Towards Integrating Information Technology Systems and Business Planning in Small Firms

Zelea;em T. Temtime *

ABSTRACT

Surviving and growing in today's turbulent markets require Small and Medium Enterprises (SMEs) to use information technology systems (ITS) to capture, process and analyze information input for business planning and managerial decision making. Although the planning behavior and use of ITS are key areas in strategic management, the literature is dominated by the practices of large, multi-national firms. Research on the relationship between ITS utilization and strategy making in the context of SMEs in developing African economies is scarce.

This paper examines the planning orientation and the use of ITS in SMEs in Botswana. Data were collected from a convenient sample of 56 SMEs in Botswana through questionnaire and analyzed using descriptive and inferential statistics. The paper presents five important findings — (1) all SMEs in Botswana engaged in some form of business planning; (2) planning orientation varies with firm size. Medium sized firms put greater emphasis on strategic planning than do small sized firms. Small firms are excessively operational and short term oriented. As firm size increases from small to medium, planning orientation changes from mere operational to long term and strategic planning; (3) ITS usage varies with firm size. Almost all SMEs confirmed that they use microcomputers and some computer software packages in their day to day operational and planning activities. However, medium sized firms tend to use the various software packages more extensively than smaller firms; (4) the degree of utilization of ITS (microcomputers, software packages and computer aided business application) varies with business planning orientation. Strategic planning oriented SMEs are using ITS more frequently than do operational planning oriented SMEs. The paper suggests that SMEs should be assisted to improve the quality of their business planning and strategic decision making through the use of ITS and understand the various long term advantages of investing in ITS.

Introduction

Today's business environment brings both opportunities and threats to SMEs. Although the study of environmental scanning as a precondition for strategic planning is a key area in management research, the means by which the environment is studied and information is gathered and processed in the context of SMEs is not well investigated. Researchers in strategic management have paid only little attention to the practices of SMEs in integrating information technology with business planning. Managing environmental complexities and changes via information management systems enables SMEs

* Senior Lecturer, Faculty of Business, University of Botswana

to reap the benefits of future opportunities and minimize impacts of external threats. Surviving and growing in today's challenging environment requires skilful gathering and processing of data for management decision-making. The quality of strategic planning depends on the quality and relevance of the information used during the planning process. Strategic advantage and competitiveness are therefore largely affected by the ability of firms to systematically gather and process relevant, timely and reliable information about factors and events that are both external and internal to them. Information is the blood life of all organizations. Although business planning and investment in ITS are expensive for many SMEs, the rate of change in environmental factors forces all firms to be innovative and proactive.

SMEs in Botswana

Since its independence in 1966, Botswana has achieved a remarkable growth in economic development. Although the discovery of mineral wealth [i.e., diamond] has propelled Botswana into a middle-income category, the country still faces the problem of economic diversification, employment creation, income distribution and poverty alleviation. The country's economy is highly dependent on the mining and beef sector(s) for its income and on foreign markets for the import of basic goods and services. The main strategy adopted to diversify the economy and create employment opportunities has been the promotion of the development of small and medium enterprises (SMEs). The most common argument in favor of SMEs is that they create substantial job opportunities as they use relatively labor- intensive technologies and employ more people per unit of investment as compared to large firms. It is therefore argued that a given amount of money will create more jobs if it is spread over a large number of SMEs than if it is focused on few large companies. The major and immediate challenge for Botswana is providing employment for low-skilled labor. The prevalence of low-skill and unskilled labor force in the economy, and the tendency of the government to reduce its role as primary employer made the promotion of SMEs a primary source of employment creation (Temtime,and Pansiri, 2003).

The government of Botswana has formulated and implemented different policies and support programmes in the past four decades. However, despite all these concerted efforts to promote entrepreneurship, the pace of development of SMEs in Botswana is too slow. SMEs are characterized by lack of organizational and managerial capability [Temtime, 2002]. SMEs in Botswana are concentrated in the merchandising and service sectors. Only few SMEs are found in the manufacturing sector. The small market size and competition from South Africa and Zimbabwe are the major challenges for SMES in Botswana. The general failure rate for SMEs in Botswana was estimated to be over 80 percent, with over 70 percent of start-up firms failing in their first 18 months and only less than 2 percent of them expand their businesses [Government paper No. 1 of 1999]. Previous studies have indicated that the major cause of failure is lack of strategic management. No firm can survive without some form of business planning (Mintzberg, 1994). Although SMEs in Botswana do plan, their planning approach is fragmented and inadequate to guide and coordinate organizational activities (Temtime, 2002; Temtime and Pansiri, 2003). It is argued in the information management literature that

effective management information systems can be used as a managerial tool to capture, store, and analyze information about customers, suppliers, competitors, technology, economic and social factors for use in the strategic decision making process.

