

INFLUENTIAL ELEMENTS OF SELECTION OUTSOURCING PROVIDER IN IT GOVERNANCE

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ABSTRACT

Over the years, decision outsourcing IT Provider selection in the software industries is rapidly spreading globally. Based on this, organizations outsource their non-core project (software development) to the IT Provider in order to achieve their strategic goals. However, organizations still face challenges in outsourcing provider selection process which lead them in making mistakes of choosing inappropriate IT Provider for their stipulated project. This paper investigates on the challenge faced in outsourcing IT Provider selection process and presents selected influential elements that can support IT practitioners. This study considered three sections during the investigation of related elements for outsourcing provider selection process. In section 1, thirty elements were identified, hence were screened to ascertain their justification from prior researches and suitability in this study. In section 2, based on the screened process undertaken, eleven elements were compared together in order to ascertain the level of preceding researches support towards elements for outsourcing provider in IT governance services, thereafter, in section 3, only six influential elements were considered to be highly supported by prior researches and this was taken for justification in this study. Since human judgment is imprecise and vague, the application of the selected influential elements considered in this study serves in solving the uncertainty and complexity in decision outsourcing provider selection process.

Keywords: *Decision-making; Outsourcing; Provider Selection Practices; IT Governance.*

I. INTRODUCTION

Information Technology (IT) outsourcing practices is rapidly increasing in various organizations [1], [2] and this is due to lack of internal experts to handle non-core project (software development). This prompts the need for outsourcing selection practices as relevant among IT practitioners in order to have adequate concentration in the organizational core-activities [3], [4]. Also, outsourcing projects to IT Providers (ITP) is a trending practice among IT practitioners, especially in the field of IT governance. This is done to achieve high service productivity [5], [3]. Based on the fact that IT practitioners have to outsource their non-core project, outsourcing

practices is inevitable and cannot be over-emphasized towards achieving strategic objectives. Although, decision making during the outsourcing provider's selection process has become quite challenging due to human perceptions, vagueness, impreciseness and uncertainty in the decision implemented [6]. However, a such decision making issue can be successfully addressed if IT practitioners streamline the number of opinions and associated criteria for making decisions [7], [8].

Furthermore, IT governance can effectively improve governance structure, process and communication as well as benefits IT Practitioners [9], [4] in selecting suitable IT Provider for proper decision making in line with its governance implementation. For IT governance and its

outsourcing activities to efficiently achieve the set organizational goals, [10] suggest that the outsourcing must be executed with well-established principles. This leads to the main purpose of this paper which is to propose elements for decision outsourcing selection practices that can aid IT Practitioners in selecting right IT provider for their stipulated project. Also, this paper presents in-depth understanding on the selected elements for outsourcing selection practices. The selected elements were highlighted appropriately based on the high level of support from prior researches. The remainder of this paper is organized as follows. In section 2 we describe the research focus on outsourcing decision provider selection, reasons for outsourcing provider selection, influential elements/factors, and selected elements while in section 3 describes the research method. In section 4 detailed illustration of the proposed selected elements was given as well as results and findings. The final section 5 concludes this paper.

2. LITERATURE REVIEW

2.1 Outsourcing Providers

Several researchers have found problems in outsourcing selection [11], [12], because of the challenges associated with the search for a suitable IT Provider (ITP). According to [13] choosing inappropriate ITP affects stipulated project objectives and in this case, it inevitably leads to problems during the outsourcing selection process. Recent research on this subject has shown that in order to avert likely problems which may affect the realization of strategic objectives, it is important to carefully consider which ITPs to outsource projects to. The recent problems faced in the course of outsourcing ITP's selection in IT governance is related to human perceptions, impreciseness, vagueness and uncertainty in IT governance. These aforementioned issues mainly occur during the process of evaluating, ranking and selecting the right provider. Consequently, these factors have caused setbacks in most of the outsourced software development project [14], [4].

The main purpose IT firms outsource their software development project is to reduce cost while enjoying high-quality services from their service providers. However, looking beyond cost reduction, there are some other factors that influence the outsourcing of software development such as service delivery time, product quality, development capability, clients satisfaction and service quality [15], [16], [4].

The concepts, domains, and mechanisms of IT governance have been well discussed in the prior studies. However, making decision about outsourcing provider selection in IT governance has not been comprehensively exploited [9]. Outsourcing decision making is very essential as it improves outsourcing provider selection processes.

