while the lowest mean was indicated by the FM outsourcing cleaning contract regarding the same item, "Our executives always encourage our outsourcing vendor to explore new opportunities and innovative ideas" (Mean =3.19).

From the service provider results, it can be seen from Table 6 that the means of respondents range from 3.18 to 3.71 on the various items relating to proactive sensing. The highest mean was indicated by the FM outsourcing security contract regarding the item "Clients' executives always encourage us to explore new opportunities and innovative ideas" (Mean =3.93), while the lowest mean was indicated by the FM outsourcing building maintenance contract regarding the item "Service providers' executives quick to alert us when new products and services" (Mean =3.08).

Table 6. Selection of design regarding the Theory of Entrepreneurial actions on clients' and service providers' outsourcing strategies

Types of FM Outsourcing Contracts		**Proactive Sensing clients**				**Proactive Sensing service providers**			
		(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
(i) Building Maintenance	Mean	3.46	3.42	3.5	**3.58**	3.12	3.58	**3.08**	3.69
	Std. D.	0.95	0.95	0.95	0.99	0.93	0.63	0.92	0.82
(ii) Security	Mean	3.35	3.39	3.39	3.26	3.2	3.4	3.13	**3.93**
	Std. D.	0.88	0.84	0.84	0.96	0.83	0.61	0.81	0.68
(iii) Cleaning	Mean	3.38	3.38	3.33	**3.19**	3	3.3	3.2	3.7
	Std. D.	0.86	0.86	0.97	1.03	0.89	0.64	0.98	0.64
(iv) Catering	Mean	3.25	3.25	3.38	3.25	3.3	3.5	3.3	3.7
	Std. D.	1.04	1.04	1.19	1.39	0.78	0.5	0.9	0.64
[(i)+(ii)+ (iii)+(iv)+ others]	Mean	**3.39**	3.47	3.45	**3.55**	3.21	3.53	**3.18**	**3.71**
	Std. D.	0.89	0.86	1.01	0.95	0.9	0.61	0.89	0.79

Remarks: Section E of questionnaire

Clients' and Service providers' (f) Proactive Sensing (1) Updating about the dynamics of outsourcing; (2) Initiating actions to which outsourcing vendor responds; (3) Quick to alert outsourcing vendor when new products and services are and (4) Outsourcing vendor to explore new opportunities and innovative ideas

4.6 Social Exchange Theory

From the client results presented in Table 7, the means of respondents range from 3.39 to 3.92 on the various items relating to partnership quality. The highest mean was indicated by the FM outsourcing building maintenance contract regarding the item "Mutually beneficial decisions to us and our outsourcing vendor" (Mean =3.96), while the lowest mean was indicated by the FM outsourcing catering contract regarding the item "Having compatible cultures and policies to us and our outsourcing vendor" (Mean =3.13).

It can be seen from the service provider results presented in Table 7 that the means of respondents range from 3.65 to 4 on the various items relating to partnership quality. The highest mean was indicated by the FM outsourcing catering contract regarding the item "Perform our agreements and promises very well" (Mean =4.3), while the lowest mean was indicated by the FM outsourcing building maintenance contract regarding the item "Having compatible cultures and policies to us and our clients" (Mean =3.73).

Table 7. Selection of design regarding social exchange theory on clients' and service providers' outsourcing strategies

Types of FM Outsourcing Contracts		Partnership Quality clients				Partnership Quality service providers			
		(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
(i) Building Maintenance	Mean	**3.96**	3.85	3.38	3.81	3.96	3.85	**3.73**	4
	Std. D.	0.72	0.61	0.85	0.85	0.94	0.95	0.81	0.68
(ii) Security	Mean	3.91	3.7	3.43	3.74	4	4.07	3.93	4.13
	Std. D.	0.73	0.63	0.73	0.69	0.82	0.77	0.57	0.5
(iii) Cleaning	Mean	3.9	3.76	3.43	3.81	4.2	4.1	3.9	4.4
	Std. D.	0.7	0.62	0.75	0.75	0.75	0.83	0.7	0.49
(iv) Catering	Mean	3.38	3.5	**3.13**	3.63	4.2	**4.3**	3.9	**4.3**
	Std. D.	0.74	0.53	0.64	0.52	0.75	0.46	0.7	0.64
[(i)+(ii)+ (iii)+(iv)+ others]	Mean	**3.92**	3.76	**3.39**	3.84	3.88	3.82	**3.65**	**4**
	Std. D.	0.75	0.59	0.79	0.75	0.9	0.92	0.76	0.64

Remarks: Section E of questionnaire
Clients' and Service providers' (g) Partnership Quality (1) Mutually beneficial decisions;(2) Sharing the benefits and risks (3) Having compatible cultures and policies and (4) agreements and promises very well.