Why Business Planning?

Business planning is an active process of continuously determining what an organization is able or intends to carry out with respect to its future, and how it expects to do this. It is concerned with the setting of goals and objectives and the determination of means by which to achieve these goals and objectives (Armstrong, 1982). The establishment of long-term goals requires careful analysis of environmental, governmental, intra and inter-organizational factors. The determination of the means also requires a closer look at the resources available to the firm, the intensity of competition in the industry, and external opportunities that can be exploited (Temtime, 2002).

No firm can survive without some form of business planning (Mintzberg, 1994). The reasons for business planning can be grouped into four. First, SMEs must plan to ensure that the future is taken into account. Business planning forces firms to systematically recognize future implications of present decisions as well as current implications of future events (Hussey, 1991). Second, SMEs must plan to coordinate their activities. A major argument in favor of planning is that decisions made together in the planning process will ensure that the efforts of SMEs are properly coordinated (Curtis, 1983). The articulation of plans provides a mechanism of communication that promotes coordination across the different parts of firms. Third, SMEs must plan to be 'rational' (Mintzberg, 1994). Formalized decision-making forces deeper and strategic thinking (Bowman, 1990).

Finally, SMEs must plan to control (Thompson, 1990) because planning means to control others in the organization, the future of the organization and the environment outside the organization. By providing a realistic model of future results, it becomes possible to adjust strategies to keep the firm on target. Planning also makes sure that resources are not wasted and that they become available as required (Ansoff, 1965). Planning gives an indication of the scope of the task to each employee, and shows what is expected. Planning gives a clear-cut sense of purpose to the organization. Planning leads to the development of positive attitude and proactive behavior toward change. As people engage in planning, they think about possible changes, the associated risk and uncertainty in the future, and find means of reducing their impact (Temtime, 2001a; 2001b).

ICT Infrastructure

Quality of ICT infrastructure affects the degree of utilization of IT and other facilities by SMEs. The Government of Botswana, through its national development plans, is committed to the rapid growth of telephone facilities in both urban and rural areas of the country. Now Botswana has a modern telecommunications infrastructure, with fibre-optic links running across the country. In 1996 the country was connected to the ever-growing Internet. Cellular phones became available in 1998. Data communications are made possible through telephone dial-up services, virtual private networks, leased line, ISDN, frame relay, and integrated ISP/Telecom service. Currently the government liberalized data communication, mobile telephony,

payphones, internet services, radio services, and others (Mutula, 2002; Mutula, 2004). In the year 2002, Botswana ranked first in Africa in providing free market economy, forth in IT infrastructure development within SADC region, ninth in Africa in PC penetration, forth in electricity in SADC region, fifth in e-government index in Africa, third in mobile cell phone penetration in SADC region, and fifth in information handling technologies penetration (Mutual, 2004). Although low cost computers, cheaper telephone tariffs, and electricity are key prerequisite for a technological take off, the current infrastructure of ICT is among the best in the SADC region.

However, there are some evidences showing that several business enterprises, particularly SMEs are not fully exploiting the existing IT infrastructure for improving their business activities. The information required for running a business can broadly be broken into three types (Temtime, 2002). First, information required for regulatory, financial and tax reporting, without which the business could not legally function and which must be produced quickly, accurately, and efficiently for the purpose of external reporting. Second, information required to manage day-to-day situations and decisions. The last type of information is that required to support long-term decision-making, and the development of strategy.

Studies indicate that most SMEs at best use the first two types of information (Sawyer, 1996; Elenkov, 1997). It is with this last type of information with which this paper is concerned, although there will be overlaps between all types of information since the divisions may largely be conceptual. Both large and small firms require information about customers, products, processes,and factors in the external environment. Strategic advantage and competitiveness are therefore largely affected by the ability of firms to systematically gather and process relevant, timely and reliable information. Recent advances in computer technology have made it simple for managers to gather and process information and develop decision models. The advent of powerful, low-cost microcomputers coupled with user-friendly software, has allowed greater number of SMEs to use computerised Decision Support Systems (DSS) and Expert Systems (ES). As both hardware and software become more sophisticated, the use of microcomputers is moving from facilitating day-to-day routine business transaction to supporting strategic planning (Chen, 1981).

