STRATEGIC INFORMATION SYSTEMS PLANNING AND ENVIRONMENTAL UNCERTAINTY: AN EMPIRICAL ASSESSMENT

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ABSTRACT

An environmental uncertainty challenges today's business managers since higher environmental uncertainty is likely to drive Small, Micro and Medium Enterprises (SMMEs) to change business processes. This paper argues that paying more attention to strategic information systems planning (SISP) may increase survival rates of SMMEs, thus supporting the contention that SISP is of significant importance if SMMEs are to remain competitive. This reduces the environmental uncertainty influence on those managing SMMEs. In a postal survey to assess SISP and environmental uncertainty, a questionnaire measuring three constructs namely strategic information systems planning process (SISPP), strategic information systems planning success (SISPS) and environmental uncertainty, was used. Empirical evidence was collected from109 heads of information systems and IT executives. From 15 sub-hypotheses, 9 were supported and 6 not supported. The results suggest that some SISPP phases are more effective in different environment and these phases can lead to the SISPS under environmental uncertainty. Based on the empirical evidence, the paper concludes that the South African SMMEs sector is generally not out of environmental uncertainty influence.

1. INTRODUCTION

Today, the world has become a small village in which competitiveness in the marketplace is not limited by geographical boundaries. In reality, Small, Micro and Medium Enterprises (SMMEs) in South Africa do not only operate in their direct competitive environment (other local enterprises), but are also faced with international competition. In order to sustain in the

marketplace, these SMMEs must be able to deal with arising competition. The increasing demands of the marketplace make it very essential for SMMEs to make successful strategic information systems planning (SISP) based on an alignment between information system strategies and the business strategic plan of the organisation.

The existing literature provides little evidence of information systems (IS) development within SMMEs. Foong (1999) stated that the introduction of IS into SMMEs, like the early introduction into large firms, has tended to be fragmented and based around operational support and transaction processing. Typically, the interest and the enthusiasm of owners tend to drive IS adoption (Premkumar and Roberts, 1999). Not surprisingly, adoption is often not planned strategically. For example, small manufacturing businesses invest in systems in order to improve production processing without integrating the order processing system or developing stock control systems (Levy and Powell, 1998).

According to Levy and Powell (2000) high environmental uncertainty is also likely to drive SMMEs to change business processes. This paper argues that paying more attention to SISP may, therefore, increase survival rates of SMMEs - supporting the contention that SISP is vital to SMMEs for gaining and maintaining competitive advantage (Agarwal, 1998) – accordingly, reducing the environmental uncertainty affects and challenges SMMEs managers.

To the preceding point, the purpose of the study was to investigate the relationship between strategic information systems planning process (SISPP) and strategic information systems planning success (SISPS) under environmental uncertainty, in the South African SMMEs sector. This paper proceeds as follows: firstly, the theoretical perspectives are presented with the research variables; secondly, the study hypotheses are presented. This is followed, thirdly, by the research methodology discussion; fourthly, the data analysis is presented; and lastly, the discussion of study results, implications for practice, implications for future research and study limitations are given.

2. THEORETICAL PERSPECTIVE AND RESEARCH VARIABLES

2.1 Theoretical Perspectives

A strategic information systems planning (SISP) may be broadly considered to be a competitive weapon to cope with uncertain environments (Choe, 2003). It has been argued that organisations can deal with environmental uncertainty by increasing their information processing capability and by creating inter-organizational links between SISP and business strategic planning. SISP is used to obtain competitive advantages over competitors and to prevent competitors from gaining an advantage. Past research suggests the environmental uncertainty often encourages organisations to utilise SISP in order to survive (Grover and Lederer, 1999; Teo and King, 1996; Sabherwal and King, 1992; Reich and Benbasat, 2000).

The present study contained one independent variable: Strategic Information Systems Planning Process (SISPP) with five phases namely: strategic awareness, situation analysis, strategy conception, strategy formulation and strategy implementation. One dependent variable: Strategic Information Systems Planning Success (SISPS). The SISPS contain four dimensions, namely: alignment, analysis, cooperation and improvement in capabilities. One moderate variable: environmental uncertainty with three sub-constructs, which are