In addition, the design for outsourcing strategies were tested (i.e., Five theories including the Theory of Transaction Cost Economics, Agency Cost Theory, Resource Dependency Theory, Theory of Entrepreneurial Actions, and Social Exchange Theory) on the FM outsourcing contract types i.e., building maintenance, cleaning, security, and catering. The Kruskal-Wallis Test has been conducted because it is a rank-based non-parametric test that can be used to determine if there are statistically significant differences between two or more groups of an independent variable on a continuous or ordinal dependent variable. The statistical methods employed in this study, specifically non-parametric statistics, are often considered less robust than parametric tests. However, Leedy and Ormrod (2001) argue that the "robustness" of a statistic depends on whether its assumptions are met; if the assumptions hold true, the statistical test can yield valid results. Additionally, Rees (2001) points out that "parametric tests are generally preferred when the assumptions of these tests are shown to be valid." Despite this preference, non-parametric tests offer certain advantages over parametric ones. In this study, descriptive statistics and means have been utilised to mitigate the limitations associated with non-parametric methods. The data analysed (specifically, the dependent groups regarding the design of facilities management outsourcing strategies across four relationship dimensions) do not adhere to the assumption of a normal distribution.
The Kruskal-Wallis Test assesses whether there is a difference in the dependent variable based on the groups formed by the independent variable. The null hypothesis (H0) of this test asserts that there is no difference in group means. Specifically, the null hypothesis (H0) states that there is no difference between "Facilities Management (FM) Clients" and "Facilities Management (FM) Service Providers" regarding their "Outsourcing Strategies" applied in FM outsourcing contracts, which include services such as Building Maintenance, Security, Cleaning, and Catering.
The question is whether there is or is not any statistical relationship between the design for outsourcing strategies and the four FM outsourcing contract types. The major research findings show that there are no statistically significant differences at a 5% significance level between "Facilities Management (FM) Clients" and "Facilities Management (FM) Service Providers"

towards "Outsourcing Strategies applied in their Facilities Management (FM) Outsourcing Contracts, i.e. Building Maintenance, Security, Cleaning, and Catering" (Please refer to Tables 8 & 9).

Table 8 Facilities Management (FM) Clients Towards "Outsourcing Strategies Applied in Their FM Outsourcing Contracts, i.e., Building Maintenance, Security, Cleaning, and Catering" by Independent Kruskal-Wallis Test

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.[a,b]	Decision
1	Transaction Cost Economics (Minimising Process Customisation)	- a1 is the same across Types of FM contract	.815	Retain the null hypothesis
2		- a2 is the same across Types of FM contract	.993	Retain the null hypothesis
3		- a3 is the same across Types of FM contract	.827	Retain the null hypothesis
4		- a4 is the same across Types of FM contract	.674	Retain the null hypothesis
5	Agency Cost Theory (Process Maturity)	- b1 is the same across Types of FM contract	.982	Retain the null hypothesis
6		- b2 is the same across Types of FM contract	.984	Retain the null hypothesis
7		- b3 is the same across Types of FM contract	.932	Retain the null hypothesis
8		- e1 is the same across Types of FM contract	.844	Retain the null hypothesis
9		- e2 is the same across Types of FM contract	.886	Retain the null hypothesis
10		- e3 is the same across Types of FM contract	.680	Retain the null hypothesis
11	Resource Dependency Theory (Vendor Interoperability)	- c1 is the same across Types of FM contract	.871	Retain the null hypothesis
12		- c2 is the same across Types of FM contract	.558	Retain the null hypothesis
13		- c3 is the same across Types of FM contract	.917	Retain the null hypothesis
14		- c4 is the same across Types of FM contract	.998	Retain the null hypothesis
15	Resource Dependency Theory (Multiple Sourcing to vendors)	- d1 is the same across Types of FM contract	.873	Retain the null hypothesis
16		- d2 is the same across Types of FM contract	.689	Retain the null hypothesis
17		- d3 is the same across Types of FM contract	.981	Retain the null hypothesis
18	Entrepreneurial Actions (Proactive Sensing)	- f1 is the same across Types of FM contract	.977	Retain the null hypothesis
19		- f2 is the same across Types of FM contract	.988	Retain the null hypothesis
20		- f3 is the same across Types of FM contract	.941	Retain the null hypothesis
21		- f4 is the same across Types of FM contract	.522	Retain the null hypothesis
22	Social Exchange Theory (Partnership Quality)	- g1 is the same across Types of FM contract	.347	Retain the null hypothesis
23		- g2 is the same across Types of FM contract	.546	Retain the null hypothesis
24		- g3 is the same across Types of FM contract	.746	Retain the null hypothesis
25		- g4 is the same across Types of FM contract	.912	Retain the null hypothesis

a. The significance level is .050.
b. Asymptotic significances are displayed.