However, though firms have greater access to computer technology than ever before, a plethora of studies (Boyd, 1991; Raymond, 1988) indicated that only large firms use microcomputers and computer software packages for business planning and managerial decision-making. Most applications particularly in the small and medium sized firms are restricted to basic transaction and word processing, which are inexpensive to automate and maintain (Chen and Williams).

Decision Support Systems (DSS) have emerged as a promising new technology for structuring, guiding, and improving information processing and management decision-making. While large corporations have relied more and more upon DSS for effective decision-making, SMEs have virtually ignored this technology. With the proliferation of personal computers, practical and inexpensive DSS are within the reach of SMEs to improve the quality of inferences and judgments. However, in order to stimulate diffusion of DSS technology to SMEs, the perception and attitude of SMEs toward the role of ITS must be challenged and changed. One currently popular application of DSS is the expert system (ES), a method of applying human knowledge captured in a computer to solve problems that normally require human expertise (Herbert and Bradley, 1993). The impact of ES

in SMEs may be greater than in large firms since SMEs may not have the luxury of alternative solutions. Chen (1989) and Sullivan and Shively (1989) point out, however, that this technology has not been fully utilized by SMEs despite advantages cited by several authors. Chen and Williams (1993) have sufficient evidence to suggest that most of the impact of microcomputers on SMEs has been basic and operational than decisional and strategic. Other studies (Fuller T, 1996; Muller-Boling and Kirchhoff, 19991), however, indicated that there are some evidences that the main use of microcomputers in SMEs is shifting from record keeping (word processing and bookkeeping) to managerial decision-making (financial modelling, forecasting and data management). Moreover, as suggested by Gupta and Harris (1989) and Amer and Bain (1990) the use of computerised information systems in SMEs would lift the focus of business from operational matters to long-term business success.

The Research Problem

Many SMEs use informal rather than formal, unstructured rather than systematic, and operational rather than strategic approach to business planning. Many assume that investment in modern ITS is an extra optional rather than a critical decision. These perceptions and practices have significantly contributed to the high failure rate of SMEs in developing economies. This paper is based on the premise that the survival and competitiveness of SMEs depend, among other things, on planning orientation and use of ITS, both of which, in turn, depend on firm size. Thus, the research model argues that planning behavior and ITS usage are significantly related to firm size and affect the survival and competitive potential of SMEs. In other words, there are no important differences between:

(a) firm size and planning orientation s; (b) firm size and utilization of ITS; and (c) planning orientation and utilization of ITS. Thus, the paper attempts to answer two basic research questions. Do planning orientation and ITS usage vary with firm size? Does ITS usage vary with firm size and planning orientation?

The Survey

In order to answer the above basic research questions, a descriptive survey was designed and data were collected through questionnaire from a convenient sample of 56 firms from the Botswana Confederation of Commence Industry and Manpower (BCCIM) membership list. Only firms with a single business are included in the sample. Since the selected firm is an independent business, business planning and IT deployment practices would be related to organizational and managerial factors rather than to the policy of a parent company.

The questionnaire has three major parts. The first part contained demographic data of SMEs and owner-managers Second, the respondents were provided with brief explanation of some selected planning variables and asked to rate the degree of emphasis they put on them using a 5-point scale ranging from very high emphasis (5) to no emphasis (1). This data was intended for grouping of firms according to their planning orientation. Based on their rating of these planning indicators, the sample firms will be roughly divided into operational and strategic planning oriented firms.

Third, the respondents were asked (a) whether they use microcomputers, software packages and computer aided business applications and (b) to indicate the extent to which they used microcomputers, software packages and computer aided business applications in their overall business operations and business planning

in particular using a 5-point scale ranging from most frequently used (5) to least frequently used (1). This data was collected to evaluate whether ITS usage is related to firm size and planning orientation. Small firms are defined in Botswana as having 6 - 25 full time paid employees and medium firms as having as many as 26 to 99 full time paid employees (Government of Botswana, 1997). ITS usage is defined in this paper as the use of microcomputers, software packages and computer aided business applications. While descriptive statistics such as mean and standard deviations are used to analyze and compare the planning and ITS orientation of SMEs, the three null hypotheses (the relationship among firm size, planning orientation and ITS usage) were tested through analalysis of variance (ANOVA) between the mean scores.