Several studies have examined outsourcing selection practices from various angles. As earlier stated, factors influencing decision making in the process of outsourcing software selection are influenced by factors such as cost savings [17], [18], [19], [3, 5, 15], development capability [19], [8, 2], product quality [20], [16, 5, 4], clients satisfaction [21], [17, 15, 4] improve service quality [3, 2, 10, 14] and timeliness of service [5]. All the aforementioned factors influence the decision making process for outsourcing selection process [22], [15]. More factors include capabilities, quality, client relationship labour relations, etc. [23]. The aforementioned factors significantly motivate the outsourcing selection practices of IT practitioners [15, [24], [18]. However, outsourcing selection process, still have gaps in research despite the various researches being executed due to lack of empirical evidence regarding inappropriate selection of IT provider. Therefore, there is need to conduct more studies on how significant factors influence outsourcing selection process in IT governance.

Therefore, decision-making towards outsourcing software selection in IT governance is necessary to achieve better outsourcing selection practices. Table 3 shows a summary of the selected influential elements used in this study.

3. RESEARCH METHODOLOGY

This paper undertakes investigation into three steps such as reviewing comparing and screening of elements that can aid IT practitioners for selecting software outsourcing providers in IT governance.

3.1 Review on Elements for Outsourcing Selection

This study involved review on thirty elements that related to outsourcing providers selection domain that can aid in IT governance. The descriptions of each variable were reviewed. The elements are accessibility, reliability, security, innovation, management stability, strategic alliances, performance, experience in the similar industry, geographic location and spread of

services, cost/price, optimization capabilities, Information disclosure, quality of services, consistency, continuous improvement, value-added services, technology capability, delivery, satisfaction, development, loss and profit sharing clause, facility and technology, responsiveness to customers' needs, accessibility of contact persons in urgency, quality of relationship with vendor, safety and insurance, environmental consideration, flexibility of equipment and staff, relationship and competency. The details about 30 elements are shown in Table 1. Hence, these elements need to consider as influential elements of outsourcing provider selection in IT governance.

Table 1: Influential elements

No.	Elements/Factors	Descriptions	References
1	Accessibility	Having accessible product with new trend technology.	[19, 16]
2	Reliability	Ensuring higher product reliability.	[19, 16, 1]
3	Security	Having mutual trust-based in rendering services.	[19, 1]
4	Innovation	Having update on new service development.	[23, 16, 1]
5	Management stability	Management stability of the IT providers.	[23, 1]
6	Strategic alliances	Maintaining mutual relationship contract agreement between two parties.	[19, 1, 5]
7	Performance	IT provider is assessed based on quality and service level.	[5, 9, 30, 27, 23]
8	Experience in the similar industry	Having previous project executed for future purposes or references.	[19, 23,30]
9	Geographic location and spread of services	Geographical location on previous projects executed is however compared to current project.	[19, 23, 1]
10	Cost/price	Having the outstanding project with minimum price to decrease the total cost.	[5, 2, 11, 22, 9, 28, 23, 26, 16, 27, 33, 29, 30, 8, 21, 13, 10]

11	Optimization capabilities	The ability to maximize benefit and minimize risk during project execution is considered.	[19, 9, 28, 23, 26]
12	Information disclosure	Consistent update should be given during project execution.	[19, 28, 1]
13	Quality of services	Having a quality project delivery.	[19, 5, 22, 28, 23, 26, 16, 1, 27, 29, 30, 8, 21, 13, 10]
14	Consistency	Relationship between the organization and IT providers towards executing project.	[5, 22, 27, 23]
15	Continuous improvement	Consistent enhancement in the project execution.	[19, 16, 1]
16	Value-added services	Higher service delivery with effective added value.	[28, 16, 19]
17	Technology Capability	Ability to create effective business value.	[5, 9, 28, 26, 27, 23, 33, 29, 8, 13]
18	Delivery	On time delivery of project. Meeting contract milestone.	[5, 2, 11, 22, 28, 26, 33, 30, 8, 21, 13, 10]
19	Satisfaction	Dealing with best services with maximum delivery.	[28, 23, 27, 33, 29, 8, 21, 13]
20	Development	Having positive recommendation in the previous project executed.	[23, 1, 27, 12, 5, 33, 29, 8, 13]
21	Loss and profit sharing clause	Identification of loss and profit in the contract execution.	[23, 19, 1]
22	Facility and technology	Includes people, location, process and technology	[19, 27, 23, 5, 33, 29, 14, 13]
23	Responsiveness to customers' needs	Meeting providers' needs as expected.	[19, 11, 15]
24	Accessibility of contact persons in urgency	Consider staff skill towards project execution.	[19, 23, 17]
25	Quality of relationship with vendor	Having good outstanding quality relationship in service delivery.	[19, 16, 1]
26	Safety and insurance	Providers should have high quality	[19, 1, 34]

		insurance and safety control.	
27	Environmental consideration	Deals on considering level of positive or negative implication that may arise during project execution.	[19, 26, 20]
28	Flexibility of equipment and staff	Includes dealing with difficult situations such as imprecision, uncertainty, and ambiguity.	[19, 5, 2, 22, 26, 1]
29	Relationship	Allowing cordial relationship in executing project.	[26, 16, 1]
30	Competency	Assessment on product capability and development in executed projects.	[5, 23, 30, 26, 21, 27]

