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IT and eCommerce Outsourcing in Small to Medium-Size Enterprises in New Zealand: An Exploratory Research

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Abstract

In New Zealand, small to medium-sized enterprises (SMEs) play a very important role in the economy by their contribution to both employment and also to gross domestic product. Addressing issues pertinent to SMEs is of paramount importance in driving this sector forward. Information Technology (IT) emerges as one main enabler for SMEs in automating their operations, seeking new opportunities and enhancing their strategic business positioning in local and international markets. However, the dynamic nature of IT and inability of SMEs, due to problems inherent in their size and structure, makes it difficult for them to take appropriate decisions to benefit from the IT technologies. The advent of eCommerce (EC) has only compounded this problem. One way out of this complex situation is to outsource the IT and EC technology requirements by the SMEs. This study endeavours to identify the pattern of IT and EC outsourcing issues of SMEs within New Zealand. It reveals that the main driver for IT outsourcing is access to expertise and used mainly for maintenance purposes only. The study also identifies the problems in IT outsourcing and makes suggestions for further research in this crucial sector.

Keywords: *information technology, electronic commerce, New Zealand SMEs, Outsourcing.*

1. Introduction

Small and medium Sized enterprises (SMEs) play a significant role in many countries. SMEs constitute around 95 percent of enterprises and account for 60 to 70 percent of employment within the countries of the Organisation for Economic Cooperation and Development (OECD, 1997). In New Zealand, SMEs play a significant role in the economy by contributing (35%) of national output, constituting 96% of the total number of firms and providing employment for 41% of the labour force (MOED, 2000). Being more flexible, innovative and incurring lower overheads, SMEs are proving their importance in facing increased global competition and in introducing inventions and innovations (Iacovou, Benbasat, & Dexter 1995).

The application of Information Technology/Systems (IT) and electronic commerce technologies (EC) provide unique opportunities to New Zealand enterprises, particularly due to the geographical remoteness of New Zealand from the rest of the world (Abell & Lim, 1996; Cameron & Massey, 1999; MOC, 1998; Peters & Paynter, 1999). However, the review of the IT literature in small business reveals two important features. Firstly, SMEs are characterised by resource-poverty at different levels, e.g., financial, IT experts, IT expertise, time, and planning. Consequently, the usage of IT/EC technologies by SMEs is still in its early stages or under utilised and is usually to supplement the existing accounting functions (Blili & Raymond, 1993; Cragg & King, 1992, 1993; Soh, Yap & Raman, 1992). Secondly, SMEs face challenges in choosing an appropriate technology. The IT arena is currently characterised by an ever-increasing range of products and solutions. With the advent of the Internet and its use for commercial transactions, the range of choices and product offerings in IT has spread to wider areas across the globe, unimaginable only a few years ago. The wide range of offerings of IT products, specifically in the electronic commerce technologies sector, has made the task of appropriate choice of IT/EC products and their suppliers a very complex process for the businesses (TOI, 2000).

In the situation where SMEs lack the wherewithal to buy IS/EC technologies and ability to decide on what technologies to choose from, outsourcing emerges as one possible way of having access to these technologies. The strategic importance of outsourcing in IS planning and integration has been suggested by the IT literature (Luftman, 1996). Smith, Mitra and Narasimhan (1998) define IT outsourcing as “the use of external agencies to process, manage, or maintain internal data to provide information-related services” (p 62). The main reasons for outsourcing vary among firms, but mostly motivated by strategy, technical, financial, or scale considerations. The outsourcer’s economies of scale may provide considerable cost savings but the economics of outsourcing remain controversial and that each case must be decided on its merits (Frenzel, 1996). In the early nineties outsourcing was viewed as the last resource for big companies only (Barrett, 1996). However, with the further proliferation of different IT products in the market, reduced prices and the developed awareness about the importance of IT among organisations,

outsourcing suits smaller organisations with limited IT capability (Turban, Lee, King and Chung, 2000).

2. Increasing Size of IT Outsourcing Market

The U.S market for outsourcing is around \$340 billion. Although the financial growth rate of IT outsourcing has slowed in the U.S, it continues to be the largest area (28% - with 18% growth rate in the EC area) in comparison with human resources (16%), sales and marketing (15%), finance (11%), administration (9%), etc. – with an expected growth in small business outsourcing contracts by more than 25% (TOI, 2000).