Characteristics of the Sample

The findings of the study are reported under four major issues—characteristics of SMEs, planning orientation, and ITS usage.

Although 56 questionnaires were returned, only 44 were found complete and usable for the study. The sample firms are fairly distributed to three industries. Thirty two percent of them are operating in the manufacturing industry; 43 percent in the merchandising (wholesale and retail business) industry and the remaining 25 percent in the service industry. The sample firms are dominated by corporations (58 percent) compared to 29 percent sole proprietorship and 13 percent partnership/joint venture firms. The majority of executives (84 percent) are men and only 7 (16 percent) small firms were managed by women. Owner-mangers of the sample SMEs have, on average, 5.6 years of general managerial experience and 4.2 years as manager or director of the firm under consideration, showing that they have years of experience with the task and general business environment in which they are operating.

Planning Orientation of the Sample

Two basic questions were asked to study the planning orientation of SMEs. First, the respondents were asked whether they conduct some form of business planning to guide and monitor their organizational activities and performances. All SMEs responded positively and confirmed that SMEs in Botswana engage in some form of business planning. Then, to evaluate whether their planning is systematic or unstructured, formal or informal, strategic or operational, the respondents were asked to indicate the degree of emphasis they place on each of the selected planning indicators during their planning process using a 5-point Likert scale ranging from no emphasis (1) to very high emphasis (5).

22 planning indicators were identified from available literature, and 10 management instructors were asked to rate their importance as planning dimensions. These items were first factor analysed with varimax rotation. Five items were not loaded onto any of the factors while three items had a factor loading score below the cut of point of 0.50. These items were eliminated form the list. The remaining 14 items explained 86 percent of the total variance in planning orientation and considered valid to measure the planning construct. This data was intended to investigate the planning behaviour of SMEs—whether they focus more on operational than strategic issues; formal than non-formal approaches; or short term than long term orientation. As shown in table 1, more emphasis has been placed on operational planning related activities by both small and medium enterprises than strategic planning related issues.

Table 1: *Mean Rankings of Planning Indicators*

Planning indicators	*Small*		*Medium*		*All Firms*	
	Mean	*S.D*	*Mean*	*S.D*	*Mean*	*S.D.*
Operational efficiency	4.70*	0.50	3.36*	0.30	4.16	0.50
Sales Forecasting	4.42	0.90	3.36	0.80	3.98	0.90
Functional budgets	4.26	0.50	3.30	0.90	3.86	0.60
Short – term goals	4.16*	0.40	3.44*	0.60	3.86	0.50
Annual action plans	3.90	0.30	3.42	1.20	3.70	0.80
Profit Forecasting	3.68	0.70	3.30	0.70	3.52	0.70
Environmental Scanning	2.30	1.90	2.56	1.90	2.40	1.90
Industry Analysis	2.18	1.80	2.78	2.10	2.42	1.90
Planning Manual usage	2.10	2.10	2.84	1.90	2.40	1.90
Building long term Potential	2.02*	0.90	3.04*	2.10	2.44	1.50
Long term goals	1.96*	1.70	2.78*	1.60	2.30	1.70
Technology Forecasting	1.90	0.50	2.70	2.20	2.22	1.40
Market Research Studies	1.82	1.10	2.22	1.10	1.98	1.10
Mission statement	1.68	1.80	1.96	1.50	1.80	1.60
Sample Size	26		18		44	
* *shows significant differences on four strategic& operational issues at P<0.05.*						

