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Investigating the Strategic Utilization of IT Resources in the Small and Medium-sized Firms of the Eastern Free State Province

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This study investigated the extent to which the Small-to-Medium sized firms (SMEs) utilized their IT resources strategically, and also identified factors inhibiting such utilization. An attribute approach was adopted to identify attributes characterizing strategic IT utilization in SMEs. Seventy SMEs participated in the study and factor analysis was conducted to identify the underlying factors that explained the inhibitors of strategic IT utilization. While the results show that some SMEs utilize IT resources to reduce costs and improve customer services, many SME managers are still ignorant about their business environment. They do not use IT resources to create links with suppliers, neither do they use them to differentiate products/services nor to enable innovations. Lack of skills and knowledge to employ IT competitively emerged as the prime inhibitor of strategic IT utilization. Other factors were: poor planning; lack of resources; poor IT vision and leadership; and environmental uncertainty.

KEYWORDS: competitive advantage; IT resources; SMEs; strategic utilization

1. Introduction

In the current global economy, where organizations are increasingly faced with economic and other challenges, strategic thinking is essential. Strategic thinking is a systematic approach to analyzing an organization's position in the environment and coming up with strategies to make the best of the resources available, and to ensure the achievement of competitive advantage. Several approaches to strategy have been proposed by different writers. Porter (1980) proposed cost leadership, differentiation, and focus strategies. Cost leaders aim at achieving overall cost leadership in their industry by establishing high relative market shares, favourable access to raw materials or some other cost advantages. Differentiators offer products or services perceived industry-wide to be unique along dimensions such as design, technology or customer service. Focused strategists

compete in a narrow segment of the market, based on buyer type, product type or geographic factors. They may choose the differentiation or cost leadership strategy, or may adopt a combination of the two strategy-types.

There is also a growing belief that the business world today is facing a whole new set of challenges (e.g. deregulation, new technologies and increasing globalization of competition) that require different approaches to strategy. Dess et al. (1997) and Covin and Slevin (1989) consider an entrepreneurial approach to strategy to be vital to success. Entrepreneurial orientation reflects the firm's propensity to engage in innovation and proactive, risk-seeking, autonomous and competitively aggressive behaviour to achieve its strategic objective. Stata (1989), Mintzberg (1990), Senge (1990) and Dodgson (1993) also consider strategy to be less about the selection of markets and market positions, and more about the building and nurturing of key internal capabilities that are relatively enduring. They see sustainable competitive advantage to be rooted in a company's ability to innovate, learn, leverage relationships and implant vision.

The success of a strategy is linked to proper development and building of core and distinctive competencies which enable a firm to create a competitive advantage. Information Technology (IT) and Information Systems (IS) play a significant role in supporting this goal. It is often argued that effective utilization of IT supports or even shapes the strategies of many organizations (Henderson and Venkatraman, 1999; Sabherwal and King, 1991). This study is focused on the strategic utilization of IT resources. This refers to the use of IT resources such as hardware and software to provide an organization with a competitive advantage. Porter's (1980, 1985) view of IT utilization is therefore considered in this study. IT utilization may concentrate on the company's internal operations or on its relationship with outside forces. It may be aimed at internal, competitive, or business portfolio levels of the company's strategy, and may be caused by technological changes or by organizational issues (Porter, 1980,1985; Sabherwal and King, 1991).

Most of the studies conducted on strategic utilization of IT resources have, however, concentrated on large-sized organizations. Little is still known about strategic utilization of IT resources in the small-to-medium sized firms (SMEs). According to Hodge and Miller (1997) research in this area is sadly lacking in South Africa.

1.1. The Aim of the Study

SMEs form the vast majority of businesses in South Africa and in many other countries. They are increasingly looked at by governments and economists as a mechanism by which national growth is created (English and Henault, 1995; Harper, 1984; Parliament of the Republic of South Africa, 1995). They have, for instance, shown a remarkable capacity to absorb labour – about 90 percent of formal businesses in South Africa are thought to be small, micro or medium, employing approximately 15m people (DTI, 1997; Parliament of the Republic of South Africa, 1995). It is also argued that SMEs' contribution to development can be enhanced through intensive and effective utilization of IT.

While Sabherwal and King (1991) attempted to develop a theory of strategic use of information resources, their work mainly focused on large-sized organizations. Recognition of strategic IT/IS utilization issues faced by SMEs is perhaps more important than those facing big businesses since SMEs drive the economies of many nations. In addition, previous research suggests that there is a relationship between organizational size and computer success characteristics (DeLone, 1988; Ein-Dor and Segar, 1978). This implies that findings based on IT/IS utilization in the large-firm environment do not necessarily have to be generalized to small firms. It is therefore imperative to examine the situation in SMEs, and advise SME managers with results taken from these organizations.

The current study extends previous research on strategic IT utilization by investigating such utilization in SMEs. It seeks to answer the following research questions:

1. To what extent do SMEs in South Africa utilize their IT resources strategically?
2. What are the factors that inhibit such utilization?

The article discusses the theoretical background to the study, and then provides original data on which the analysis and conclusions are drawn.

2. Theoretical Background

2.1. Approaches Adopted in Measuring the Impact of Resources on Competitive Advantage

There are a variety of approaches to understanding IT utilization in small firms. Johnson and Scholes (1993) discuss the environment-based approach and the resource-based approach. The former focuses on the impact of the resource on environmental influences such as the competitive forces discussed in the industry structure analysis model devised by Porter (1980).

The essence of the resource-based approach is the focus on individual resources of the organization rather than the industry (Johnson and Scholes, 1993; Lynch, 2000). These writers argue that such focus reveals much about the resource's competitive potential, and identifies the directions that best match the organization's strategic capabilities. Value chain analysis, for instance, has been widely adopted as a method for finding ways of relating an organization's resource profile to strategic performance (Bakos and Treacy, 1986; Ives and Learmonth, 1984; McFarlan, 1984; Porter and Millar, 1985).

There are other similar concepts that have been used in the measurement of the impact of IT on competitive advantage. These include: competitive efficiency (the impact of IT on enterprise level performance [Bakos and Treacy, 1986]); business value (the impact of IT on profitability, market share and size [Berger et al., 1988]); management productivity (the impact of IT on return-on-management [Strassman, 1990]); and strategic thrusts (the impact of IT on differentiation, cost, innovation, growth and alliance [Wiseman and Macmillan, 1984]).