Table 9 Facilities Management (FM) Service Providers Towards "Outsourcing Strategies Applied in Their FM Outsourcing Contracts, i.e., Building Maintenance, Security, Cleaning, and Catering" by Independent Kruskal-Wallis Test

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.[a,b]	Decision
1	Transaction Cost Economics (Minimising Process Customisation)	- a1 is the same across Types of FM contract	.916	Retain the null hypothesis
2		- a2 is the same across Types of FM contract	.973	Retain the null hypothesis
3		- a3 is the same across Types of FM contract	.551	Retain the null hypothesis
4		- a4 is the same across Types of FM contract	.414	Retain the null hypothesis
5	Agency Cost Theory (Process Maturity)	- b1 is the same across Types of FM contract	.735	Retain the null hypothesis
6		- b2 is the same across Types of FM contract	.708	Retain the null hypothesis
7		- b3 is the same across Types of FM contract	.495	Retain the null hypothesis
8	Agency Cost Theory (In-House Competence)	- e1 is the same across Types of FM contract	.844	Retain the null hypothesis
9		- e2 is the same across Types of FM contract	.692	Retain the null hypothesis
10		- e3 is the same across Types of FM contract	.773	Retain the null hypothesis
11	Resource Dependency Theory (Vendor Interoperability)	- c1 is the same across Types of FM contract	.946	Retain the null hypothesis
12		- c2 is the same across Types of FM contract	.341	Retain the null hypothesis
13		- c3 is the same across Types of FM contract	.884	Retain the null hypothesis
14		- c4 is the same across Types of FM contract	.175	Retain the null hypothesis
15	Resource Dependency Theory (Multiple Sourcing to vendors)	- d1 is the same across Types of FM contract	.991	Retain the null hypothesis
16		- d2 is the same across Types of FM contract	.946	Retain the null hypothesis
17		- d3 is the same across Types of FM contract	.857	Retain the null hypothesis
18	Entrepreneurial Actions (Proactive Sensing)	- f1 is the same across Types of FM contract	.887	Retain the null hypothesis
19		- f2 is the same across Types of FM contract	.688	Retain the null hypothesis
20		- f3 is the same across Types of FM contract	.945	Retain the null hypothesis
21		- f4 is the same across Types of FM contract	.787	Retain the null hypothesis
22	Social Exchange Theory (Partnership Quality)	- g1 is the same across Types of FM contract	.890	Retain the null hypothesis
23		- g2 is the same across Types of FM contract	.639	Retain the null hypothesis
24		- g3 is the same across Types of FM contract	.886	Retain the null hypothesis
25		- g4 is the same across Types of FM contract	.325	Retain the null hypothesis

a. The significance level is .050.

b. Asymptotic significances are displayed.

5.0 DISCUSSION

According to the results, the design of outsourcing strategies in the FM contracts in terms of sustainable development strands including economy, society, and environment generally do not promise the success of outsourcing contract types from which FM client and service provider strategists determine outsourcing relationships. Ikediashi and Odesola (2016) discuss

how the evolution of sustainable facilities management (FM) practices over the past few decades has been driven by the need to reduce the impact of the built environment, including construction projects and related services, on the environment. This development aims to advance sustainability across the three pillars of economic, environmental, and social sustainability.

The design of outsourcing strategies for achieving satisfactory FM outsourcing services for the four outsourcing contracts is essential, but the outsourcing strategies are not the dominant factors in achieving successful outsourcing performance of the service providers. Ikediashi and Odesola (2016) explain that Facilities Management (FM) has evolved from traditional day-to-day operational management into a strategic management tool. Three key issues have significantly influenced the development of FM practices over the past three decades: globalization, sustainability, and outsourcing.

Adhikari et al. (2019) highlight that outsourcing, along with effective workplace strategies and technological innovations, offers significant opportunities for companies aiming to reduce costs and enhance productivity in facilities management. In fact, outsourcing has come to represent over 50 percent of the total facilities management market in various regions, including Europe, the Middle East, and North America. Klungseth and Haugen (2017) highlight that the decision-making process for facility management (FM) involves determining whether to fully or partially produce services using internal resources or to collaborate with external suppliers. The summary of the findings on outsourcing strategies for current FM contracts emphasises essential procedures and business rules.

5.1 FM Client Survey Results

The following observations were made regarding the impact of outsourcing strategy design Transaction Cost Economics Theory identifies the modification of processes as the important factor, while unique technical skills are considered neutral.

