An analysis of IT/IS outsourcing provider selection for small- and medium-sized enterprises in Taiwan

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ABSTRACT

Outsourcing is important in highly diversified business environments, but while there have been many studies on outsourcing, none have explicitly tackled the problem of how SMEs should assess and select their outsourcer. Numerous benefits might be gained if SMEs could utilize evaluation models to help select their IT/IS outsourcer effectively. Prejudices arising from selection through impartial analysis could be avoided and a more accurate and an objective decision could be made. We investigated the selection process of an enterprise needing an IT/IS outsourcing provider in Taiwan. Our recommended process quantitatively sorts the criteria using the AHP. An evaluation model was developed based on the needs of the SME who should use it to obtain a better outsourcing provider resulting from improved information vital to maintain outsourcing efficiency. Use of our model should reduce costs and potential risks in adopting new IT/IS applications and promote an objective standard with which to evaluate IT/IS outsourcing providers.

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1. Introduction

Outsourcing is the provision by an outside company of products and/or services that implement functions or activities of the user organization. In general, an outsourcing provider differs from the application service provider (ASP), which merely supplies software applications, hardware, and/or related services. In addition, a service agreement with an outsourcing provider is usually based on a long-term contract, while that with an ASP may be short-term. A review of the IT outsourcing (ITO) literature by Lacity et al. [14] suggested that:

(1) research studies of ITO practice in the early 1990s focused on the determinants of IT outsourcing, IT outsourcing strategy, and mitigating IT outsourcing risks;
(2) studies from mid-1990s to the late 2000s focused on best practices and client and supplier capabilities; and
(3) recent studies have considered offshore outsourcing, business process outsourcing, and the resurgence of application service provision.

Taiwan, affected by the global economic downturn and increased competition, has confronted the issue of how SMEs can survive. Over time, SMEs have realized that IT utilities have become one of the most important ways of maintaining global competitiveness. However, there has been no effort to develop a model to aid in selecting an IT/IS outsourcing provider for an SME.

While outsourcing has been perceived as viable and economically beneficial for large enterprises, the new business environment has shown that this may be a misconception: often outsourcing has proven to be less effective than internal IT/IS processing. Various factors affect the effectiveness of outsourcing; while some results from the supplier's capabilities, including their system and service quality [16], partnership, trust, and service level agreements [8], other factors depend on the client-firm's needs and abilities, including their IT capability, internal organizational, participation, and communication [9], as well as their shared/common processes and procedures for testing and ensuring quality and same Capability Maturity Model (CMMI) capabilities [20].

The right choice of an outsourcing provider has a positive impact on the productivity and performance of the client company, and probably on market reaction to increased or decreased market returns [1]. Studies point out those enterprises should carefully manage their pre-planning activity, recognizing that choosing outsourcing companies with excellent service quality is a crucial factor in making a successful selection. Similarly, the choice of outsourcing providers is one of the most important factors

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affecting outsourcing performance. Jayatilaka et al. [10] identified fifteen factors influencing the choice of ASP; of these, eight are directly associated with outsourcing providers. Outsourcing providers play a significant role in the success of outsourcing activities and careful management of the receiver–provider relationships is required to sustain a successful outsourcing → it can facilitate a successful turnaround in a failing outsourcing venture [11]. However, the outsourcing approach may have to change with time and due to new technology development [12]. Thus the selection of an outsourcing company is crucial in ensuring the success of the relationship between an enterprise and its outsourcing service provider.

2. Theoretical foundation and discussion

SMEs are more inclined to rely on the support of external IT/IS service providers than are large enterprises. Therefore, the search for SME IT/IS outsourcing services should comply with their operational model and demands.

2.1. Current development of small and medium enterprises

Taiwanese SMEs manage their operations based on the *Small and Medium Enterprises White Paper* (2005) law which defines an SME as a company based on two criteria: (1) the net capital for the manufacturing, mining, or quarrying industry should be less than NT$80,000,000; and (2) the total capital should be less than NT$120,000,000.