		requirements analysis, software architecture, initial outsourcing stage, Procure higher reliability services, and quality performance.	
3	Delivery-Time	Delivery time is based on accessing delivery-time interval, meeting project objectives, meeting outsourcing milestone.	[5, 26, 33, 30, 8, 21, 13, 10]
4	Costs	Cost is considered in terms of experiencing costs update, cost reduction, production costs, raw material cost, procurement cost, manufacturing cost, equipment investment, personnel management cost.	[27, 5, 26, 33, 29, 30, 8, 21, 13, 10]
5	Client's Satisfaction	Client satisfaction is based on improving customer satisfaction, documents, satisfactory outsourcing services, organizational services, quality consistency, cost reduction satisfaction, delivery satisfaction, maintaining quality consistent services.	[27, 23, 33, 29, 8, 21, 13]
6	Service Quality	Service quality is related to increase service efficiency, consistent improvement, competitive advantage, service timeliness, ability to solve problems, outsourcing selection efficiency.	[9, 24, 1, 26, 18, 19, 13, 35, 32, 10]
7	Technological Capability	Technology capability is based on having the ability to	[5, 9, 28, 26, 27, 23, 33, 29, 8, 13]

3.2 Comparison of Elements

During steps two, the comparison of the 30 elements were done in order to avoid the redundancy between the elements, some elements were combined and become to eleven elements. The eleven elements are shown in table 2. The eleven elements comprises development capability, product quality, technological level, flexibility, delivery time, costs, competencies, customer satisfaction, service quality, performance, and consistency [4].

Table 2: Comparison on Influential Elements

No.	Selected Elements	Descriptions	References
1	Development Capability	Development capability is related to knowledge, method, staff competence, contract agreement, duration, updated technology.	[27, 23, 5, 33, 29, 8, 13]
2	Product Quality	Product quality is considered in terms of improving productivity, IT Team strength, strategic objectives, activity process.	[27, 23, 5, 26, 29, 30, 8, 21, 13, 10]

		create effective business value towards achieving its goals.	
8	Flexibility	Flexibility is related to dealings with difficult situations such as imprecision, uncertainty, and ambiguity.	[19, 5, 2, 22, 26, 1]
9	Competency	Competency is related to having assessment on product capability and development in executed projects.	[5, 23, 30, 26, 21, 27]
10	Performance	Performance is related to assessing the quality and service level of IT provider.	[5, 9, 30, 27, 23]
11	Consistency	Consistency is considered based on the relationship between the organization and IT providers towards executing project.	[5, 22, 27, 23]

The eleven elements were compared together in order to determine gaps between each variable, the results of the comparison show that six elements has high support from the prior researches and this prompt the justification of the selected elements in this study. After the comparison of the eleven elements as earlier mentioned, six influential elements such as development capability, product quality, delivery time, costs, client satisfaction and service quality received high support from prior studies, thereafter were considered appropriate for this study as shown in table 3. The selected elements significantly motivate the outsourcing provider selection practices of IT practitioners (15, 23, 22). The six elements selected were highly supported by prior researches as earlier stated. To this end, table 3 shows the mapping influential elements for the purpose of avoiding duplication of elements.

3.2 Final Screened Elements Selected

After the comparison of the eleven elements as earlier mentioned, six influential elements such as development capability, product quality, delivery time, costs, client satisfaction and service quality received high support from prior studies, thereafter

were considered appropriate for this study as shown in table 3. The selected elements significantly motivate the outsourcing provider selection practices of IT practitioners (27, 24, 14).

Table 3: Mapping Influential Elements

No	Factors for Outsourcing selection	Mapping Criteria
1.	Development Capability	Technology Capability, Innovation, Facility and technology, Strategic alliances, Experience in the similar industry, Optimization capabilities, Information disclosure, Flexibility of equipment and staff.
2.	Product Quality	Safety and insurance, Reliability, Performance, Value-added services, Development and Production capacity.
3.	Delivery Time	Delivery, Accessibility of contact persons in urgency, Environmental consideration, Geographic location and spread of services.
4.	Costs	Management stability, Cost/price, Loss and profit sharing clause.
5.	Clients Satisfaction	Accessibility, General reputation/carrier prestige, Responsiveness to customers' needs, Quality of relationship with provider.
6.	Service Quality	Capability to handle specific business requirements, Continuous improvement, Quality of services.

The mapping criteria were achieved through considering the meanings of each of the thirty elements and thereafter mapped them to the six selected influential elements respectively.