Small firms placed high emphasis on operational efficiency, sales forecasting, functional budgets, short-term goals, annual action plans and profit forecasting. They put only very little emphasis on strategic planning related activities. The lowest emphasis, for example, was placed on the development of mission statement, followed by market research studies, technology forecasting, and establishment of long-term goals. Medium sized firms have also put greater emphasis on operational planning than strategic planning. The development of short-term goals has received the highest emphasis from medium firms, followed by annual action plans, sales forecasting, operational efficiency, all of which are operational planning indicators. If the mean values are trusted as indicators, smaller sized firms are more short term oriented in their planning than do medium sized firms. Analysis of variance (ANOVA) between the mean scores for small and medium sized firms on long-term goals, building long term competitive potential, operational efficiency and short term goals shows statistically significant difference at $P<0.05$ level. This indicates that planning orientation tend to vary with firm size. Hence, as firm size increases, firms tend to move from operational and short-term oriented planning toward strategic planning orientation. The above findings are also confirmed by the size of the standard deviations for each item in Table 1. The lower the standard deviation for a particular item the higher will be the common understanding of firms about that item.

ITS Usage of The Sample

Almost all SMEs use microcomputers and some computer software packages in their planning, day-to-day business activities and managerial decision making. Before investigating the use of microcomputers in business planning and managerial decision-making, the respondents

were asked (on a 5-point Likert scale ranging from 1 (not used at all) to 5 (used throughout the business) the extent to which they used selected computer software packages in their business in general. For all SMEs participating in the survey and particularly for smaller firms, word processing was the most widely used computer software, followed by accounting packages, spreadsheets, databases, integrated management information systems, and statistical packages.

No less than 97.7 percent of the sample firms used word processing software (with only one small company indicating that it never used such software) 90.9 percent used accounting packages. But only 31.8 percent used spreadsheets, 20.4 percent used database packages, 9 percent used integrated management information system, and only very few firms used statistical packages.

Table 2: *Mean Rankings of Computer Software Packages Usage*

	Small Firms		*Medium Firms*		*All Firms*	
Computer Software Packages	*Mean*	*S.D.*	*Mean*	*S.D.*	*Mean*	*S.D.*
Word Processing	4.9	0.6	4.7	0.3	4.6	0.5
Accounting Packages	3.8	1.1	4.8	1.8	4.4	1.4
Spreadsheet packages	3.6	1.2	4.4	0.8	4.2	1.0
Database Packages	2.7	0.7	4.1	1.1	3.8	0.9
Integrated MIS	1.8	0.4	3.6	1.1	3.1	0.7
Statistical Packages	1.4	0.4	2.8	1.1	2.2	0.7
Sample size	26		18		44	

Medium sized firms indicated higher mean usage of all the six computer software packages except word processing than do smaller sized firms. Thus, medium sized companies tended to use the various software packages more extensively than small firms, with important differences being evident in respect of spreadsheets and MIS packages and with 7 percent of small firms indicating that they used MIS software, compared with 18 percent of medium sized firms. In sum, business support systems (word processing and accounting) are used extensively, but that specialized decision support software (databases, MIS and statistical packages) are employed less frequently even by medium sized enterprises.

It has been stressed in the small business literature that the adoption of information technology and the utilization of ITS may result in firms focussing on long-term business success rather than on operational matters (Chen and Williams, 1993), and that ITS have the potential to provide SMEs with a competitive advantage (Fuller, 1996). To examine whether computer usage is related to planning orientation in SMEs the sample firms were divided into strategic planners (who indicated 4 or 5 on the planning indicators reported in Table 1) and operational planners (who indicated 3, 2, or 1). 16 out of 44 (11 medium and 5 small) firms were found to have some strategic orientation and labelled as Strategic Planning Oriented firms (SPO)

while the remaining 28 (7 medium and 21 small) firms were largely focussing on operational and short-term issues and labelled as Operational Planning Oriented firms (OPO). To investigate in more detail the different business applications for which computers are utilized, respondents were requested to indicate the frequency with which computer aided business applications were used in a range of business activities on a 5-point scale ranging 5 (most frequently used) to 1 (least frequently used).

Business applications for which microcomputers are most frequently used include financial accounting, cost and management accounting, and payroll, followed by budgeting, production and sales planning, and stock control. Microcomputers were not extensively and effectively used for the purpose of strategic planning and decision-making. Managerial activities for which microcomputers were least used include risk analysis, strategic analysis, investment appraisal, market research, project planning, cash flow and profit forecasting.