Even though the above-mentioned forecasts implicitly point to increasing size and scope of contracts, Currie (2000, p. 177) observes, “most companies tend to prefer to enter outsourcing contracts which are smaller (in money), shorter (in duration) and more narrow in scope (range of IT services)”. However, the mega-deals, which involve total outsourcing, continues to gain media attention due to the dollar value of such deals (Lacity and Willcock, 2001).

3. Typology of Outsourcing – A Conceptual Framework

Luftman (1996) has posited that organisations face a choice of three types of outsourcing. They are (1) adhoc outsourcing, which is for a specific skill or resource in order to supplement the internal staff, (2) selective outsourcing, which is used in designated areas to supplement internal resources and low risk commodity projects, and (3) full scale outsourcing, which is used in close conjunction with internal resource strategy and for strategic reasons leading to contract or even an alliance. On the other hand, Currie and Willcocks (1997) have expanded the outsourcing options to a choice of four. Based on the extensive empirical research conducted in US and Europe, they suggested four distinct types of outsourcing: total outsourcing, multiple supplier/selective sourcing, joint-venture/strategic alliance sourcing, and insourcing (retaining an in-house IT department).

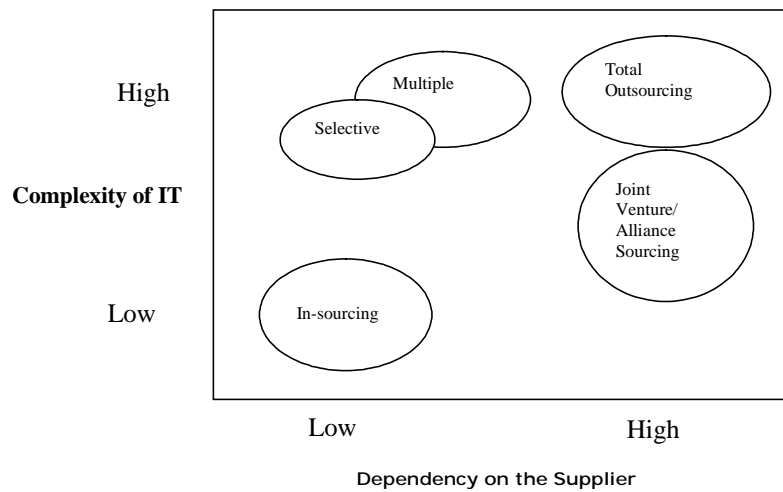


Figure 1: A Typology of Outsourcing

Synthesising the two studies mentioned above, the authors propose a conceptual framework for outsourcing which offers a choice of five different options based on two dimensions, namely dependency on the technology supplier and complexity of IT technology. The dependency on supplier by the client is shown on X-axis and Complexity of IT technology to be outsourced is shown on Y-axis.

The option of total insourcing occurs when the level of technology is relatively simple, the dependence on the supplier is low and the IT needs can be met by the organisation's IT department (e.g., software/hardware upgrade, supplementary application software module). Selective sourcing is resorted to when the IT technology to be outsourced is of higher order but for a specific (and narrow) activity (e.g., integrated ERP system from one vendor such as SAP). On the other hand if such needs are more in number, the firms have a choice of choosing multiple outsourcing when businesses would choose, according to them, the most competent supplier for each of those activities (e.g., accounting application from one vendor, manufacturing application from another vendor, inventory, sale & marketing, etc.).

Selective sourcing and multiple sourcing overlap each other since businesses quite frequently shift from each other (e.g., discovering that the organisation requirements could be split into different activities, which could be outsourced from different specialised IT suppliers). Where a business seeks long-term support of a particular (or a set of) activity, whose complexity is relatively high, they have the option of joint venture or alliance sourcing (e.g., with EC suppliers/consultant). The last option is total outsourcing, where the businesses lack any IT skills or competencies and are completely dependent on the supplier (e.g., Web site hosting). The type of the outsourcing a business opts will be an outcome of the two dimensions along with other factors such as finance, stage of growth, acuteness of

the need for outsourcing etc. The models suggest that other things being equal, the choice is guided by the two variables namely complexity of IT technology to sought and the degree of dependency on supplier for that need.