Sethi and King (1994) categorized the above into two approaches to measurement of competitive advantage. The first categorization, referred to as the

'outcome approach', is reflected in concepts such as competitive efficiency, business value and management productivity. This approach suggests assessing competitive advantage using outcomes as the dominant criterion. The measures or variables used in these approaches include: revenue growth rate, return on investment and assets (including IT equipment and software), profits, frequency, intensity and diversity of use, etc. Sethi and King (1994) note, however, that some of these measures are very aggregated and they are insensitive to the effect of a single IT resource or application. Ang et al. (2001) argue that measures such as frequency or diversity of use may not be appropriate for managers who use IT occasionally for making decisions of strategic importance. The size and power of hardware complicates the measurement since it is difficult to compare IT with different specifications. The 'black box' nature of many software package components, and the rapid changes in package components also make measurement by outcome difficult.

In addition, some of the measures identified above may not be used effectively in SMEs due to poor levels of record keeping (Rwigema and Karungu, 1999); the difficulty experienced in computing these measures (Smith, 1996); and the disagreement among experts, analysts and organizations regarding the appropriateness of the measures. For instance, Smith (1996) reports that some SME analysts regard sales growth to be more important than return on investment, while profit is not always regarded as the principal measure, particularly in the early days of a small company's life. Another problem is that few SMEs would be willing to provide such important information to unknown investigators.

The second approach, referred to here as the 'attribute approach', identifies key attributes that characterize competitive advantage. It is reflected in concepts such as competitive advantage, strategic thrust, and value activities. This approach suggests that competitive advantage is embodied by the degree to which an IT resource possesses certain key attributes. These may include efficiency (the ability to reduce cost in functional areas); functionality (ability to provide the functionality desired by users, e.g. differentiation, adding value for customers); and threat (ability to erect barriers against new entrants, etc).

Sethi and King (1994), Johnson and Scholes (1993) and Lynch (2000) argue that this approach has the advantage of providing insights into how and why resources affect competitive advantage. Sethi and King (1994) also consider the knowledge provided by adopting the attribute approach to be useful in building causal models and theories regarding the impact of IT on competitive advantage. They note, however, the difficulties involved in the selection of the appropriate attributes that have both the germane theoretical content and adequate operational measures.

While this approach has been used mainly in large-sized organizations with many resources, it can also be utilized in studies conducted in SMEs. Lynch (2000) reports that the resource-based approach (which may be categorized as an attribute approach), can be used to provide useful guidance for SMEs regarding the identification or development of resources that have competitive potential. According to Lynch, by developing in their core resources attributes

that characterize competitive advantage (such as innovation capability, true competitiveness and uniqueness), some SMEs have managed to achieve competitive advantage through higher level of personal services, specialists' expertise, design skills and regional knowledge. Studies conducted in European SMEs by the Teknologisk Institutt (1995) also revealed that the growth that impacted on the wealth and added value in the Irish economy could be attributed to the ability of their resources to reduce costs, increase efficiency, improve productivity and improve customer services. These examples provide support for the adoption of the attribute approach in the evaluation of strategic utilization of IT resource in SMEs.

2.2. Attributes Characterizing Strategic Utilization of IT Resources in SMEs

Given the complex economic environment faced by many SMEs, there are specific attributes these organizations should possess in order to survive and sustain competitive advantage. These are: the ability to provide better customer services and links with suppliers; the ability to market products and services; the ability to differentiate product and services; the ability to innovate; and the ability to reduce costs. These attributes are briefly discussed below.

2.2.1. Improvement in Customer Services and Links with Suppliers Studies conducted in Southern Africa indicate that SMEs risk losing many customers due to the growing impact of globalization, movement of large stores into the suburbs and failure to diversify customer bases (Tati, 2001). Globalization of the world economy facilitates free import and export of goods and services. It has enlarged the market for SMEs, but exposed them to worldwide competition. The movement of big malls into the suburbs has enabled the provision of a variety of goods and services to customers within their neighbourhood. Following the recent political developments in South Africa, many black consumers now have more disposable income they can spend on a variety of products anywhere in the country. This means traditional retailers and other SMEs cannot rely any more on customer loyalty as the only strategy for retaining customers. Improvements to services offered to SME customers and establishment of better links with suppliers are necessary. IT systems can enable such improvements and provide better communication services. For instance, business partners involved in such communication links share useful information and obtain reduction in costs. The extent to which SMEs have utilized their IT resources to make such improvements possible is investigated in the current study.

2.2.2. Marketing Capability Marketing has been widely acknowledged as critical to the survival and growth of small businesses (Mckenna, 1991; Romano and Ratnatunga, 1995). Sales and marketing are however the most dominant problems encountered by small business operators. IDS (1997) found that these operators have limited understanding of the marketing concept and often lack adequate marketing skills. Studies conducted by Duncombe and Heeks (2001) and Rwigema and Karungu (1999) indicate that these organizations still rely on

direct contact with customers through face-to-face meetings and often base their marketing decisions on locally generated information. In the present competitive environment, the challenge for small businesses is to make use of their IT resources to move into new markets in order to stay in front of competition. The extent to which small firms in South Africa utilize their IT resources to improve marketing capabilities is investigated.

2.2.3. Differentiation of Products/Services Differentiation is necessary for many SMEs in South Africa. Duncombe and Heeks (2001) and Eeden (2001) report that many entrepreneurs sell similar products and services and operate similar businesses such as retail shops, shebeens and hair salons. Lack of differentiation of products and services has led to lack of customer loyalty. The extent to which SMEs utilize their IT resources to differentiate products and services is also investigated.

2.2.4. Innovation Capability In a rapidly changing environment, innovation is a key survival strategy for many SMEs. Unfortunately, small businesses have been slow in adopting technological innovation (Yap et al., 1994). This slow adoption is a critical issue given the role of SMEs in economic development (Longenecker et al., 1994). According to Motwani et al. (1999), problems relating to innovation in SMEs have not been investigated extensively. They claim that there is a paucity of research in technology literature emphasizing innovation within SMEs. It is therefore important to investigate the extent to which South African SMEs utilize their IT resources to support innovative strategies.

2.2.5. Reduction in Costs The cost reduction strategy is aimed at reducing or avoiding an organization's cost vis-à-vis suppliers, customers, or competitors (Wiseman and Macmillan, 1984). IT applications can be used to support consistent purchases of material from suppliers, which could win the firm discounted prices. On-line invoicing and ordering and JIT arrangements can provide the firm with greater negotiating power to ensure prompt deliveries thereby reducing stock. Computer network facilities can be used by organizations to reduce costs by sharing resources, expertise, etc.

Although many SME managers cooperate informally and make joint use of local services and expertise, findings by Duncombe and Heeks (2001) suggest that this networking approach has not been extended through the use of IT to benefit many entrepreneurs. Many SMEs managers still use manual or mechanical operations, which result in excessive production, promotion and distribution costs. The extent to which SMEs in South Africa utilize their IT resources to reduce costs is also investigated.