environmental dynamism, environmental heterogeneity and environmental hostility. This study puts forward a framework as shown in figure 1 which explores the relationship between SISPP and SISPS under environmental uncertainty.
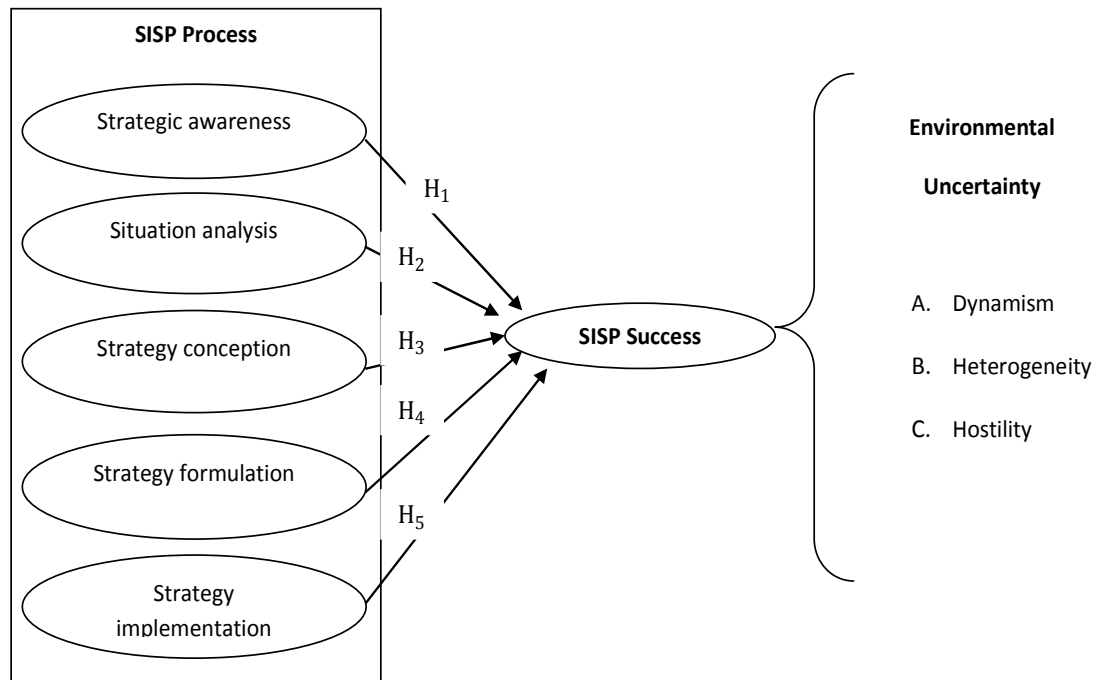

Figure 1. Relationship between variables

2.2 Research Variables

2.2.1 Strategic Information Systems Planning Process (SISPP)

SISP can be defined as the process of determining an organisation's portfolio of computer-based applications that will help it achieve its business objectives (Reich and Benbasat, 2000). SISP is a rational process, intended to recommend new information systems linked to an overall corporate strategy, and the SISP helps an organisation to achieve its goal of improved competitiveness, operations and resource management (Mentzas, 1997).

The Mentzas (1997) model of SISPP describes three process elements, in order to increase detail namely: phases, stages and modules. The phases of SISP are generic strategy formulation steps that can be applied to any corporate strategy development process. Each phase is divided into stages. Stages are considered to be semi-autonomous components of work, which can be planned relatively independently. A stage is defined in terms of the resulting behaviour and appearance of its end-product, and the information structures that underlie it. Stages are further divided into modules. Modules can either be units of work (i.e. activities) or collections of activities.

The observation of the extent to which an organisation carries out each phase and task may be used to assess the state of the SISPP. The researcher had therefore considered phases and tasks as the basis for assessing the degree of use of the SISPP in this study (Newkirk and Lederer, 2006; Newkirk, 2001). Table 1 below shows the phases and tasks of the SISPP.

Table 1. SISPP phases and stages

Phases	Stages
Strategic Awareness	Identification of strategic goals
	Identification of business and IT systems
	Definition of planning process objectives
Situation analysis	Analysis of business systems
	Analysis of organisational systems
	Analysis of IT systems
	Analysis of external business environment
	Analysis of external IT environment
Strategy conception	Scanning of the future
	Identification of alternative scenarios
	Scenario elaboration
Strategy formulation	Formulation of business architecture
	Formulation of IT architecture
	Formulation of organisational solutions
	Synthesis and prioritisation
Strategy implementation planning	Definition of action plan elements
	Elaboration of action plan
	Evaluation plan
	Definition of follow-up and control procedures

2.2.2 Strategic Information Systems Planning Success (SISPS)

SISPS can be understood in terms of the extent to which the organisation objectives were achieved (Raghunathan and Raghunathan, 1994; Kunnathur and Shi, 2001). Earl (1993) found that SISP embodied three equally important elements for assessing success. These elements were: method, process and implementation. Thus, he used a construct that consisted of all three elements of SISP, which he called "the SISP approach".