4. Past Research in IT Outsourcing

Outsourcing has been viewed and justified on the ground that it enables businesses to concentrate on their core business competencies (Hamel and Prahalad, 1994). As such firms viewed IT as something, which is separate from their main business activities (Currie, and Glover, 1999). Such a view meant that where IT is not the main business activity, it can be outsourced from the third party without adversely affecting the business performance and concentrate on more pressing business issues. Takac (1994) and Barrett (1996) have pointed out the cost savings were often the main reason for outsourcing. When the costs of IT related activities increased, management “in the mid – 1990s onwards increasingly turned to outsourcing as a *panacea* (italics in original) to manage the dilemma of maintaining existing systems and applications and introducing new ones at only a marginally increased cost” (Currie, 2000, p. 175).

A recent study by Lacity and Willcocks (2000) surveyed across 600 UK firms and US and revealed that the majority of the organisations pursued selective outsourcing because it was less risky than total outsourcing. In fact, they used multiple suppliers rather than single suppliers. Two main drivers of outsourcing identified were cost reduction, refocusing of in-house IT staff on more value-added IT work and business applications. The study also stressed the importance of disaster recovery services.

In a study conducted by KPMG/ Nolan Norton Institute (1999) covering 300 surveyed organisations in Australia and New Zealand it was found that two third of them were outsourcing their operations and support functions. Two interesting issues have come to the fore in this study. One, the majority of the organisations, particularly the smaller organisations do not perform any type of audit of their outsource delivery and performance; two, the main driver for the outsourcing decision is need for access to skills rather than cost savings. The current study considers these issues by focussing on SMEs.

5. Research Question and Objectives

The foregoing discussion clearly points to the fact that the SMEs are confronted by an array of bewildering products in a rapidly changing market and face a not so easy task of making the appropriate choice of IT product or solution for their businesses operations. There are many issues critical to such a decision: why do the

SMEs in New Zealand Businesses go for IT outsourcing? What are the IT activities and products that are outsourced? What difficulties do they face in the process? This study seeks to address these basic questions. The study has the following objectives:

1. To identify the drivers for IT outsourcing by SMEs in New Zealand
2. To identify the areas/activities of IT outsourcing in their business operations by SMEs in New Zealand
3. To examine the problems faced in IT outsourcing by SMEs in New Zealand

The above questions are of importance to researchers, legislators, and to professionals working in New Zealand or elsewhere. There is not much research on IT outsourcing in small business in general and particularly in New Zealand. Factors endorsed/refuted in the current study would assist the above interested parties in knowing different facilitators and impediments to the outsourcing of IT/EC in the small sector. Although, generalising the outcomes from the current study to the whole of SMEs population in New Zealand was not possible due to the smallness of the size of the sample, it does indicate the broad trends for future in depth study. This research represents an initial step in this direction and highlights the important issues pertaining to outsourcing in SMEs in the context of New Zealand.

6. Methodology and Research Design

To the best of the authors' knowledge, this study about IT outsourcing by SMEs is first of its kind in New Zealand and it is exploratory in nature. To identify the areas of concern for SMEs in IT outsourcing two SMEs owners were interviewed and then a focus group consisting of four small businesses from Auckland city was conducted. Some variables were identified and they were further supplemented by the some more factors found in other studies (Currie and Willcock, 1997; Lacity and Willcock, 2000). Based on the information gathered through the focus group and past studies a draft questionnaire was designed. It was then distributed among few outsourcing and outsourcers for clarity, coverage and appropriateness of questions. All the suggestions were considered before finalising the questionnaire. It contained in all 15 questions covering both nominal and ordinal variables.

The sample was sought from the Auckland city using the public telephone directory. The businesses were contacted by phone and the questionnaire was posted to those who agreed to complete the questionnaire, which was enclosed with a post-paid envelope, to enable a better response rate. Out of 100 questionnaires sent, 59 responses have been received of which only 51 are usable. Hence the effective response rate was 51%. This is not only a good response rate but also probably indicative of the interest in this study by the respondents in the sample.

The data was analysed using SPSS package. Since the study is exploratory and trying to identify broad trends, simple mean scores and frequencies were derived to draw conclusions.

7. Sample Characteristics

As mentioned earlier, the sample is drawn from the Auckland city. The effective sample size is 51 and 92.2 percent of them have staff of less than 20. In terms of business sector, 35 percent of them belong to wholesale/Retail category, 20 percent each from manufacturing and IT & Communication sectors. Over two-thirds of them (67.7 percent) are in business for at least 5 years or more and only 10 percent of them have come into existence in the last 1-year. Out of 72 percent of those who revealed their turnover, 91 percent of them have turnover under \$ 5 million a year.