2.3. Identifying Inhibitors of Strategic Utilization of IT in Smaller Organizations

Some writers have suggested several reasons why smaller organizations fail to utilize their IT resources strategically. These include: poor planning; lack of technical skills; lack of managerial expertise; lack of access to markets and

finance; and, failure on part of managers to understand the environment in which they operate (D'Amboise, 1990; Igbaria et al., 1997; IDS, 1997; Parliament of the Republic of South Africa, 1995).

A comprehensive list consisting of organizational, technological and external factors identified in previous studies was compiled and used in this investigation. This approach has been recommended in many studies on IT utilization since it provides greater explanatory power than any one simple category of factors (Cahill et al., 1990; King and Sabherwal, 1992). The factors used in the current study are discussed below.

2.3.1. Lack of Top Management Vision SME managers often lack the vision for IT, and they are not clear regarding the role IT would play in contributing to the long-term success of their organizations (Blili and Raymond, 1993). A study by NOP research group found that 20% of European small businesses, 25% of UK small businesses and a third of German SMEs rejected technology, claiming that it has no direct effect on their businesses (Kelly, 1998). Lack of IT vision affects successful implementation and utilization of IT.

2.3.2. Failure to Keep up with New Technology, Lack of Computer Experience and Lack of Proper Computer Usage Hassan (1999) and Hassan and Tibbits (2000) show that most firms do not have sufficient internal expertise in new telecommunication and computerized technologies necessary for effective implementation of IT. Suggestions have been made for organizations to seek independent advice on IT issues. Unfortunately, the cost of expert consultants can rarely be justified by small organizations which lack the appropriate resources and skills, but need to use these new technologies in order to remain competitive in an increasingly global marketplace (Yap and Thong, 1997).

2.3.3. Lack of Economies of Scale to Justify Usage of IT Many small businesses, particularly new start-ups, cannot benefit from economies of scale that are practised and enjoyed by larger companies. A business will achieve economies of scale as a result of producing or selling more for a reduced average cost. Where such a potential exists, organizations have implemented IT systems to enhance sales, production and services. Small firms may not compensate for a sufficient increase in production/sales because of resource constraints. Therefore they may find it difficult to practice economies of scale and to utilize IT more effectively.

2.3.4. Lack of Technical Support Staff The importance of computing support and training has been highlighted in many studies (Duncombe and Heeks, 2001; Igbaria, 1994; Rwigema and Karungu, 1999). SMEs have limited IT expertise therefore the availability and quality of external computing support could be considered as a very important determinant of successful IT utilization (Igbaria et al., 1997).

2.3.5. Poor Planning and Inability to Identify Strategic use of IT Business and IS strategic planning have been identified in many studies as the most important

issues affecting managers in both SMEs and large organizations (Raymond, 1993; Rwigema and Karungu, 1999; Thuso, 2001). Poor planning may be caused by many factors including lack of planning skills, insecurity and low self-confidence of planners. Many SME managers feel they are hopeless victims of circumstances and often do not wish to bind themselves to future goals by developing necessary plans (D'Amboise, 1990). This affects their ability to utilize IT resources effectively.

3. Methodology

Two methods of data collection were employed in this study – a postal survey and follow-up interviews.

3.1. The Postal Questionnaire

The questionnaire consisting of two sections was developed after several discussions with small business owners and two academic staff. Section A collected general information about the organization. It also determined the extent to which the respondents understood their environment. This was measured by asking the respondents to evaluate: the nature of competition; changes in products/services; changes in demand or tastes of customers; the nature of customer buying behaviour; the nature of competitor threats; and, the way suppliers treated the firm. These attributes have been used previously to measure the impact of the environment on IS utilization (King and Sabherwal, 1992; Miller, 1988).

In addition, the types of software used by the organization were also studied. The researcher decided to focus on the most common software found in SMEs, which include spreadsheets; databases; accounting packages; statistical packages; communication software (used for Internet, email); and word processing software. It was also necessary to measure the level of computer knowledge possessed by the respondents and the extent to which formal planning guided their decisions on utilization of IT resources. The later was measured by asking the respondents to indicate whether their organizations possessed detailed strategic plans.

Section B consisted of three parts, where the respondents indicated their evaluation by circling only one number on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). Part A of this section measured the extent to which the IT resources used by the organization: provided improvements in customer services; assisted in creating links with suppliers; assisted in differentiating products/services; led to reduction in costs; and assisted in finding ways to do business (innovation). Part B of this section measured the respondent's opinion of the extent to which a set of factors inhibited strategic utilization of IT resources. Part C was used to determine the extent to which the organization used, and intended to use in the future, their software for different business applications (both operational and strategic). These included: preparation of accounts; information storage; communication; budgeting; forecasting; stock control; planning; investment appraisal; strategic analysis; and, risk analysis.

3.2. Follow-up Interviews

The interviews were mainly conducted to follow up on the responses provided during the survey. They were conducted at the respondents' places of work and were limited to 15 to 20 minutes. However, 15 of these interviews had to be conducted by telephone means because respondents indicated that they had limited time. These interviews focused on specific areas, e.g. questions not answered by respondents in the survey and responses that required further clarification (e.g. responses to questions on awareness of business environment). The researcher also used this opportunity to examine the actual systems and software applications used by respondents, where permission to do so was granted.

3.3. Study Sample

The study was conducted in the eastern Free State and part of Kwazulu-Natal provinces of South Africa. Areas studied were Bethlehem, Harrismith, Kestel, Ladysmith, Warden, Phuthaditjhaba and Ficksburg. The firms were randomly drawn from a list of SMEs registered with the department of labour (Eastern Free State). In terms of South Africa's National Small Business Act (Act 102 of 1996), a small business may be a micro, very small, small or medium business entity, including cooperatives and non-governmental organizations (NGOs), the size of which lies below specified thresholds (e.g. not more than 100 employees). SMEs are generally defined by revenue, assets or the number of employees. Based on the researcher's experience, it is not easy to get information on revenue and assets from managers in SMEs. Similar problems were also reported by Rwigema and Karungu (1999). So the criterion used in the current study was the number of employees. The sampling frame focus was firms of size up to 100 employees, with at least a computer system. 200 questionnaires were mailed to different organizations between June 2001 and August 2001. This method was considered more appropriate because of the need to reach many respondents fairly quickly. Respondents consisted of business managers, sales managers, directors and IT/IS managers. These were considered because they hold senior positions in the organizations, are likely to encounter strategic applications of IT and would be more aware of the factors that inhibit strategic use of IT. Ninety-five questionnaires were returned of which 10 respondents did not have computer systems and a further 15 completed the questionnaires incorrectly and were not willing to get involved any further.