Table 3: *Mean Rankings of Frequency of ITS usage for Business Applications*

		SMALL			*MEDIUM*			*ALL FIRMS*		
Rank	*Applications*	*SPO*	*OPO*	*ALL*	*SPO*	*OPO*	*ALL*	*SPO*	*OPO*	*ALL*
1	Financial system	4.92	4.91	4.91	4.91	4.88	4.90	4.91	4.90	4.91
2	Cost accounting	4.89	4.74	4.77	4.65	4.68	4.66	4.73	4.73	4.73
3	Payroll system	4.68	4.78	4.76	4.76	4.85	4.80	4.74	4.80	4.77
4	Budgeting	4.42	4.52	4.50	4.88	4.90	4.89	4.74	4.62	4.66
5	Production plan	4.01	4.14	4.12	4.09	3.98	4.05	4.07	4.10	4.09
6	Sales plan	4.01	3.65	3.72	4.48	4.13	4.34	4.33	3.77	3.97
7	Stock control	3.98	3.49	3.58	4.56	4.16	4.40	4.38	3.66	3.92
8	Staff plan	3.96	3.02	3.20	4.03	2.75	3.53	4.01	2.95	3.34
9	Cash flow	3.29	2.65	2.77	3.90	2.24	3.25	3.71	2.55	2.97
10	Profit Forecast	3.19	2.65	2.75	4.01	2.89	3.57	3.75	2.71	3.09
11	Marketing mix	3.19	3.15	3.16	3.38	2.98	3.22	3.32	3.11	3.18
12	Investment app.	3.17	2.65	2.75	3.88	2.88	3.49	3.66	2.71	3.05
13	Strategic analysis	3.13	2.65	2.74	3.68	2.02	3.03	3.51	2.49	2.86
14	Market research	3.08	2.65	2.73	3.65	2.38	3.16	3.47	2.58	2.91
15	Risk analysis	3.01	2.65	2.72	3.21	2.23	2.83	3.15	2.55	2.76
Group Mean		**3.80**	**3.49**	**3.55**	**4.14**	**3.46**	**3.88**	**4.03**	**3.48**	**3.68**
Within Group Difference	t-value	21.18	15.01	16.05	29.52	12.41	20.41	27.05	14.42	17.98
	P-value (2-tailed)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size		**5**	**21**	**26**	**11**	**7**	**18**	**16**	**28**	**44**

As shown by the mean values in Table 3, in both the medium and small firm group, strategic oriented firms tended to use microcomputers for strategic decision making issues more extensively than operational planning oriented firms, with significant differences (for mean usage) being evident in respect of market research, project planning and strategic analysis-and with only 34 percent of operational planners indicating that they used microcomputers for managerial decision making, compared with 81 percent of strategic planning oriented firms. From this, one can derive that strategic orientation and computer usage are positively related. As the degree of strategic orientation (as measured by their involvement in strategic planning) increases, the tendency to use ITS for strategic managerial decision making also increases.

Table 3 also indicates that no operational planning oriented firm (small or medium) has scored a mean frequency of computer usage for strategic activities above the scale mid-point 3, and with the proportion of respondents indicating that they most frequently used ITS for these applications never rising above 20 percent. These applications comprised marketing mix; strategic analysis; staff (manpower) planning; risk analysis; investment appraisal; forecasting; and market research. But, all strategic planning oriented firms (small and medium) scored above the scale mid-point 3 for these applications.

The mean frequency statistics for strategic and operational planners in respect of the various business applications utilized with computer-aided systems is different. For operational planning firms and all business applications, strategic planners use ITS more extensively than operational planning oriented firms. The mean use of microcomputers by strategic planning oriented small firms is, for example, greater than operational planning oriented small firms for all applications. The same is true for strategic planning oriented medium sized firms. Analysis of variance shows a statistically significant difference in (at $P<0.05$ confidence level) the perceived mean computer usages between (1) small strategic planning oriented and small operational planning oriented firms; (2) medium Strategic planning oriented and small operational planning oriented firms; (3) small and medium sized firms; and (4) strategic planning oriented and operational planning oriented firms. One can therefore conclude from this that computer usage is related with both size and planning orientation. Firms tends to increase the use of microcomputer systems in managerial decision making as they grow from small to medium and as they move from short term to long term planning orientation. Detailed analysis of variance showed that the relationship is stronger for planning orientation than firm size, indicating that planning behaviour seems to put greater contribution in promoting the use of ITS for strategic decision making than does firm size.