4. RESULTS

This study investigation on selected elements was executed into three steps. Only six elements were taken appropriate in this study due to high level of support provided by previous researches. The paper presents six elements of outsourcing selection provider such as development capability, product quality, delivery time, costs, client satisfaction and service quality. The selected elements provide maximum support in terms of selecting suitable IT provider to handle the organizational non-core project.

The concepts and descriptive review of the influential elements selection are presented below;

4.1.1 Development Capability (DC)

In development capability according to [25], [11] decision makers investigate IT provider's outsourcing practices based on achieving their strategic objectives goals before taking a decisive measures on outsourcing provider selection in software industries. Also, [23] stated that IT providers are been evaluated by the IT practitioners in their outsourcing services application method executed in relation to previous tasks carried out such as individual roles performance effectiveness, staff competence, contract agreement terms, meeting outsourcing required milestone and time delivery, as well as skillful personnel for competitive advantage. In the same vein, [23] suggested that clients (organizations) decisiveness in outsourcing provider selection is as a result of been influenced by the IT provider's development capability.

4.1.2 Product Quality (PQ)

In product quality increases productivity in terms of enhancing the consistency in decision making demand for outsourcing selection [26], [17]. Studies carried out by [20] author mentioned that product quality improves IT team strength, individual productivity in service knowledge level, strategic service level, activities process at requirement analysis and software architecture phase. Moreover, product quality procure higher reliability services and quality performance of service level [5]. This view was supported by [14] where authors mentioned that product quality promotes organizational performance criteria for outsourcing provider selection in firms.

4.1.3 Delivery Time (DT)

In delivery time refers assessing delivery-time interval of the service providers [27], [5], in this view decision makers terms to be optimistic in meeting their outsourcing milestone and this leads to their evaluating of the IT provider's delivery-time interval so that they can achieve their strategic objective goals in IT industries.

4.1.4 Costs (CT)

In costs reduction aims as the main key factor decision making outsourcing provider selection is practiced by decision makers, IT practitioners, and IT staff in various organizations [28]. Also, firms outsource non-core project to save operation costs. However, [20,5,14], mentioned negatively concerning the challenge faced by firms such as hidden costs which occurs in the outsourcing process as a result of IT providers change in costs or technical costs update. Although, positive view was made by [12] where the researcher suggested that IT industries can overcome the challenge faced such as hidden costs during outsourcing process if the organizations will spend more at the search stage hereby reducing hidden costs throughout the outsourcing process and saves considerable expense later. However this involves evaluating IT providers' previous tasks on costs operations, that means having clear understanding on outsourcing costs [23] and organizations would ascertain IT provider's outsourcing roles [23].

4.1.5 Clients Satisfaction (CS)

In clients' satisfaction refers to positive responses received by the organizations as a result of their services surpassing their customers' expectation; it's a means of improving customers' satisfaction [29], [17]. Also, IT practitioners evaluate IT providers' past outsourcing experience [23], hereby improves their confident on the satisfactory outsourcing services rendered with standard technical and methodological capabilities. In the same vein, [14] were they suggested clients satisfaction improves firms services.

4.1.6 Service Quality (SQ)

In service quality IT providers offer quality service with cost reduction [30], [19] and firms considered delivery time and maintaining quality consistent services in outsourcing provider selection. Also, organizations considered the benefit derived in service quality such as; increase in the outsourcing efficiency, improves service quality, and obtaining service quality for competitive advantage [6]. In this same vein, [25] suggested that service quality entails timeliness of service, service personalized and ability for IT providers to solve problems that may arise.

5. CONCLUSION, LIMITATION AND FUTURE WORK

This study describes decision making towards IT practitioners practices in outsourcing provider selection process. The selected influential elements which consists of development capability, product quality, delivery time, costs, client satisfaction and service quality was derived from the existing researches in order to support outsourcing selection practices of IT practitioners in IT governance services industries and also towards enhancing their outsourcing selection practices for sustainability attainment. The selected elements were justified in this study based on high support obtained from prior researches. IT practitioners using the selected elements for outsourcing selection will be able to select suitable provider that can handle their non-core project.

Findings from the investigation undertaken on the related elements shows that in section 1, not all the thirty elements were closely related to be used in this study. In section 2, eleven elements were closely related as they were compared to ascertain prior researches level of support, hence six influential elements were merged for this study based on high level of support obtained from preceding researches that was taken for justification.

Furthermore the summary findings from this study presents the influential elements for outsourcing provider selection as feasible for absolute enhancing IT practitioners outsourcing selection performance. This study has a limitation which is related to the selected influential elements as future research will require using the selected elements to ascertain existing practices of IT practitioners only in IT governance services industries in Malaysia. Hence findings from this study cannot be generalized to other countries. In future work the selected elements will be increase in order to support other countries outsourcing selection practices.

These aforementioned selected elements will be implemented in the model that will be used for decision outsourcing provider selection practices.

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