The non-response rate of 53% was high but not unexpected in surveys of entrepreneurs and small firms (Brophy, 1986). These consisted of organizations from almost all industries surveyed: manufacturing (8%); retail (14%); consulting (6%); transport/travel (6%); sales/marketing (8%); development (7%); and, construction (4%). Lack of time, confidentiality, firm policy against answering surveys and lack of information needed to complete the survey were some of the reasons given by some managers contacted by telephone. There is also a possibility that many did not respond to the survey because of the length of the questionnaire (4 pages).

The non-response bias was assessed by comparing early respondents with late

Table 1. Size of the Organizations and Job Levels of Respondents ($N = 70$)

	N	%
No. of Employees		
Less than 10	39	55.7
10–50	27	38.6
51–100	4	5.7
Total	70	100
Job Level		
Director	12	17.1
Business Manager	38	54.3
IT/IS Manager	8	11.4
Sales Manager	12	17.1
Total	70	100

Table 2. Geographical Location and Industry Type ($N = 70$)

	N	%
Industry Type		
Manufacturing	4	5.7
Retail	26	37.1
Consulting	7	10.0
Finance	5	7.1
Construction	5	7.1
Sales/Marketing	8	11.4
Development	5	7.1
Transport/Travel	3	4.3
Entertainment	5	7.1
Training	2	2.9
Total	70	100
Location		
Bethlehem	18	25.7
Harrismith	24	34.3
Kestel	4	5.7
Ladysmith	8	11.4
Warden	5	7.1
Phuthaditjhaba	7	10.0
Ficksburg	4	5.7
Total	70	100

respondents. The rationale for this test was that late respondents were likely to have similar characteristics to non-respondents. The *t* test showed no significant difference between the two groups of respondents in terms of number of employees ($t = 1.29$; $p = 0.237$), at the 5% significance level. This suggested that non-response bias was not a problem in the current study.

Table 3. Respondents' Computer Experience ($N = 70$)

Duration (Years)	*N*	*%*
More than 20	3	4.3
15–20	9	12.9
10–14	19	27.1
5–9	31	44.3
0–4	8	11.4
Total	70	100

Table 4. Software used in SMEs ($N = 70$)

Software Type	*N*	*%*
Spreadsheet	48	69
Statistical package	13	19
Database	37	53
Word processing	48	69
Accounting package	52	74
Communication software	42	60
Others	8	11

Table 1 shows the distribution of survey respondents by size and job level, Table 2 shows distribution based on industry type and geographic location, Table 3 shows respondents' computer experience and Table 4 shows the types of software applications used.

4. Results and Discussions

4.1. Awareness of the Business Environment

Respondents indicated their awareness of the business environment on a Likert scale. The nature of competition and the nature of competitor threats were measured on a five point scale ranging from 1 (none) to 5 (severe). Changes in customer buying behaviour and changes in demand/tastes of customers were measured on a scale ranging from 1 (no changes) to 5 (many changes). The nature of treatment by supplier was also measured on a similar scale ranging from 1 (no difference in treatment) to 5 (many differences in treatment). The results are summarized in Tables 5 and 6.

Although respondents seemed to be aware of the severe competition in their markets (Table 6), Table 5 shows that many were not certain about the changes in products/services, changes in tastes of customers, nature of treatment by suppliers, and nature of competitor threats. This is also confirmed in Table 9, where 43% of the respondents were uncertain of their market positions (B1). In fact during the interviews, many respondents could not provide satisfactory answers to these questions, thereby suggesting that SME managers are ignorant about their competitive business environment. According to D'Amboise (1990), this lack of

Table 5. Awareness of the Business Environment

Variable	*N*	*Mean*	*Std*
Nature of competition	70	4.08	0.94
Changes in products/services	70	3.43	1.45
Changes in demand/tastes of customers	70	2.45	1.32
Changes in customer buying behaviour	70	3.45	0.60
Nature of treatment by suppliers	70	3.05	0.41
Nature of competitor threats	70	3.37	0.54

Table 6. Respondents' Evaluation of the Nature of Competition

Nature of Competition	*Response %*
1 None	0
2 Slight	5.7
3 Uncertain	22.9
4 Moderate	28.6
5 Severe	42.9

awareness obscures threats to, and opportunities for a business, making it more difficult to develop goals and plans to meet these goals. Coetzee and Visagie (1994) assert that entrepreneurs in South Africa need to understand and learn to operate in the existing business environment. A constant concern for information on competition, suppliers and customers, as well as easier access to facilities such as the Internet, could be an important step in solving this problem.

4.2. Existence of Detailed Strategic Plans

To determine the extent to which SMEs in South Africa were involved in formal planning, respondents were requested to indicate whether they had detailed strategic plans. Henderson and Sifonis (1988) suggest that the existence of formal business and IT planning can be determined by examining the outputs of the planning process. Gyampah and White (1993) also used a similar approach by asking users to indicate their awareness of overall plan for system development. The results of the current study are presented in Table 7.

Only 37% of the respondents indicated that they had detailed strategic plans. Although it is established that detailed strategic plans are not often produced in small organizations (Lederer and Mendelow, 1986), the perception of such low rates as a serious problem may influence SME managers' attention directing. These findings also present a challenge for academics to direct more research effort towards ways to improve SME planning. This is particularly important, since the success of many strategic IS developments depends on the presence of clear business plans.

Table 7. Existence of a Detailed Strategic Plan ($N = 70$)

Response	*N*	*%*	*Cumm. %*
YES	26	37.1	37.1
NO	44	62.9	100.0
Total	70	100	

Table 8. Strategic Utilization of IT Resources

	Number of Responses %				
	A1	A2	A3	A4	A5
1. Strongly disagree	0	10	14	0	3
2. Disagree	21	49	31	3	26
3. Uncertain	11	23	34	9	29
4. Agree to some extent	43	10	10	39	26
5. Strongly agree	24	9	10	50	17

Notes: A1 = Improve customer service; A2 = Create links with suppliers; A3 = Differentiate products/service; A4 = Reduce costs; A5 = Enable innovations.

4.3. Utilization of IT Resources for Strategic Purposes

Table 8 shows that SMEs utilize their IT resources mainly to achieve improvements in customer services (A1) and to reduce or avoid costs (A4). They do not use these resources to create links with suppliers (A2) neither do they use them to differentiate products/services (A3) nor to enable innovations to a great extent (A5). More than 60% agreed that their resources have enabled improvements in customer services and reductions in costs. These consisted of organizations in the retail (commodity businesses), transport/travel and consulting (accounting/auditing) industries, with fairly more organized functions, modern computers, and network connections with suppliers, financiers and customers. Most respondents in this category reported benefits achieved through IT utilization. For instance, accounting and auditing firms reported that their systems generate financial and management information, which is provided to clients in time. Hardware stores use database systems that allow users to access information on parts and process orders in time. Travel agencies have automated booking and reservation systems and advise clients on the possibility of cheaper fares.