A single sample t-test was conducted to test the three null hypotheses and the results are shown in the last three rows of Table 3. Analysis of variance (ANOVA) showed that there are statistically significant differences at $P<0.05$ between firm size and planning orientation; firm size and ITS usage; and planning orientation and ITS usage. The ANOVA result also shows that there are statistically significant differences at $P<0.05$ among small SPO firms ($t=21.18$, p.0.00) small OPO firms($t=15.01$, p.0.00), small firms($t=16.05$, p.0.00), medium SPO firms($t=29.52$, p.0.00), medium OPO firms($t=12.41$, p.0.00), medium sized firms($t=20.41$, p.0.00), all SPO firms($t=27.05$, p.0.00), all OPO firms($t=14.42$, p.0.00) and among all SMEs ($t=17.98$, p.0.00). These

differences in perceptions could be attributed to many factors. These factors may include perceptual differences in evaluating their computer usage for business application and lack of knowledge of and experience with different ITS used for managerial decision making. This calls for proper training in the strategic use of ITS for managerial decision making with emphasis on cultivating and developing the culture of using ITS outside the routine business transactions and word processing.

Conclusions and Implications

Although the purpose of the study is to investigate the application of ITS in strategic decision making and planning in SMEs, the scope is very limited. The main weakness of this study is the inclusion of SMEs from different industries (manufacturing, merchandising, and services industries) because the degree and intensity of strategic planning and the use of IT varies from industry to industry, and depending on the degree of perceived uncertainty in their operating environment.

The survey shows that both small and medium enterprises in Botswana engage in some form of strategic and operational planning. The majority of SMEs, however, do not use ITS for supporting managerial decision-making and strategic planning. Almost all SMEs use microcomputers mainly for basic, operational, administrative, and day-to-day business activities. They put much emphasis on day-to-day, short-term business activities rather than building long-term competitive potential. Most of them (70 percent) engaged in intuitive, informal, and unstructured form of strategic business planning. Only few firms are found practising strategic planning. Most SMEs perceive that business planning is costly and time-consuming task, and hence appropriate only for large firms. As a result, computers are more widely used for administrative and operational tasks rather than for supporting managerial decision-making and strategic planning. This finding holds for both small and medium sized firms.

A further key finding was that computer usage was positively associated with planning orientation. SMEs with strategic planning orientation tend to use microcomputers more extensively for supporting managerial decision-making than do SMEs with operational planning. The adoption of ITS may spur small businesses to focus on long-term planning and business success. The relationship between strategic planning and computer usage is not clear. Future research should focus more on the promotion of the culture of strategic planning than only propagating the great benefits of ITS adoption, because the development of strategic orientation leads to efficient use of microcomputers and software packages. However, there is no evidence in the literature indicating that efficient use of microcomputers will lead to the development of strategic orientation.

The link between user participation and experience in computer technology may be due to an experiential learning phenomenon. Managers with more computer experience have had more opportunity to observe or be involved in system development projects. The direct implication of these results is that computer training and know-how should be made available to present and prospective small business managers if one aims to foster more positive attitudes toward more frequent and diverse use of computers in managerial decision making in SMEs.

Future studies should, therefore, focus on the computer training and education of managers/ owners of SMEs, and critical success factors for the effective use of microcomputers for managerial decision making and planning. Factors contributing to the successful use of microcomputers in small business planning include understanding the need for computerized information system to support managerial decisior-making and planning and unreserved support for the system from managers/owners of SMEs.

ITS can be effectively used in business planning and in a wide variety of strategic applications such as sales forecasts, profit and cash flow forecasts, econometric models, stochastic and financial models, project planning and control, investment appraisal, industry analysis, new product development, customer survey, networking suppliers and customers, materials requirement planning, facility layout and so on. Human behavior is influenced by attitudes, which can be measured and changed. A number of managerial attitudes, beliefs, or expectations about ITS may be important to the successful implementation of these systems. Computer training and development programs can make important attitudinal and behavioral changes in SMES. The attitudes which one would expect to be affected by computer training and experience includes feelings about ones understanding of the information system; feelings about participation in systems development and implementation; and satisfaction with the information system. Managers with more computer experience and training will have more positive attitudes and greater usage of computers for strategic decision making. Lack of computer training and skills can be a major problem in SMEs. For instance, a lack of know-how about the possibilities, limits and requirements of business computing can cause SMEs to depend too much external consultants, to misunderstand their own information requirements, or to under-use or mismanage their information resources.