Agency Cost Theory identifies the key procedures and business rules are the important factors, whereas the outsourced process managed in-house is viewed as neutral.

Resource Dependency Theory highlights the importance of building strong relationships as a key factor, while a connected application platform provided by the outsourcing vendor is deemed neutral.

Entrepreneurial Actions Theory indicates that both encouraging the exploration of new opportunities and fostering innovative ideas are important and neutral factors, respectively. Social Exchange Theory points out that mutually beneficial decisions are crucial, while compatible cultures and policies are considered neutral factors.

This indicates that modifying processes, key procedures, and business rules, building relationships, discovering new opportunities, generating innovative ideas, and making mutually beneficial decisions are all crucial in designing effective outsourcing strategies.

The factor "Process Maturity" — specifically, the documentation and visibility of key procedures and business rules to all involved parties — received the highest rating in outsourcing strategy design, scoring 4.16. This score highlights the growing importance of clearly defined procedures and business rules for clients, as they foster a better mutual understanding of the daily routines necessary for managing modern buildings.

The statement "Vendor interoperability: The application platform provided by our outsourcing vendor is electronically linked and seamlessly connected with the end users in our organisation" received a mean score of 3.13.

To address this, it is important to emphasise the significance of physical operations. The previous paragraphs in this section focused on the key and neutral design factors. Other factors that fall between these two categories (important and neutral) are considered less impactful. The mean scores of these secondary factors range from 3.13 to 4.16.

Figure 2 shows that clients primarily focus on the documented and visible key procedures regarding the process maturity of agency cost theory across the four types of FM outsourcing contracts. Proponents of agency theory, such as Eisenhardt (1989), assert that it elucidates the relationship between principals (clients) and their agents (outsourcing vendors). Specifically, it addresses two main issues in any outsourcing relationship: 1. The goals of the principal and the agent may conflict. 2. The principal and the agent may have different tolerances for risk. Agency theory recognizes the presence of risks in outsourcing and offers effective mechanisms for measuring risk preferences in a more straightforward and realistic manner. Kadir (2025) highlights that clients prioritize competence, performance, and cost-effectiveness. Additionally, they view performance measurement as a critical success factor for outsourcing strategies. Adhikari et al. (2019) discuss a case example involving a large retailer that seeks to prioritize tasks which can be handled more cost-effectively by a third-party vendor. This outsourcing strategy led to a 15 percent reduction in facilities management spending, allowing the organisation to reallocate those savings to support its investment strategy.

For clients, maintaining healthy expenses and capital is a crucial concern in any economic environment, especially during times of economic recession. Well-documented and visible key procedures can help provide effective and efficient services. Therefore, it is important for organisations to formulate strategies to revise and implement effective daily working procedures.

5.2 FM Service Provider Survey Results

The following factors were observed to influence the design of outsourcing strategies. Transaction Cost Economics Theory identifies the modification of processes as an important factor, whereas extensive business knowledge was considered a neutral factor.

Agency Cost Theory identifies that key procedures and business rules were recognised as important factors, while the outsourcing of in-house processes was deemed neutral.

Resource Dependency Theory points out that building relationships is an important factor, while having a connected application platform provided by the outsourcing vendor was classified as neutral.

Entrepreneurial Actions Theory highlights that encouraging the exploration of new opportunities and innovative ideas is an important factor, whereas receiving quick alerts about new products and services was considered a neutral factor.

Social Exchange Theory suggests that performing good agreements and fulfilling promises are important factors, while compatible cultures and policies were seen as neutral. This structured approach clarifies the important and neutral factors associated with each theoretical framework. This suggests that modifying processes, establishing key procedures and business rules, fostering relationships, exploring new opportunities and innovative ideas, and making solid agreements are all essential components in designing effective outsourcing strategies.

The factor "Process Maturity" — which emphasizes that key procedures and business rules should be documented and accessible to all parties involved — received the highest score of 3.97 in relation to outsourcing strategy design. This high score indicates that documenting key procedures and business rules is becoming a significant trend in management practices. "Proactive Sensing: Our executives always update themselves about the dynamics of outsourcing vendors' markets to take advantage of new opportunities," has an average score of 3.21. This points to the need to consider the rapid changes occurring in local outsourcing markets. The previous paragraphs focused on the important and neutral factors related to design. Other factors that fall between these two categories (important and neutral) are of secondary importance. The mean scores for these factors range from 3.21 to 3.97.