Segars and Grover (1998) argue that the benefits of SISP cannot be reduced to such simple financial measures as return on investment, payback or internal rate of return. In this context, they built an instrument and empirically verified a second-order model based on these two perspectives for SISP success. In their instrument, there are four dimensions, namely: alignment, analysis, cooperation and improvement in capabilities. They rigorously tested the model through confirmatory factor analysis in the United States setting. Their test confirmed that planning success is multidimensional (King, 1988) and can be well represented as a second-order factor (SISP success, SISP). Their study has thus provided a theoretical and operational definition for many aspects of SISP success. These four dimensions have been used as basis for the assessment of SISPS in the present study. The dimensions and their items are shown in Table 2 below.

Table 2. SISPS dimensions and items

Dimensions	Items
Alignment	Understanding the strategic priorities of top management
	Aligning IS strategies with the strategic plan of the organisation
	Adapting the goals/objectives of IS to the changing goals/objectives of the organisation
	Maintaining a mutual understanding with top management on the role of IS in supporting strategy
	Identifying IT-related opportunities to support the strategic direction of the firm
	Educating top management on the importance of IT
	Adapting technology to strategic change
	Assessing the strategic importance of emerging technologies
Analysis	Understanding the information needs of organisational subunits
	Identifying opportunities for internal improvement of business processes through IT
	Improved understanding of how the organisation actually operates
	Development of a "blueprint" which structures organisational processes
	Monitoring of internal business needs and the capability of IS to meet those needs
	Maintaining an understanding of changing organisational processes and procedures
	Generating new ideas to reengineer business processes through IT
	Understanding the dispersion of data, applications and other technologies throughout the firm
Cooperation	Avoiding the overlapping development of major systems
	Achieving a general level of agreement regarding the risks/tradeoffs among system projects
	Establishing a uniform basis for prioritising projects
	Maintaining open lines of communication with other departments
	Coordinating the development efforts of various organisational subunits
	Identifying and resolving potential sources of resistance to IS plans
	Developing clear guidelines of managerial responsibility for plan implementation
Capabilities	Ability to identify key problem areas
	Ability to identify new business opportunities
	Ability to align IS strategy with organisational strategy
	Ability to anticipate surprises and crises
	Ability to understand the business and its information needs
	Flexibility to adapt to unanticipated changes
	Ability to gain cooperation among user groups for IS plans

2.2.3 Environmental Uncertainty

Every organisation exists in an environment, and the environmental influence on an organisation's performance is critical. There are several environments that may impact an organisation. Perceptions of, and responses to, environmental problems are evolving rapidly at all levels and can be grouped into categories including social, regulatory, technological,

political, economic and industry. Influences of each can negatively affect an organisation, resulting in poor performance or ultimate failure (Kendra, 2004).

In the previous researches environmental uncertainty has been characterised and studied in terms of three sub-constructs: dynamism, heterogeneity and hostility. These constructs were extensively assessed and validated by their creators (Newkirk and Lederer, 2006; 2007, Newkirk, 2001; Teo and King, 1997). Information systems (IS) researchers have used them in their studies of contextual factors that facilitate strategic information systems (SIS) applications, as well as the integration of information systems (IS) and business planning. These three sub-constructs have been measured in a questionnaire using the evaluation of specific items defined previously by Teo and King (1997), as shown in Table 3 below, and they have been used in this study.

Table 3. Environmental uncertainty sub-constructs and items

Sub-constructs	Items
Dynamism	Products and services in our industry become obsolete very quickly
	The product/service technologies in our industry change very quickly
	We can predict what our competitors are going to do next
	We can predict when our products/services demand changes
Heterogeneity	In our industry, there is considerable diversity in: customer buying habits
	In our industry, there is considerable diversity in: nature of competition
	In our industry, there is considerable diversity in: product lines
Hostility	The survival of this organisation is currently threatened by a scarce supply of labour The survival of this organisation is currently threatened by a scarce supply of materials
	The survival of this organisation is currently threatened by a scarce supply of tough price competition
	The survival of this organisation is currently threatened by a scarce supply of tough competition in product/service quality
	The survival of this organisation is currently threatened by a scarce supply of tough competition in product/service differentiation