As Raymond (1988) argues educators, managers and information systems practitioners should look to computer training and education to accomplish several objectives. Small business management education should include computer and information systems courses geared not only toward producing "computer literate" administrators, but also toward education entrepreneurs who view computer based information systems as a strategic tool, which can be used to gain competitive advantage. He also suggests the need to make SMEs aware of the importance of training for the initial computerization process. When adopting a computer system, managers with little or no computer experience should be trained along with the personnel who will operate the system as primary users.

References

Amer T.S. and C.E. Bain, 1990, '*Making Small Business* Planning Easier,' Journal of Accountancy, 170 (July), pp. 53-60

Armstrong J.S. 1982. 'The Value of Formal Planning for Strategic Decisions: Review of Empirical Research', *Strategic Management Journal*, 3 (3), pp.197-211.

Bonk E.T. 1996, 'The Information Revolution and Its Impact on SME Strategy: *The Asia Pacific Economic Cooperative Forum as A Model'*, 34 (1), January, PP.71-77

Boyd B.K. 1991. 'Strategic planning and Financial Performance: A Meta analytic Review', *Journal of management Studies*, 28, pp.354-374.

Chen Kuang-Chian 1989, 'Developing Decision Support Systems for Small Business Management:

A Case Study,' *Journal of Small Business Management*, 27(3), July, pp.11-22.

Chen. Jui-chih, and Bernard C. Williams, 1993, 'The impact of microcomputer Systems on Small Business: England, 10 Years Later, *Journal of Small Business management*, July, pp.96-102.

FULLER, T. 1996, 'Fulfilling IT Needs in Small Businesses: A Recursive Learning Model,' *International Small Business Journal*, 14 (4), pp.25-44.

Government of Botswana 1999 Policy on small, medium and micro enterprises in Botswana, *Government White Paper No.1*. Government Printing Press. Gaborone:

Government of Botswana. President Office.1997. Long term vision for Botswana toward prosperity for all. Government Printing Press. Gaborone:

Gupta, J.N.D and T.M. Harris, 1989, 'Decision support Systems for Small Businesses,' *Journal of Systems Management*, pp 37-41. February,

Herbert F.J. and Bradley J.H 1993 'Expert Systems Development in Small Business: A Managerial Perspective,' *Journal of Small Business Management*, 31(3), July, pp.23-34.

Mintzberg H. 1994. *The Rise and fall of Strategic Planning*, Prentice Hall International (UK) Limited, London.

Muller-boling D and Susanne Kirchhoff 1991, 'Expert Systems for Decision Support in Business Start-Up,' *Journal of Small Business Management, 29*(2), April, pp.83-90.

Mutula Stephen,2002 Current Developments in the internet Industry in Botswana, *The Electronic Library*, 20 (6), 504-511.

Mutula Stephen, 2004, IT infrastructure Development in Botswana, *The Electronic Library*, 22 (2), 144-153.

Raymond Louis, 1988, 'The Impact of computer Training on the Attitudes and Usage Behaviour of Small Business Managers,' *Journal of Small Business Management*, July, pp.8-12

Sullivan J.J. and Shirley G.o 1989'Expert Systems Software in Small Business Decision Making,' *Journal of Small. Business Management*, 27, January, pp.17-26.

Temtime, Z. T 2001. "The environmental scanning behavior of small and medium enterprises in developing economies: Evidence from Botswana." *Pakistan Journal of Applied Sciences*, 1(2), pp 263-269.

Temtime, Z. T. 2001 "The role of microcomputers in small and medium enterprises: Are they used in strategic decisions and planning?" *Pakistan Journal of Applied Sciences*, 1(2), pp 87-92.

Temtime, Z. T. 2002. "The planning behaviour of SMEs in developing economies: A preliminary investigation." *African Journal of Finance and Management*, 11(1)pp, 36-42.

Temtime, Z. T., & PANSIRI, J. 2003 *Identifying small business critical success factors for a procreative entrepreneurial development program in Botswana.* University of Botswana. Gaborone:

Temtime, Z.T. 2004, "A Decision Tree Approach for Integrating Small Business Assistance Scheme in Botswana," *Journal of management Development*, 23 (6), pp. 563-578.