Figure 3 demonstrates that service providers primarily concentrate on the agreements and commitments associated with the partnership quality outlined in the social exchange theory regarding the four types of facilities management (FM) outsourcing contracts. It is essential to comprehend the content of FM services in terms of quality and efficiency, as well as to understand the interaction between FM, core activities, and users. Kadir et al. (2025) explain that enhancing the effectiveness of outsourcing strategies in the healthcare sector involves delegating facilities management to an external specialist. This allows the customer to maintain control over service strategy and policy while transferring the management of services. Additionally, the authors highlight that service providers focus on skills, coordination, and the allocation of human resources and assets. They consider coordination a critical success factor for outsourcing strategies. Service providers can utilise the latest and most advanced facilities and equipment to ensure high productivity in the workplace. Effective internal coordination within the service provider's team is vital for achieving efficient and effective daily operations (Meng, 2014).

Wang et al. (2020) highlight that quality service is essential for the success of facility management (FM) companies. They according to social exchange theory explain that FM practices, service provider abilities, and service quality are interconnected. Service providers can improve outsourcing by better engaging with customers, and resource allocation helps measure the effectiveness of these services.

Adhikari et al. (2019) discuss an Internet of Things (IoT) example that supports predictive maintenance. They note that Asian and European companies are leading in robotic automation for cleaning and security tasks, which could become widespread in the next decade. Robots can lower costs, free up staff for more valuable work, and reduce risks.

Ernst and Young (2013) found that European organisations outsourced mainly for better efficiency, cost savings, and fewer staff. For service providers, winning FM contracts is critical, especially during economic downturns. Strong agreements enhance the chances of success, so providers should focus on building trust and maintaining good relationships with clients.

Figure 2. FM Client Survey Results between five theories and four types of FM outsourcing contracts