It is evident that SMEs are small-scale businesses that have limited resources. Taiwanese Institutions such as the Chung Hua Institution for Economic Research have summarized the characteristics of SMEs and described them as firms having small-scale operations, an insufficient workforce, high fluctuation rates, unhealthy financial structures, insufficient resources, rapid decision-making processes, a high efficiency of resource operation, and an insufficient internationalized capacity. Apart from being highly heterogeneous, they value their relationship with other enterprises as flexible and aggressive, and their operation is dynamic.

As SMEs face increasingly complex systems in areas such as ERP, distributed hardware and software management, storage management and business intelligence, they have learned to depend on other providers for operating their businesses. Maintaining such systems requires resources and expertise, but obtaining them at an affordable price can be difficult. More specifically, monetary resources are needed to purchase tools and proactively manage IT (e.g., support remote connectivity, monitor system performance, and tune the system) and recruit personnel skilled in installing and updating software and hardware. Typically, an SME does not possess the necessary skill set to handle all IT issues; most have limited working capital, tools and skills, and their IT application is usually far behind that of large enterprises [4]. Thus when SMEs introduce a new IS, the operational procedures and intended introductions are difficult to fully integrate because of a lack of skills and experience of their IT staff. Furthermore, SMEs in Taiwan often still regard IT/IS as a unit under the accounting function, resulting in a lack of managerial experience in planning for and/or managing the information resources.

Outsourcing can upgrade the operational efficiency of companies [2]; thus, it is an excellent way to upgrade the operations of SMEs.

2.2. IT/IS outsourcing service

Outsourcing service types are diverse. Taiwan's Government Directorate-General of Budget divided IT/IS outsourcing services into: overall planning, systems integration, systems inspection, systems management, Internet management, software development, software verification, software maintenance, hardware maintenance, hardware operation, management of facilities, supporting services, Internet services, consulting services, establishment of databases, information dealing, and data registration or training promotion.

In terms of business functions, outsourcing services can also be separated into two groups: information techniques and business procedure outsourcing services. Currie [5] stated that there were eight stages of outsourcing services:

(1) planning and analysis, which allows the participation of users;
(2) design and establishment, which allows the participation of users and applies self-management;
(3) design and establishment, which also allows the participation of users and employs outsourcing management;
(4) design and establishment that do not employ the participation of users;
(5) specific projects which allow the participation of users and apply self-management;
(6) specific projects which allow the participation of users and employ outsourcing management;
(7) overall outsourcing which allows the participation of users; and
(8) overall outsourcing which does not employ the participation of users.

The performance of IT/IS outsourcing is affected by many factors, as shown in Table 1, which were all derived directly from the referenced literature. Outsourcing contractors tend to be evaluated according to each crucial factor to ensure outsourcing success. Thus SMEs should carefully evaluate their respective environments and corporate cultures while assessing their needs.

The "Count" suggests that the capacity of software, hardware, and specific project management and the reputation of the provider are the most important factors in the selection process. The other factors may also be crucial criteria depending on the specific needs of the firm.

Since the meanings of some factors are similar, we integrated the aspects of "software technique capacity" and "hardware technique capacity" into "software and hardware capacities," and "presence or absence of testing procedures," "presence or absence of procedures for testing and ensuring quality," and "quality assurance" into "property, quality, and reliability of the products". For more intuitive terms, "number, experience, and specialty of the professional personnel" was changed to "capacity of employees," and "involvement in research and development" was renamed "capacity for research and development." Based on a similar procedure, the refined 20 factors (from the original 24 shown in Table 2) affecting the choice of enterprises with respect to IS outsourcing companies, were further placed into four groups: "capacity of professional skills," "capacity of service," "capacity of operation," and "external evaluation." The main idea/rationale behind these four groupings was to provide a grouping that was a parsimonious set of IT/IS outsourcing provider evaluation dimensions, and an appropriate information structure for data analysis. These serve as bases by which each factor can be measured.

Often, SMEs rely on professional skills and service capacity rather than on completeness of system documentation and initiatives to absorb the capacity of the personnel of the outsourcing provider. In order to examine how SMEs should assess and select potential outsourcers, empirical data was collected from Taiwanese SMEs using Delphi and other survey methods.