Of the 51 respondents, an overwhelming majority of them (71 percent) currently outsource their IT requirements and another 17 percent plan to outsource in the next two years. 78 percent indicated that the manager was an owner (or one of the owners) of the business.

8. Drivers for Outsourcing

Cost reduction was the main driving factor for outsourcing in the past (Barrett, 1996) and in reducing permanent jobs among IS/IT staff (Bentley, 1998). However, other studies have pointed to reasons other than cost being the primary reason for outsourcing. Pastore (1996) found the desire to offer quality service to the customer overrides cost considerations. Likewise, study by KPMG/ Nolan Norton Institute (1999) revealed that the need for 'access to skills' is the most important consideration for outsourcing decisions.

According to Lacity and Willcocks (2000), the most achieved benefits from outsourcing were: cost reduction (although modest savings), refocusing of in-house IT staff on more value-added IT work and business applications, improved flexibility of IT since the outsourcer's costs are more flexible than in-sourcing costs which are fixed. Other benefits identified but with minimal influence are better quality service, improved use of IT resources, access to scarce IT/IS skills, improved business flexibility, focus on core business, better management control, access to new IT, balanced processing loads, and help in cash problems. Earlier, the Outsourcing Institute (cited in Barrett, 1996: 3) also listed ten top reasons for outsourcing: improve company focus, gain access to world-class capabilities, accelerating reengineering benefits, shared risks, free resources for other purposes, make capital funds available, cash infusion, reduce operating costs, resources not

available internally, and out of control. As against the reasons identified in the past studies, the main reasons as revealed in this study are shown in Table 1.

Table 1: Determining Drivers for Outsourcing

Sl./No.	Reasons for Outsourcing	Mean Scores	Std. Dev.
1.	Access to Expertise	4.08	0.94
2.	To improve the quality of service	3.86	1.09
3.	Access to new technology	3.77	1.03
4.	Flexible and responsive systems	3.76	1.12
5.	Focus on core business competency	3.60	1.25
6.	Reduce costs	3.43	1.25
7.	Reduce risk/uncertainty in new projects	3.35	1.25
8.	Quick operationalisation	3.26	1.39
9.	Gain competitive advantage	3.23	1.43
10.	Lack in-house capability	3.21	1.32
11.	Develop new skills	3.00	1.24
12.	In-house IT management is cumbersome	3.00	1.30
13.	Continuing past contracts	2.41	1.05
14.	Organisational restructuring/downsizing	2.09	1.19
15.	Imitate competitors	1.98	1.19

Table 1 reveals very interesting reasons for outsourcing. Cost is no longer the most important consideration and it ranks only 6th in importance. Five drivers for outsourcing that rank ahead of cost are access to expertise, improving the quality of service, access to new technology, flexible and responsive systems, focus on core business competency. The findings are in tune with the earlier studies by Parore (1996) and KPMG/ Nolan Norton Institute (1999), which have pointed to the reasons other than cost as important drivers for outsourcing. The priority evident in reasons for outsourcing points out that SMEs in New Zealand have a positive attitude towards technology and embrace external expertise in order to enhance their internal systems and their services to their customers.

Other drivers that have impact on outsourcing decisions are reducing risk/uncertainty in a new project, quick operationalisation, gain competitive advantage, lack in-house capability and develop new skills. This could be interpreted that SMEs' IT systems are so preliminary and rudimentary that they do not require separate IT staff/department. This assertion could be endorsed by the reason, 'significant access to expertise' mentioned earlier as SMEs seem to rely more on outside expertise.

9. Outsourcing Profile

The three areas that are increasingly being outsourced are software, project management, and network development and management (Bentley, 1998). Currently, most mainframe management, computers maintenance, help desk support, local/wide area network deployment and management, and application-maintenance is subcontracted. Conversely, client/server applications development is in-sourced because it is viewed as more strategic (Barrett, 1996). It is extremely difficult to manage a mix of highly skilled people and very expensive to keep updating their skills. In a recent survey undertaken by Lacity and Willcocks (2000), it is found the majority of the outsourced activities were in IT infrastructure activities such as disaster recovery rather than IT development or IT strategy.

The study tried to identify the areas of outsourcing undertaken by SMEs in terms of ownership control and maintenance of hardware. Leasing the hardware is considered a proxy for IT hardware outsourcing. The responses are shown below in Table 2.