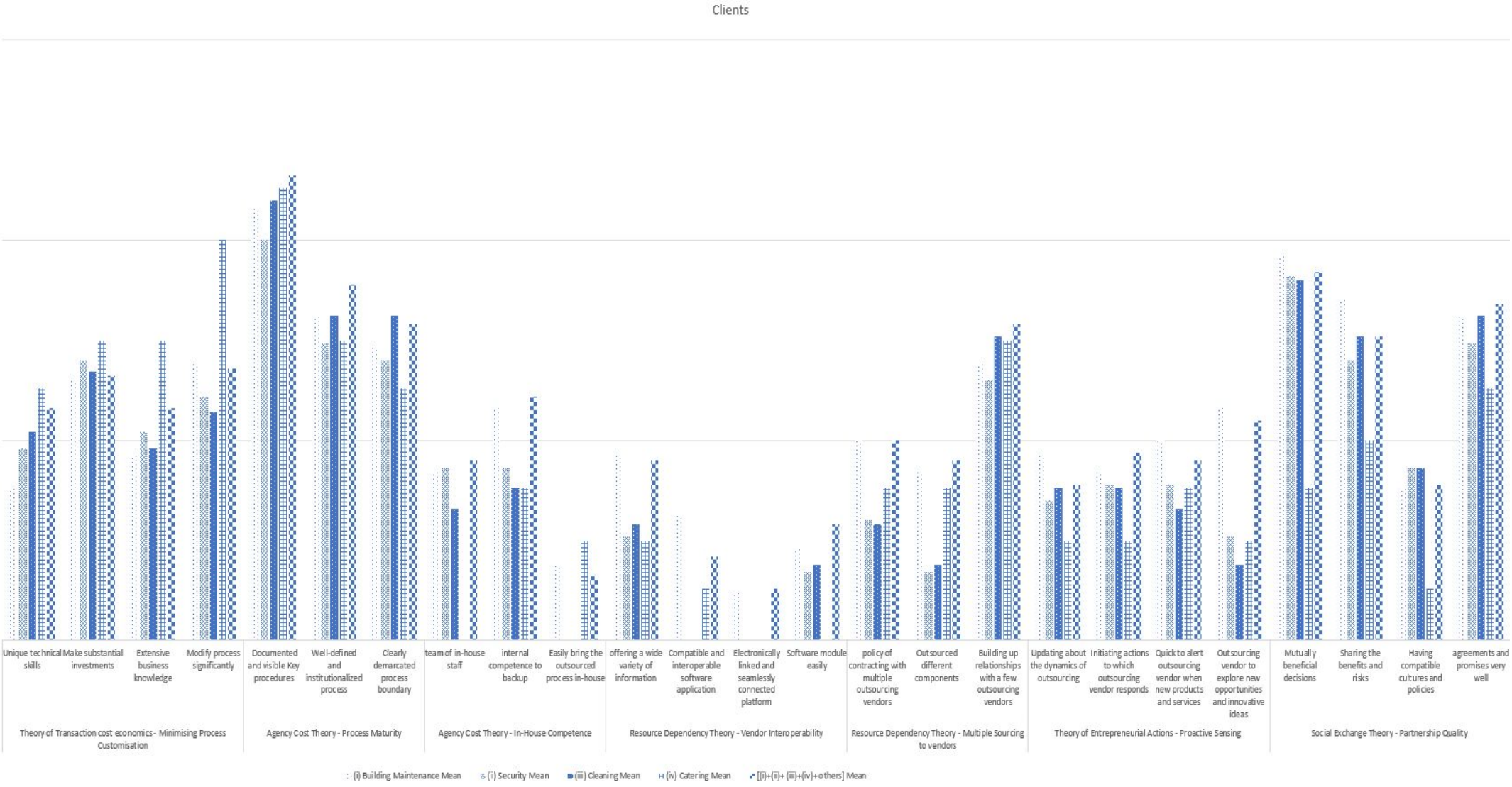
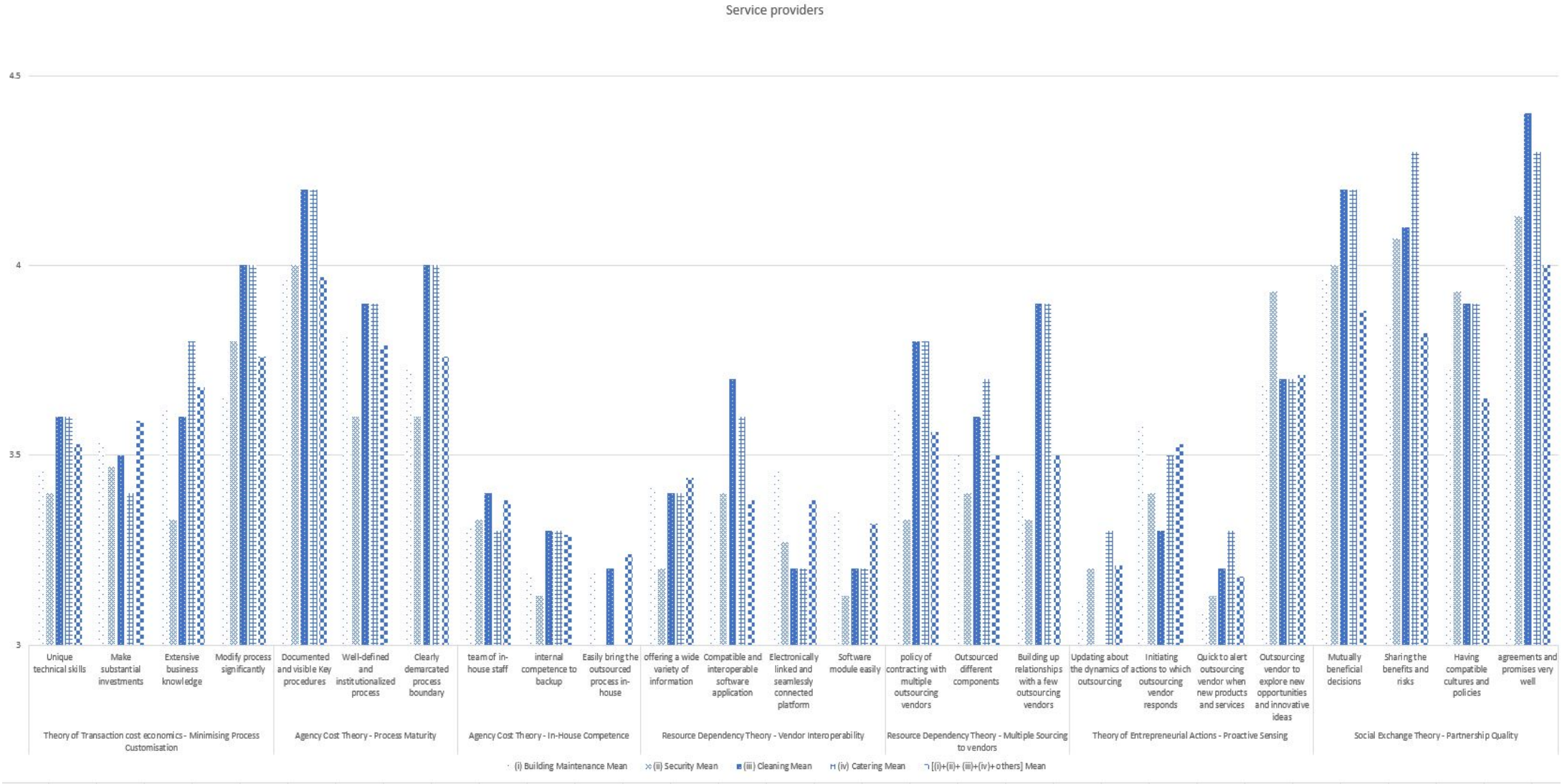


Figure 3. FM Service providers Survey Results between Five theories and four types of FM outsourcing contracts



5.3 Analysis of respondent demographics within the findings

From both clients' and service providers' perspectives, the findings indicate that the primary design factor influencing outsourcing strategies in the four facilities management (FM) contracts is related to key procedures and business rules. This aligns with the process maturity of Agency Cost Theory within the economic framework. The key design factors that influence outsourcing strategies for both stakeholders are process efficiency and cost reduction. Both parties unanimously understand the significance of streamlining operations and minimising production expenses to enhance profitability.