Most SMEs also utilize their resources to reduce or avoid costs (Table 8). They appear to be highly cost conscious, perhaps because of the limitations on resources they often experience. This view is supported by results in Table 12, indicating that some of respondents conduct formal budgetary controls (CE), which involves measures to keep costs and thus prices at minimum (Porter, 1980). Further evidence to support this was provided during the interviews where examples relating to cost control strategies, minimization of marketing and product development costs, usage of accounting software to manage stock levels,

and usage of spreadsheet tools to appraise investments were given by some respondents.

However, Table 8 also shows that only 19% of the respondents linked up with suppliers, 20% differentiated their products/services and 43% used their systems for innovations. These mainly consisted of smaller firms in almost all industries studied. Small firms in the travel industry still rely on telephone means to make bookings and reservations for clients, a slow and costly process. A number of medical consultants use old computers and keep patient records on manually maintained cards. In many cases the data collected could not be converted into useful information for decision-making. Many small motor spare shops possessed database packages, but could not develop even simple databases for their parts. Almost a similar situation exists in small car dealer firms where detailed information on products is not maintained and advanced calculations are carried out using calculators. Such operations cannot provide any benefits for the buyers. In the tourism and training industry, some firms could not produce and distribute their programmes to interested people at a distance because they were not connected to network or Internet facilities. This suggests that they cannot reduce their production time and costs or broaden significantly their scope by reaching many potential clients. This also confirms findings by Duncombe and Heeks (2001) that SMEs have not used IT to reinforce and extend their informal networking capabilities. The importance of network connections with suppliers and customers has also been emphasized by Lin (1998).

The issue of utilizing IT resources to support differentiation of products and services and innovations caused much discomfort for many respondents. During the interviews, very few could provide clear responses to questions relating to the cost of innovation and specific modifications to products or services. Coetzee and Visagie (1994) also identified similar problems in South Africa. They argue that only through technological innovation could small business survival be ensured in such a competitive environment as South Africa.

4.4. Inhibitors of Strategic Utilization of IT Resources in SMEs

Factors that inhibit strategic utilization of IT resources in SMEs were examined by requesting respondents to indicate on a 5-point scale (ranging from 1 = strongly disagree to 5 = strongly agree), their agreement/disagreement with the statements about inhibitors in their own businesses (Table 9). This table shows that respondents agreed to some extent with the statements in B2, B3, B4, B5, B6, B8, B9, B10, B12, B13.

An investigation of the underlying factors explaining the inhibitors of strategic utilization of IT resources in SMEs was achieved by conducting factor analysis. The results of factor analysis were derived from the principal component analysis and varimax rotation of the statistical package SPSS 7.0 for Windows. A factor is a combination of variables and expresses the common element that cuts across the combined variables. Results of the principal component analysis are presented in Table 10 and the factor loadings for the variables are presented in Table 11. A loading of 0.50 was used as a cut off point because of the small sample size used in this study (factor loading is the correlation of a variable with a factor).

Table 9. Inhibitors of Strategic Utilization of IT Resources ($N = 70$)

Variable	*Mean*	*Std*	*No. (%)*
B1 – Weak market position	2.71	1.19	43.0
B2 – Lack of strong leadership	3.82	1.35	31.4
B3 – Lack of technical support	4.11	0.97	38.6
B4 – Lack of extensive network	3.62	1.21	31.4
B5 – Lack of strong financial position	4.07	1.15	35.7
B6 – Lack of IT experience	4.14	1.02	45.7
B7 – Lack of management vision and support	3.14	1.15	45.7
B8 – Failure to intergrate IT with business planning	3.90	1.19	30.0
B9 – Lack of economies of scale for use of IT	3.82	1.04	44.3
B10 – Uncertainty in the environment	3.64	1.10	34.3
B11 – Lack of willingness to explore new ideas	2.94	1.20	17.1
B12 – Inability to identify strategic use of IT	4.18	1.02	27.1
B13 – Failure to keep up with IT	3.48	1.16	31.4
B14 – Unfavourable power/politics in the firm	3.01	1.04	40.0

4.4.1. Factor 1 (Lack of skills and knowledge to employ IT competitively)

B3 – Lack of technical support staff
B6 – Lack of IT experience
B12 – Inability to identify strategic use of IT

Lack of skills and knowledge to employ IT competitively was the construct underlying factor 1. It emerged as the prime factor that contributed the most to the inhibitors, and accounted for 23.8% of the total variance. It consists of three variables: B3, B6 and B12. The factor loadings for B12 (0.779) and B3 (0.721) are very high suggesting that they have more influence on the factor than lack of IT experience (0.556). In Table 9, most respondents agreed that these three variables were inhibitors of IT utilization in SMEs. The ability to employ IT competitively requires specialist skills rather than general IT knowledge. SMEs have a tendency to employ generalists rather than specialists (Blili and Raymond, 1993). They face difficulties in attracting and retaining skilled IS staff because of the limited career paths available in small firms (Gable, 1991). As a result, there is lower level of awareness of the benefits and the strategic role of IT, as indicated by factor 4. Technical support staff can contribute to the organization's potential to utilize IT competitively, but unfortunately SMEs may not afford the costs (Yap and Thong, 1997), and at times technical staff may not be competent enough (Raymond, 1993). During the interviews some SMEs indicated that the services rendered by software and hardware vendors were frustrating. Some of

Table 10. Principle Component Analysis

Attributes	*Factor (a)*	*Eigen Value (b)*	*% of Total Variance (c = b/14)*100*
14 Variables	1	3.32828	23.8
	2	2.18540	15.6
	3	1.27303	9.1
	4	1.21403	8.7
	5	1.14523	8.2

Note: * Only factors with Eigen value greater or equal to 1 are shown.

Table 11. Factor Analysis

Variables	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
B1	–.325	.438	.418	.269	–.476
B2	.177	.436	.196	**.572**	.216
B3	**.721**	.102	–.086	.156	.008
B4	.163	**.647**	.132	.191	.289
B5	.085	.053	.801	.103	–.011
B6	**.556**	.236	.431	–.062	–.043
B7	.066	.044	.041	**.853**	–.019
B8	.278	**.765**	–.080	–.135	.001
B9	–.168	**.771**	.031	.127	–.043
B10	–.086	.152	.123	.066	**.873**
B11	.297	.053	.357	–.463	.405
B12	**.779**	–.094	.192	.086	.139
B13	.256	–.052	**.701**	–.011	.303
B14	.014	.093	.358	–.191	–.082

Note: The bold indicates those variables with factor loading greater or equal to 0.50. A loading of 0.50 was used as a cut off point (see section 4.4).

these support organizations reside 140–250km away from their clients and cannot therefore provide prompt assistance.