Table 2: Profile of Hardware Outsourced

Sl./No	Hardware items	Ownership		Maintenance	
		Number of Businesses	% Of Sample	Number of Businesses	% Of Sample
	<u>IT-Hardware:</u>				
1.	PCs (Desktops)	4	7.8	37	72.6
2	Mid-range servers	5	9.9	28	54.9
3.	Data cabling	4	7.8	28	54.9
4.	Data Networks	1	1.9	24	47.1
5.	Video conferencing	0	0	2	3.9
	<u>EC-Hardware:</u>				
1.	Internet	12	23.7	28	54.9
2.	Intranet	1	1.9	9	17.6
3.	Extranet	3	5.9	2	3.9
4.	EDI	2	3.9	7	13.7

Table 2 indicates that outsourcing in SMEs is a phenomenon mainly related to maintenance and not ownership of IT hardware equipment. Nearly three-fourths of the respondents outsource maintenance work for PCs. Maintenance in respect of other IT equipment such as Midrange servers, Data Cabling, Data Networks is outsourced more often. Considering the fact that Table 1 indicates ‘access to expertise’ as the most important driver for outsourcing, it is consistent with the finding that SMEs emphasis more on maintenance as recruitment of experts would

not anyway give them complete access to the expertise, not withstanding the financial constraints that SMEs would face in recruiting experts on full time basis. In fact, outsourcing gives the SMEs the flexibility for easy access to such expertise.

Similarly, the data dealing with EC Hardware outsourced also reveals that only a small proportion of SMEs outsource the equipment and a much larger proportion of them outsource maintenance. Though the study reveals that certain technologies are less outsourced than others, the scope of the study does not permit us to probe the reasons for such variations in the pattern of outsourcing, which may be the focus of a separate study.

The respondents were also asked to identify the activities for which software is outsourced. The responses were tabulated in Table 3.

Table 3: Software Profile in Small Business

Sl./No.	Software activities	Count	Percentage
	<u>IS-Software:</u>		
1.	Customising packages	21	12.7
2.	Application maintenance	19	11.5
3.	Systems design	16	9.7
4.	Systems analysis	13	7.9
5.	Application development	12	7.3
	<u>EC-Software:</u>		
1.	Web-site development	27	16.4
2.	Web-site hosting	19	11.5
3.	Web-site maintenance	17	10.3
4.	Web-site integration	13	7.9
5.	Intranet integration	5	3.0
6.	Extranet integration	3	1.8
	Total	165	100.00

Table 3 reveals that main activity of software outsourcing is in web-site development, which has to be tailor made for each business. The other important activities are customising readymade packages, application maintenance, website hosting and website maintenance, systems design, systems analysis, website development and integration. Since small businesses are desirous of going on line, it is not surprising to find that the most important activity of software that is outsourced is web-site development, which requires outside expertise. This is consistent with the findings in Table 1, where access to expertise is identified as primary driver for IT outsourcing. Understandably, very low percentages of SMEs opt for outsourcing of application development, as the majority preferred readymade packages.

The study also considered operational activities that are outsourced. The responses are shown in Table 4.

Table 4: *Areas of Operational Aspects Outsourced*

Sl./No.	Operations/Strategy Activities	Count	Percentage
1.	Expertise	29	29.6
2.	Help desk services	19	19.4
3.	Disaster recovery services	14	14.3
4.	IT planning and strategy	12	12.2
5.	E-commerce strategy	10	10.2
6.	Data centre service/management	6	6.1
7.	Drafting the outsource contract	5	5.1
8.	Managing project execution	3	3.1
	Total	98	100.0

Table 4 clearly points that expertise is most important area (30%) of outsourcing for its operational purpose. This reinforces the finding in Table 1, which revealed that the access to experts is the foremost driver for outsourcing. The other outsourced operations are helpdesk services (19.4%), disaster recovery services (14.3%), IT planning and strategy (12.2%) and E-commerce strategy (10.2%). A significant proportion of the SMEs (about 15 – 29 %) rely on outside support for mission-critical systems, which indicates the problem of lack of adequate expertise.