Clients view the application platform for vendor interoperability as the neutral design element impacting outsourcing strategies; this relates to Resource Dependency Theory, specifically within the economic and environmental contexts.

On the other hand, service providers consider that the neutral design factor influencing outsourcing strategies is the need to update the dynamics of the outsourcing vendor market to capitalise on new opportunities. This perspective reflects the proactive sensing aspect of the Theory of Entrepreneurial Actions within the economic and social contexts. Table 10 presents an interpretation of respondent characteristics to help contextualise these findings.

Table 11 provides an overview of clients and service providers in four types of FM outsourcing contracts in outsourcing strategies, sustainability emphasis, and theoretical applicability.

Table 10 Analysis of respondent demographics within the findings

	Client respondents	Service provider respondents
Response rate	41.3%	40.9%
FM-related experience		
Three years or more	60.5%	79.4%
Less than three years	39.5%	20.6%
Professions		
Chartered builders	18.4%	14.7%
Chartered surveyors	10.5%	14.7%
Chartered building services engineers	10.5%	5.88%
IFMA's certified facility manager	7.89%	11.76%
Registered professional housing manager	5.26%	11.76%
Professionals in built environment	10.5%	17.6%
Without profession	36.84%	23.52%
Facilities Management Services Contracts		
Building maintenance	31%	39%
Security	28%	25%
Cleaning	25%	17%
Catering	9%	
Capital projects, IT, landscaping, horticulture, & high-risk waste management	1%	3%

Table 11. Clients and service providers in four types of FM outsourcing contracts in designing effective outsourcing strategies, sustainability emphasis, and theoretical applicability.

	Types of FM Outsourcing Contracts	Designing effective Outsourcing strategies	Sustainability emphasis			Theoretical applicability	
			Environmental	Social	Economic	Key Design Factors	Neutral Design Factors
Clients	(i) Building Maintenance (ii) Security (iii) Cleaning (iv) Catering	i) Agency cost theory and ii) Resource dependency theory	**		**	Process maturity of key procedures and business rules	Application platform in vendor interoperability
Service providers	(i) Building Maintenance (ii) Security (iii) Cleaning (iv) Catering	i) Social Exchange Theory and ii) Theory of Entrepreneurial actions		**	**	Partnership Quality of agreements and promises	Proactive sensing of the updating the dynamics of outsourcing vendor's market to take advantage of new opportunities

5.4 Research Limitations

The credibility of the proposed study could be increased if more questionnaire samples can be obtained from practitioners, and more structured interviews can be undertaken with FM experts. The study is only focused on four main FM outsourcing services because of the dominant ratio of these four in all current outsourcing services in the higher education sector. This study also does not investigate the financial elements of the FM outsourcing contracts, as it is difficult to collect this highly confidential and sensitive financial data on the FM outsourcing contracts. The choice of population was limited to a single industry, higher tertiary education, which tends to constrain the generalisability of the findings in the context of other industries. The roles that FM outsourcing relationship types play in the related dimensions must be clarified from different industry perspectives.

6.0 CONCLUSION

Lastly, about the design for outsourcing strategies of current FM outsourcing contracts, the results show that clients and service providers have no different points of view on the most significant factor influencing the design of outsourcing strategies in the four FM contracts.

However, both stakeholders are required to prepare their specific outsourcing strategies. Clients and service providers must understand the implications of effective outsourcing strategies because the outsourcing services can be improved in a sustainable approach through comprehensive design of outsourcing strategies. The clients can have high-quality outsourcing services and the outsourcing service providers can maintain close FM outsourcing relationships.

The main insight drawn from the results is that both clients and FM service providers do not fully understand the impact of design on different outsourcing contract types for sound FM outsourcing performance. This may be the reason why both parties neglect the link between FM design and FM outsourcing strategies on different FM outsourcing services in daily operations.