4.4.2. Factor 2 (Poor IT/Business Planning)

B4 – Lack of extensive distribution networks
B8 – Failure to integrate IT with business planning
B9 – Lack of economies of scale to justify use of IT

The construct underlying factor 2 was poor IT/business planning. This accounted for 15.6% of the total variance. Poor IT and business planning has been reported in numerous studies as a major barrier to strategic utilization of resources (D'Amboise, 1990; Raymond, 1993). It consists of the variables with high factor loadings: B4 (.647); B8 (.765); and B9 (.771). The poor communication infrastructure presently found in the areas studied affects SMEs' ability to establish distribution networks. They cannot form proper links with suppliers and

customers, or market their products effectively. Similar findings were reported by IDS (1997). Since SMEs do not develop extensive distribution networks that can enable large-scale operations, they may not find it worthwhile to plan or align their IT investments.

4.4.3. Factor 3 (Lack of Resources to Invest in IT)

B5 – Lack of strong financial position
B13 – Failure to keep up with new technology

Lack of strong financial position explains this factor and has a higher loading of 0.801 than that of B13 (0.701). Weak financial position will affect investment in IT and SMEs' ability to upgrade their IT resources to keep up with growing expectations of customers. Studies conducted by Global Entrepreneurship Monitor (2002) reveal that self-finance from income or savings, and funding from immediate or extended families, are the most common source of finance among start-up entrepreneurs. (Most SMEs in this study were established after 1994.) Such a limited source of funding is not sufficient to support technological developments. Even for the established small firms, lack of security prevents them from getting loans from banks. Without sufficient funds, SMEs cannot invest in basic technologies. Such financial limitations also affect the organization's ability to conduct proper planning as indicated by factor 2.

4.4.4. Factor 4 (Poor IT Vision and Leadership)

B2 – Lack of strong IT leadership
B7 – Lack of top management vision and support

Lack of top management vision and support (0.853) has more influence on factor 4 than lack of strong IT leadership (0.572). Lack of a clear business and IT vision obscures the significance or competitive role of IT (factor 1), and the need to align IT with business planning (factor 2). Gable and Raman (1992) found that managers in small businesses tend to lack basic knowledge and awareness of the role IT would play in the long-term success of their organizations. DeLone (1988) found that successful use of computers was strongly linked to managers' knowledge of computers and active involvement in computerization efforts. Therefore the lack of strong IT leadership may be viewed as corollary to the lack of IT experience identified in factor 1. Table 1 reveals that most respondents (54%) were business managers and Table 3 shows that the most common level of experience was 5–9 years (44%).

4.4.5. Factor 5 (Uncertainty in the Environment)

B10 – Uncertainty in the environment

This variable has the highest of all factor loadings (0.873). This confirms earlier findings by Van Hoorn (1979) that environmental characteristics have significant influence on investment decisions in SMEs. Fear of the uncertainties and failure would force SMEs owners to remain conservative, thus making sure that they

maintain the assets as they are (D'Amboise, 1990; Van Hoorn, 1979). This often leads them to easily accept short-term solutions and push aside more demanding long-term perspectives, e.g. the need to invest IT resources strategically. Therefore, this factor has some influence on top management vision (factor 4) and would definitely affect IT and business planning (factor 2).

4.5 Utilization of Software Packages for Specific Business Applications

4.5.1. Current Utilization of Software Packages The analysis of current usage of software packages (Table 12) indicates that on average, SMEs do not use their software packages for the following business applications: preparation of accounts (CA); payroll processing (CD); profit forecasting (CF); cash flow forecasting (CG); investment appraisal (CJ); marketing (CK); strategic analysis (CL); and, risk analysis (CM).

Table 12 indicates that most respondents (mainly from the manufacturing, construction, development and some retail industries) did not utilize their software packages for preparation of accounts (CA) and payroll processing (CD). A plausible explanation for this low level of utilization could be that many organizations did not prepare their own accounts. This could be attributed to the lack of sufficient financial resources to employ full time accountants (revealed by factor 3) and the inability to retain skilled staff in small firms. It was revealed during the interviews that many hire the services of accounting and management consultants to do this work.

According to Table 12, almost similar results to those above were obtained from organizations utilizing software for strategic purposes such as profit and

Table 12. Current and Planned Utilization of Software Tools for Business Applications ($N = 70$)

Application	*Current Usage*		*Planned Usage*	
	Mean	*Std*	*Mean*	*Std*
CA – Preparation of accounts	2.94	1.53	2.97	1.26
CB – Information storage	4.07	1.26	4.11	0.89
CC – Information communication	3.58	1.58	3.47	1.32
CD – Payroll processing	2.04	1.29	2.82	1.06
CE – Budgeting	3.78	1.23	4.17	1.17
CF – Profit forecasting	2.71	1.47	3.65	1.28
CG – Cash flow forecasting	3.04	1.32	4.07	1.06
CH – Stock control/management	3.74	1.29	4.00	1.09
CI – Planning (e.g. prodn. sales)	3.40	1.33	4.40	0.78
CJ – Investment appraisal	2.42	1.24	4.01	0.93
CK – Marketing	2.72	1.38	4.72	1.14
CL – Strategic analysis	1.97	1.23	4.97	0.97
CM – Risk analysis	2.34	1.22	4.18	1.12
WP – Word processing	3.71	1.25	4.11	1.17

cash flow forecasting (CF and CG), investment appraisal (CJ), marketing and strategic analysis (CK and CL). An explanation for the failure to utilize software for strategic purposes by most organizations could be that SME managers are not aware, or do not know how to use the tools available in these packages. Problems such as lack of advanced IT skills were identified by a number of respondents during the interviews. The results obtained in the current study confirm earlier findings that SMEs are unable to identify strategic use of IT and lack the knowledge and skills to employ IT competitively (factor 1). This problem could also be caused by lack of proper training in these areas. Although the extent of training was not investigated in this study, there are reports indicating that SMEs are reluctant to train and often tend to regard training as an operating expense rather than an investment (Finegold and Soskiee, 1989; Vickerstaff et al., 1991). A survey conducted by Thuso (2001) shows that 40 per cent of their clients run into trouble because of lack of financial training and discipline. Though Curtis (1983) argues that few strategic tools could be directly applied to smaller businesses, and that those available are extremely complex, costly to use, unpractical or ill-adapted, this may not be true today. These tools have been simplified for many users, with on-line help facilities and tutorials.

In my study although more than 60 per cent of respondents indicated that they had communication software, less than 14 per cent of these actually used these facilities as means of achieving competitive advantage. Most of these were again found in the service industries (retail, consulting, finance, and sales/marketing), located in towns with proper telecommunication facilities. Information collected during the interviews indicates that these organizations have managed to use their Internet facilities to promote products/services and to scan the web for information on markets. A number of problems that prevent many SMEs from effectively utilizing communication services were also raised. For example, poor telecommunication infrastructure, inability to afford high operating costs and lack of skills to use the Internet for strategic purposes.