3. HYPOTHESES

In an uncertain environment, managers do planning in order to achieve the goals of the organisation. They apply the information provided by planning in order to reduce both the uncertainty and unfavourable effects of the uncertainty as best they can, in order to achieve these goals (Gibbs, 1994). Analysis in uncertain environments might be expected to produce greater knowledge about competitors, resources, customers and regulators. This would make it possible to understand and predict change and thus to develop plans that are less vulnerable to consequences of that change. This would result in greater top management confidence and commitment, resulting in a better plan with more likelihood of implementation (Newkirk and Lederer, 2006; Basu et al., 2002). In this study, the hypotheses are as follows:

H1: An improved strategic awareness leads to greater SISPS in case of...
     H1A: Environmental dynamism
     H1B: Environmental Heterogeneity
     H1C: Environmental hostility

H2: An improved situation analysis leads to greater SISPS in case of...
     H2A: Environmental dynamism
     H2B: Environmental Heterogeneity
     H2C: Environmental hostility

H3: An improved strategy conception leads to greater SISPS in case of...

     H3A: Environmental dynamism
     H3B: Environmental Heterogeneity
     H3C: Environmental hostility

H4: An improved strategy formulation leads to greater SISPS in case of...
     H4A: Environmental dynamism
     H4B: Environmental Heterogeneity
     H4C: Environmental hostility

H5: An improved strategy implementation leads to greater SISPS in case of...
     H5A: Environmental dynamism
     H5B: Environmental Heterogeneity
     H5C: Environmental hostility

4. RESEARCH METHODOLOGY

4.1 The Instrument

The measuring instruments used in this study have been used in the previous studies (e.g., Mirchandani and Lederer, 2008; Newkirk and Lederer, 2007; 2006, Newkirk, 2001; Mirchandani, 2000; Segars and Grover, 1998, Teo and King, 1997 and Mentzas, 1997). The above researchers used the questionnaire instrument, which consists of five-point Likert-scales, in order to operationalise the following three constructs:

i.   The SISPP construct measured the extent to which the organisation completed the five planning phases and their tasks. The items are derived from Mentzas (1997).

ii.   The SISPS construct measured the extent to which IS capabilities improved or deteriorated over time (Segars and Grover, 1998).; and

iii.   The environmental uncertainty construct measured the extent of dynamism, heterogeneity and hostility in the external environment of SMMEs (Teo and King, 1997).

4.2 Sampling Frame and Sampling Procedure

For this study, a non-scientific method of sampling has been employed (Newkirk and Lederer, 2006; Segars and Grover, 1999; Lederer and Sethi, 1996). The sampling frame adopted was the 2009 edition of "*Who Owns Whom in South Africa*", published by McGregor. This directory contains the names, titles, addresses of top computer executives in South Africa. The entities within the directory include small enterprises, micro enterprises, medium enterprises, large firms, educational institutions, hospitals and governmental agencies.
In developing a desirable sub frame,
   i.   All large firms, hospitals, educational institutions and governmental agencies were eliminated from consideration.
   ii.   The job titles of key informants remaining in the frame were examined as a means of determining the level of planning activity.
   iii. Medium enterprises with a senior executive carrying the job title of chief information officer, vice president, director of strategic planning, director of MIS or head of IS/IT establish in Gauteng province were retained.
   This resultant sub frame contained 518 SMMEs. From this frame 350 SMMEs were chosen at random.

4.3 Data Collection

A total of 350 questionnaires were initially mailed out to sample respondents, the overall response to the mail survey was 131. Thus, the gross responses rate of the research survey was 37.4 %, of which, 109 returns i.e., 31.1% were suitable for analysis. The gross response rate and useable response rate received for the present study is quite high compared with previous SISP studies conducted in developed countries (Mirchandani and Lederer, 2008; Newkirk and Lederer, 2007; 2006; Chi et al., 2005; Kunnathur and Zhengzhong, 2001)

5. DATA ANALYSIS

The respondents were 26.6% female and 73.4% male. Eleven percent of the respondents were between the ages of 26 and 35, 59.6% between the ages 36 and 45, 27.5% between the ages 46 and 55 and 1.8% over 55. Seventeen percent had 4 years college, 10.1% had some postgraduate school, 53.2% had a postgraduate degree and 11.9% had completed others. They also had an average of 18 years of IS experience and 5 years of SISP experience. Respondents had been employed by current medium enterprise for an average of 8 years. The entire enterprise has been the scope of planning and 3 years have been the most common planning horizon. The average of 10 IS staff member has been found and respondents were employed in a variety of industries. Table 4 below provided results of demographics data.