10. Problems in Outsourcing

The trends worldwide clearly point out that the phenomenon of IT outsourcing has come to stay and is growing. However, there are many related problems that businesses will have to deal with while undertaking IT outsourcing. Pastore (1996) found that outsourcers' contracts that do not cater to the changes of the organisational needs and do not accommodate the falling prices of the equipment in the market are inflexible. Outsourcers also indulge in double outsourcing (sub-contractors) sometimes even without informing the business. According to IDC (cited in Caldwell, Violino & McGee, 1997:1), an average of 36 percent of outsourcing contract and 25 percent of a system integration contract involve subcontractors. Barrett (1996) pointed to other problems such as poor communication between the organisation and the outsourcer, contract drafting as being impediments in the process of outsourcing.

The respondents have been asked to identify the problems that they face in outsourcing their IT needs and their responses are shown in Table 5.

Table 5: Problems in Outsourcing

Sl./No.	Reasons for Outsourcing	Count	Percentage
1.	Identifying of right supplier	27	19.3
2.	Right choice from diverse products	18	13.0
3.	Non-performance/under-performance of supplier	18	12.9
4.	Insufficient funds	14	10.0
5.	Exceeding the planned budget	11	7.9
6.	Over dependence on supplier	9	6.4
7.	Conflict with the outsourcers	7	5.0
8.	Inadequate skills in contract negotiations	7	5.0
9.	Inability to maintain standards	7	5.0
10.	Managing different suppliers	7	5.0
11.	Overshooting of time frame	6	4.3
12.	Difficulty in managing contracts	4	2.9
13.	Double outsourcing	3	2.1
14.	Inflexibility of outsourcing contract	2	1.4
	Total	140	100.0

It is revealed that the problems relating to suppliers and their performance are pervasive, constituting more than half of the total problems identified (about 53%), they are: identifying the supplier (19%), unsatisfactory performance of supplier (13%), overdependence on supplier (6%), conflict with the supplier (5%), supplier's inability to maintain standards (5%), managing different suppliers (5%). The second most important problem is related to the choice from the diverse products (13%) as the SMEs lack such knowledge. It may be appreciated that appropriate choice of products is itself linked to the choice of right supplier who can give such advice. Though the problem of insufficiency of funds (10%) is significant, it is not the most important problem. This is consistent with the earlier finding in drivers for outsourcing where cost considerations were found much lower in importance. Other important problems identified are inadequate skills in negotiation of the contract and managing the contract. This is understandable since the businesses are small and lack the skills for contract management (negotiation, finalisation implementation and monitoring). Again they may need some external support and advise for these contracts.

11. Findings and Conclusion

The findings from this research clearly demonstrate that the market for IT outsourcing for SMEs is already significant and growing, with more businesses planning for it in near future. It throws open a huge opportunity to the IT industry to position themselves to tap into this market. It is important to appreciate that the most important drivers for the SMEs to outsource their IT and EC requirements is access to expertise, need to improve the quality of service and access to new technology. Cost consideration is not the main issue either for outsourcing or an obstacle in this process compared to other non-cost issues. Not surprisingly, in a market where there are an array of IT products, access to expertise emerges as the single most important consideration in IT requirements.

The study also reveals that IT outsourcing by SMEs is mostly in maintenance rather than hardware equipment. Within maintenance, the main areas are PCs (73%), midrange servers (54%), data cabling (55%), Internet (55%), and data networks (47%). Similarly, the demand is more for customisation of packages rather than application development. As far as software is concerned, it is mainly in the technology related to providing online presence – web site development (16%), web site hosting (12%), web site maintenance (10%), web site integration (8%). Operational areas identified for outsourcing are expertise (29.6%), help desk service (19.4%), disaster recovery service (14.3%) and also IT planning strategy (12.2%). This indicates high reliance on outside experts even in mission-critical operational areas of the business. The range of areas identified for outsourcing by SMEs indicates not only their willingness to accept new technologies for better service delivery but also to seek a cyber presence in the market.

Most of the problems identified are related to the supplier – identifying the supplier, their inadequate performance, managing different suppliers and ensuring that standards are met. The top two problems are identifying of right vendor and right product. This points to the lack of expertise in the SMEs in this area and therefore the need for guidance in outsourcing decision-making.

Another study with a larger sample will reveal valuable information in this area. Further, research on the adaptation of IT/EC technologies by SMEs, the strategic presence of SMEs in cyberspace for online marketing and the degree of dependence on the vendor in outsourcing decisions would reveal valuable information for SMEs, IT outsourcing industry and policy makers.

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