Organizations in the retail, consulting and sales/marketing industries utilize their software for data storage, stock control and planning much more than those in other industries. This could probably be explained by the increasing competitive pressure exerted on organizations (particularly in the retail sector), by chains and warehouse stores (Tati, 2001). The analysis of word processing software indicates that it is widely used by most industries for administrative and operation activities.

Further analysis was conducted to determine utilization of software for appropriate business applications. These results are presented in the tables 13 to 18 below. SMEs do not utilize their communication software for marketing and strategic analysis (see Table 13), which possibly explains the lack of awareness of the business environment revealed in Table 5. These findings also confirm claims by Romano and Ratnatunga (1995), that sales and marketing are still dominant problems in SMEs. Duncombe and Heeks (2001) found that direct contact with customers through face-to-face meetings is the most common method of promoting products and services. The fact that these organizations often operate on a small scale (as suggested by factor 2; see also Duncombe and Heeks, 2001) may

Table 13. Communication Software ($N = 48$)

Business Application	*Mean*	*Std*
CB – Information communication	4.02	1.29
CC – Information storage	3.64	1.58
CK – Marketing	2.57	1.36
CL – Strategic analysis	2.02	1.21

Table 14. Spreadsheet Software ($N = 48$)

Business Application	*Mean*	*Std*
CA – Preparation of accounts	3.12	1.60
CB – Information storage	3.97	1.34
CE – Budgeting	3.83	1.54
CF – Profit forecasting	2.85	1.54
CG – Cash flow forecasting	3.06	1.39
CH – Stock control	3.85	1.30
CI – Planning (production, sales)	3.57	1.40
CJ – Investment appraisal	2.41	1.35
CK – Marketing	2.64	1.43
CL – Strategic analysis	2.04	1.23
CM – Risk analysis	2.29	1.27

Table 15. Database Software ($N = 37$)

Business Application	*Mean*	*Std*
CB – Information storage	3.91	1.36
CH – Stock control	3.83	1.24

Table 16. Accounting Software ($N = 22$)

Business Application	*Mean*	*Std*
CA – Preparation of accounts	4.64	1.58
CB – Information storage	3.94	1.33
CE – Budgeting	2.67	1.24
CF – Profit forecasting	2.84	1.51
CG – Cash flow forecasting	3.09	1.36
CH – Stock control	3.94	1.28

also discourage the utilization of software for marketing and strategic purposes. In fact evidence collected during the interviews revealed that Internet facilities were mainly used by some organizations for email and leisure purposes. It is imperative that these organizations utilize these tools to understand their markets and capitalize on opportunities arising from the rapid changes in these markets, if they are to secure a competitive edge (Coetzee and Visagie, 1994; D'Amboise, 1990).

Table 14 indicates that spreadsheet software is utilized for information storage (CB), budgeting (CE), stock control (CH) and production and sales planning (CI).

Table 17. Business Applications used by SMEs with Strategic Plans ($N = 26$)

Business Application	*Mean*	*Std*
CB – Information storage	3.84	1.34
CC – Information communication	3.69	1.59
CE – Budgeting	3.69	1.28
CI – Planning (production, sales)	3.11	1.30
CJ – Investment appraisal	2.38	1.29
CK – Marketing	2.80	1.38
CL – Strategic analysis	1.73	1.29
CM – Risk analysis	2.34	1.29

Table 18. Statistical Software ($N = 13$)

Business Application	*Mean*	*Std*
CB – Information storage	3.69	1.31
CI – Planning (production, sales)	2.69	1.25
CM – Risk analysis	2.33	1.45

This supports findings by Cragg and King (1993) that SMEs use their IT resources mainly for operational and administrative purposes. Respondents indicated that this software is not used for strategic purposes, such as investment appraisal (CJ), market analysis (CK), strategic analysis (CL) and risk analysis (CM). As indicated above, SME managers lack financial training and discipline (Thuso, 2001). There is great need to develop these skills in SMEs; see Bridge and Peel (1999).

While the results in Table 15 suggest that databases are used correctly for storage of data, earlier findings (Table 8 and evidence collected from interviews) show that SMEs fail to convert such data into useful information for decision-making. Similar problems are reflected in utilization of accounting software (Table 16). SMEs do not engage in further processing of this data, e.g. for budgeting (CE), profit forecasting (CF) and cash flow forecasting (CG). This could be explained by many factors including the lack of advanced IT skills (Table 3 shows that the computer experience of 50% of the respondents does not exceed 10 years), and the inability to identify strategic use of IT suggested by factor 1. It is also surprising to find that organizations that claimed to have strategic plans do not use their software to facilitate strategic planning processes as revealed in Table 17. In addition, statistical packages, which could be used by managers to analyse data are hardly used for planning and risk analysis (Table 18).

4.5.2. Future Utilization of Software Table 12 shows that many SMEs plan to use their software for information processing and strategic management, except for preparation of accounts (CA) and payroll processing (CD). As indicated earlier, for most of the firms surveyed, accounts are prepared by accounting firms and some of these SMEs cannot afford employing specialists. In addition, since most of these are small organizations with few employees and poor expert skills (e.g. in taxation), payroll processing is not usually conducted, as may be the case

in large organizations. However, the intention to use software for planning and strategic purposes is an indication that SMEs are beginning to see the power of strategic IT utilization and this is consistent with findings by Pollard and Hayne (1998). Possibly this could be attributed to the input by the mentorship programmes initiated by the government of South Africa, designed to improve the planning skills of SME managers.

5. Conclusion, Weaknesses and Further Work

5.1. Conclusion

The attribute approach used in this study has revealed the extent to which SMEs utilize their IT resources for strategic purposes and the problems they experience. Factors that inhibit such utilization were also identified and in many cases confirmed by findings from the survey and interviews.

Only a few SMEs utilize their IT resources strategically. These are located in fairly large towns, and are found in the retail, transport/tourism and consulting industries where there is low differentiation of products and services, as well as lack of customer loyalty. This possibly explains why they find it necessary to use IT resources more effectively. Many SMEs in remote areas, and across a wide range of industries, are still ignorant of their competitive environment and do not use IT resources to facilitate formation of links with suppliers and customers or differentiation of products/services and innovation. Results suggest that lack of skills and knowledge to employ IT competitively is the major factor inhibiting such utilization. Other inhibiting factors include poor planning, lack of resources, poor IT vision and leadership and environmental uncertainty. Training of IT staff in SMEs and outsourcing the services of external IT expertise would enable SMEs to develop the necessary specialist skills in IT. Proper funding is however necessary to meet these costs. Unfortunately, many entrepreneurs from the previously disadvantaged communities can only secure funding from families because they do not meet the strict criteria set by the financial institutions. More assistance from the government is necessary.