Table 4. Respondent characteristics

Demographic Characteristics	Frequency	Percent
Gender		
Female	29	26.6
Male	80	73.4
Total	109	100
Age of respondent		
18 – 25	0	0
>25 – 35	12	11
>35 – 45	65	59.6
>45 – 55	30	27.5
>55	2	1.8
Total	109	100
Education level		
Some college	1	0.9
2 years college	19	17.4
4 years college	7	6.4
Some post graduate school	11	10.1
Postgraduate degree	58	53.2
Other	13	11.9
total	109	100
IS experience		
0 – 5	0	0
>5 – 10	16	14.7
>10 – 15	36	33.0
>15 – 20	39	35.8
> 20	18	16.5
Total	109	100
SISP experience		
0 – 5	61	56
>5 – 10	46	42.2
>10 – 15	2	1.8
>15 – 20	0	0
> 20	0	0
Total	109	100
Employment SMMEs		
0 – 5	32	29.4
>5 – 10	43	39.4
>10 – 15	32	29.4
>15 – 20	2	1.8
> 20	0	0
Total	109	100
Scope of SISP		
Function	2	1.8
Division	13	11.9
Enterprise	84	77.1
No response	10	9.2
total	109	100
Planning horizon		
1 year	1	0.9
2 years	8	7.3

3 years	63	57.8
4 years	18	16.5
> 4 years	9	8.3
No response	10	9.2
Total	109	100
IS employees		
< 10	88	80.7
>10 – 25	15	13.8
>25 – 50	5	4.6
>50	1	0.9
Total	109	100

SMMEs industry was 1.8% accommodation, 20.2% banking and finance, 9.2% communications, 9.2% computer services, 10.1% insurance, 12.8% manufacturing, 4.6% transport and storage, 8.3% wholesale trade and 17.4% others. Other category included chemical, publishing, recreational services, broadcasting and entertainment, mail order, online service and pharmaceuticals. Tables 5 below provided results of SMMEs industry.

Table 5. SMMEs Industry

Industries	Frequency	Percent
Accommodation	2	1.8
Banking/Finance	22	20.2
Catering, and other Trades	1	0.9
Communications	10	9.2
Community	1	0.9
Computer services	10	9.2
Electricity	1	0.9
Insurance	11	10.1
Manufacturing	14	12.8
Motor Trade	1	0.9
Restaurant	2	1.8
Retail	1	0.9
Transport and Storage	5	4.6
Wholesale Trade	9	8.3
Other	19	17.4
Total	109	100

5.1 Common Method Variance, Response Bias, Reliability and Validity

The returned surveys were examined for non-response bias to confirm that the decision to respond was uninfluenced by non-random events or motives. If the decision to respond is random, then the timing of the response should not significantly influence the value of survey measures (Kerlinger and Lee, 2000). Multivariate analysis of variance was used to evaluate whether differences among early and late responders were associated with different responses. The analysis indicated no significant differences in several key variables tested for the surveys. This is consistent with the absence of non-response bias in the surveys.

Since dependent and independent variable data was collected from a single key informant (head of IS/IT). The head of IS/IT is typically seen as the most knowledgeable person to

assess SISP, its context, and its outcomes (Premkumar and King, 1991). However, multiple subjects per organisation are preferred in order to reduce common method variance, which arises from using one individual and can account for a relationship between similar measures (Newkirk and Lederer, 2006).

Harman's one factor test was used to test the presence of common method variance bias. The results of this analysis on our data revealed 9 factors with an Eigen value greater than one and no single factor explained most of the variance. Such results are consistent with the absence of a significant variance common to the measures.

In order to assess the reliability of all research variables measures, internal consistency was calculated using Cronbach's alpha which indicated the degree of internal consistency among the measurement items and is inversely related to the degree to which a measure is contaminated by random errors (Wang and Tai, 2003). As provided in table 1, the results in the present research indicate that all research variables constructs have an acceptable Cronbach's alpha level except for hostility sub-construct.