In summary, a list of outsourcing strategy designs aimed at improving outsourcing relationships was developed using the CORE model. Respondents were asked to rank the usefulness of these strategies. The designs that clients found most agreeable included: significantly modifying vendors' processes (based on transaction cost economics), clearly documenting key procedures and business rules (aligned with agency cost theory), building strong relationships with a select

few outsourcing vendors (informed by resource dependency theory), encouraging vendors to explore new opportunities and innovative ideas (according to the theory of entrepreneurial actions), and making decisions that benefit both parties (supported by social exchange theory). The designs that service providers found most agreeable included: requesting to modify the process significantly (based on transaction cost economics), documenting visibly key procedures and business rules (aligned with agency cost theory), having a policy of contracting with multiple outsourcing vendors (informed by resource dependency theory), exploring new opportunities and innovative ideas (according to the theory of entrepreneurial actions) and successfully performing agreements and promises (supported by social exchange theory).

APPENDIX

Questions of the FM outsourcing strategies in the questionnaires (Client and service provider)
The design for FM outsourcing strategies of the four kinds of FM outsourcing contracts (i.e., building maintenance, security, cleaning, and catering) were rated by the respondents. The responses were measured using a 5-point Likert scale with 1 being "Very bad", 2 "Bad", 3 "Neutral", 4 "Good" and 5 "Very good ".

Example

Questionnaire Survey for Client: A study on Outsourcing in Facilities Management

Section A: Your background information

Having Higher Diploma ☐ Having Bachelor's Degree ☐ Having Master's Degree ☐

Course with FM related module(s) ☐ Course without FM related module(s) ☐

FM related experience less than 3 years ☐ FM related experience equal or more than 3 years ☐

Chartered builder ☐ Chartered surveyor ☐

Chartered building services engineer ☐ Certified facility manager ☐

Registered professional housing manager ☐

Others _____

Current outsourcing contract: Building maintenance ☐ Security ☐ Cleaning ☐ Catering ☐ Others: _____

Section E: The following items relate to the design of outsourcing strategies of your contract. Please rate HOW

1=Very unimportant; 2=unimportant; 3=Neutral; 4=important; 5=Very important

a) Minimizing Process Customization

1: Compared to other organizations our outsourced process requires technical skills that are relatively unique. 1 2 3 4 5

2: To provide outsourcing service external vendors would have to make substantial investments in their efforts to tailor our needs. 1 2 3 4 5

3: Extensive business knowledge that is specific to our business environment is required for our vendor to manage the outsourced operations. 1 2 3 4 5

4: We request the vendor to modify its process significantly to adapt to our unique operational routines and requirements. 1 2 3 4 5

b) Process Maturity

1: Key procedures and business rules are documented and visible to parties involved. 1 2 3 4 5

2: The process is well defined and institutionalized. 1 2 3 4 5

3: The process boundary is clearly demarcated. 1 2 3 4 5

c) Vendor Interoperability (Services exchanged enabling to operate effectively together)

1: The application platform provided by our outsourcing vendor offers a wide variety of information to end users through multiple channels. 1 2 3 4 5

2: The software application provided by our outsourcing vendor is compatible and interoperable across multiple platforms. 1 2 3 4 5

3: The application platform provided by our outsourcing vendor is electronically linked and seamlessly connected with the end users in our organization. 1 2 3 4 5

4: Software modules can easily be added to, modified, or removed from the application platform provided by our outsourcing vendor. 1 2 3 4 5

d) Multiple Sourcing to vendors

1: For the specified process we have a policy of contracting with multiple outsourcing vendors. 1 2 3 4 5

2: We have partitioned the process and outsourced different components to different vendors. 1 2 3 4 5

3: We have built up relationships with a few outsourcing vendors to contract out our process. 1 2 3 4 5

e) In-House Competence

1: We have a team of in-house staff who are able to replicate and expand the outsourced process if necessary. 1 2 3 4 5

2: We continue to retain internal competence to backup the outsourced process. 1 2 3 4 5

3: We can easily bring the outsourced process in-house if necessary. 1 2 3 4 5

f) Proactive Sensing

1: Our executives always update themselves about the dynamics of outsourcing vendor's market to take advantage of new opportunities. 1 2 3 4 5

Page 4 Percentage of completion 95%

2: Our executives always initiate actions to which our outsourcing vendor responds. 1 2 3 4 5

3: Our executives are quick to alert our outsourcing vendor when new products and services are offered in the marketplace. 1 2 3 4 5

4: Our executives always encourage our outsourcing vendor to explore new opportunities and innovative ideas. 1 2 3 4 5

g) Partnership Quality

1: We and our outsourcing vendor make decisions that are mutually beneficial. 1 2 3 4 5

2: We and our outsourcing vendor share the benefits and risks in our outsourcing arrangement. 1 2 3 4 5

3: We and our outsourcing vendor have compatible cultures and policies. 1 2 3 4 5

4: We and our outsourcing vendor perform our agreements and promises very well. 1 2 3 4 5

~ End of questionnaire ~

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