Poor communication infrastructure is another serious problem identified in this study. This has greatly limited the possibility of developing network facilities that could enable the sharing of resources and expertise and reduction in SME costs. In the present global economy, SMEs need to make use of IT and communication resources to move into new markets. Government and its partners in development have the responsibility to provide the necessary communication infrastructure needed by these organizations.

SME managers in almost all industries studied do not use the strategic planning tools available in their software applications for forecasting, investment appraisal, market analysis, and risk and strategic analysis. Raw data is collected in many cases but cannot be converted into useful information for strategic purposes. This confirms earlier findings that IT resources are generally under-utilized by SMEs. SME managers cannot improve their ability to effectively utilize IT without making use of these tools. They must be encouraged to utilize tools such as the Internet, which can enable them to compete on a more equal footing with large

organizations; marketing and statistical tools, which can help them address the changing market and monitor customer requirements; planning and strategic analysis tools, which can assist in all facets of business operations (e.g. to create the initial business plan; to forecast sales; to monitor cash flow and inventory; and to evaluate projects). By using these tools more intensively, SMEs should be able to focus on long-term business success rather than on operational matters. Effort already made by mentorship schemes initiated by the government is highly commended.

5.2. Weaknesses and Further Work

This study did not examine the detailed strategic plans and financial reports some organizations claimed to possess. These need to be examined in future to determine if they really guided management choice and effective utilization of resources. In addition, the study was only conducted in the eastern Free State area. An extension of this investigation to other regions and industries is necessary because experiences of these other SMEs would contribute greatly to the final assessment and would enable proper generalization of the findings. It appears also that this was the first time such a study had been conducted in this region. Continuous evaluation of strategic utilization of IT resources would enable researchers and practitioners to identify more critical IS problems and advise SME managers accordingly.

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Investigation de l'utilisation stratégique des ressources TI dans les petites et moyennes entreprises de la Eastern Free State Province – Michael E. Kyobe

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Cette étude a examiné la mesure dans laquelle les petites et moyennes entreprises (PME) utilisent leurs ressources TI stratégiquement, et a identifié également des facteurs qui entravent cette utilisation. Une approche attributs a été adoptée pour identifier des attributs caractérisant l'utilisation stratégique de la TI dans les PME. Soixante-dix PME ont participé à l'étude et une analyse factorielle a été réalisée pour identifier les facteurs sous-jacents qui expliquent les inhibiteurs de l'utilisation stratégique de la TI. Bien que les résultats montrent que certaines PME utilisent les ressources TI pour réduire les coûts et améliorer les services à la clientèle, de nombreux responsables de PME sont encore ignorants en ce qui concerne leur environnement d'affaires. Ils n'utilisent pas les ressources TI pour créer des liens avec les fournisseurs, pas plus qu'ils ne les utilisent pour différencier les produits/services ou pour permettre les innovations. Le manque de compétences et de connaissances pour employer la TI de façon compétitive s'est avéré être le premier inhibiteur de l'utilisation stratégique de la TI. Parmi les autres facteurs, on compte la mauvaise planification, le manque de ressources; la mauvaise vision et le mauvais leadership dans le domaine de la TI; et l'incertitude en ce qui concerne l'environnement d'affaires.

Mots clés: avantage concurrentiel; ressources TI; PME; utilisation stratégique

Investigación de la utilización estratégica de los recursos de TI en las pequeñas y medianas empresas de la Provincia del Estado Libre Oriental, Sudáfrica – Michael E. Kyobe

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Este estudio investigó hasta qué punto las pequeñas y medianas empresas (PYME) utilizan sus recursos de tecnología de la información (TI) estratégicamente, e identificó los factores que impiden tal utilización. Se adoptó un enfoque cualitativo para identificar los atributos característicos de la utilización estratégica de la TI en las PYME. Setenta PYME participaron en el estudio y se realizó un análisis factorial para identificar los factores fundamentales que explican los inhibidores de la utilización estratégica de la TI. Aunque los resultados demuestran que algunas PYME utilizan los recursos de TI para reducir los costes y mejorar los servicios a los clientes, muchos directores de PYME todavía ignoran su entorno económico. No utilizan los recursos de TI para crear enlaces con los suministradores, ni para diferenciar los productos/servicios, ni para posibilitar las innovaciones. La falta de aptitudes y conocimientos para emplear los recursos de TI provechosamente resultó el inhibidor principal de la utilización estratégica de la TI. Otros factores fueron una planificación deficiente; falta de recursos y de visión de las posibilidades de la TI y una incertidumbre coyuntural y de liderazgo.

Palabras claves: ventaja competitiva; recursos de TI; PYME; utilización estratégica

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Untersuchung der strategischen Nutzung von IT-Ressourcen in mittelständischen Unternehmen in der südafrikanischen Provinz Östlicher Freistaat – Michael E. Kyobe

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In dieser Studie wurde untersucht, inwieweit mittelständische Unternehmen ihre IT-Ressourcen strategisch nutzen. Desweiteren wurden im Rahmen dieser Studie die Faktoren ermittelt, die eine solche Nutzung behindern. Es wurde eine Attributvorgehensweise zur Feststellung der Attribute, die eine strategische IT-Nutzung in mittelständischen Unternehmen charakterisieren, eingesetzt. Siebzig mittelständische Unternehmen nahmen an der Studie teil und es wurde eine Faktoranalyse durchgeführt, um die zugrundeliegenden Faktoren, die die Behinderungen einer strategischen IT-Nutzung erläutern, festzustellen.

Obwohl die Ergebnisse zeigen, dass eine Reihe mittelständischer Unternehmen IT-Ressourcen zur Reduzierung von Kosten und zur Verbesserung des Kundendienstes nutzen, sind viele der Geschäftsführer mittelständischer Unternehmen nicht über ihre Geschäftsumgebung informiert. Sie verwenden die IT-Ressourcen nicht dazu, um Verbindungen zu Lieferanten herzustellen, und auch nicht, um zwischen Produkten und Dienstleistungen zu differenzieren oder um Innovationen zu ermöglichen. Der Mangel an Fähigkeiten und Wissen zum wettbewerbsfähigen Einsatz von IT stellte sich als eine der Hauptbehinderungen in der strategischen Nutzung von IT-Ressourcen heraus. Zu den weiteren Faktoren gehören schlechte Planung, Mangel an Ressourcen, mangelhafte IT-Vision und IT-Leitung und Ungewissheiten in der Umwelt.

Schlagwörter: Wettbewerbsvorteil; IT-Ressourcen; mittelständische Unternehmen; strategische Nutzung