Table 1. Reliability coefficient of research variables

Variable	Number of items	Cronbach's alpha
SISPP	**26**	**.76**
Strategic awareness	5	.70
Situation analysis	6	.79
Strategy conception	4	.75
Strategy formulation	5	.82
Strategy implementation	5	.82
SISPS	**30**	**.87**
Alignment	8	.80
Analysis	8	.87
Cooperation	7	.82
Capabilities	7	.86
ENVIRONMENT UNCERTAINTY	**12**	**.78**
Dynamism	4	.73
Heterogeneity	3	.74
Hostility	5	.68

5.2 Regression Analysis

Multiple linear regression analysis was used to analyse the common and separate influence of two or more independent study multiple regression analysis is used to examine the impact of five different SISPP phases on SISPS in uncertain environments.

Multiple regression analysis studies the effects and the magnitudes of the effects of more than one independent variable on one dependent variable using principles of correlation and regression (Kerlinger and Lee, 2000). Multiple regression analysis enables one to calculate the value of the dependent variable from the values of the independent variables using what is known as regression equation.

The table 6 below provided the results of regression of SISPS on SISPP phases in environment uncertain.

Table 6. Regressions of SISPS on SISPP phases in environment uncertain sub-construct

ependent Variables	Unstandardised Coefficients		Standardised Coeffients	t	P
	B	Standard Error	Beta		
Strategic Awareness: R^2= .215, ΔR^2=.193, F=9.607****					
(Constant)	11.291	2.421		4.664	.000
Dynamism	.289	.076	.355	3.823	.000****
Heterogeneity	.129	.129	.145	1.002	.319
Hostility	.172	.111	.096	1.549	.124
Situation Analysis: R^2= .072, ΔR^2=.046, F=2.731**					
(Constant)	18.831	3.143		5.992	.000
Dynamism	.129	.098	.133	1.316	.191
Heterogeneity	.301	.167	.187	1.800	.075*
Hostility	.023	.144	.016	.159	.874
Strategy Conception: R^2= .125, ΔR^2=.100, F=4.996***					
(Constant)	9.747	2.323		4.196	.000
Dynamism	.163	.072	.220	2.244	.027**
Heterogeneity	.218	.124	.178	.641	.523
Hostility	.068	.107	.063	1.762	.081*
Strategy Formulation: R^2= .160, ΔR^2=.136, F=6.682****					
(Constant)	10.149	2.728		3.720	.000
Dynamism	.182	.085	.206	2.142	.034**
Heterogeneity	.241	.145	.164	1.660	.100
Hostility	.224	.125	.173	1.790	.076*
Strategy Implementation: R^2= .283, ΔR^2=.262, F=13.783****					
(Constant)	8.488	2.290		3.707	.000
Dynamism	.185	.071	.230	2.593	.011**
Heterogeneity	.406	.122	.304	1.985	.050*
Hostility	.209	.105	.178	3.329	.001***

*$p < .10$; ** $p < .05$; *** $p < .01$; **** $p < .001$

6. DISCUSSION

The multiple regression analysis as indicated in table 14 show the results for SISPS dimensions on SISPP phases upon the moderate variables environmental dynamism, environmental heterogeneity and environmental hostility. All regression was statistically significant at $p < .10$. Their R^2 values were ranged from .072 to .283. Of the 5 hypotheses tested 4 were partially supported (H1, H2, H3, and H4) and one was fully supported (H5) at $p < .10$. Detailing results of sub hypothesis show that from 15 sub-hypotheses 9 were supported (H1A, H2B, H3A, H3C, H4A, H4C, H5A, H5B and H5C) and 6 were not supported (H1B, H1C, H2A, H2C, H3B and H4B).

6.1 Strategic Awareness

With sub-hypothesis H1A an improved strategic awareness leads to greater SISPS and thus in case environmental dynamism has been supported. Strategic awareness has a greater positive impact on SISPS in an uncertain environment. Information systems planner must increase identification of the main types of business processes, IT systems and analyses the strategic relevance of each of these. In the aim to maintain some control of unpredictable of environment change.

6.2 Situation Analysis

With sub-hypothesis H2B an improved situation analysis leads to greater SISPS in case of environmental heterogeneity making sub-hypothesis H2B supported**.** More diagnoses of the existing business and IT situation in the SMME will increase success chance in the case of complexity and diversity of external factors. With H1B and H3B respectively, an improved situation analysis leads to greater SISPS in case of environmental dynamism and environmental hostility. This has made both H1B and H3B not supported**.**

6.3 Strategy Conception

With sub-hypotheses H1C and H3C respectively an improved strategy conception leads to greater SISPS in case of environmental dynamism and environmental hostility. This has resulted in both H1C and H3C being supported. More scan of the future for the identification of opportunities for competitive and performance advantages will increase success in case of high rate of environment change and high scare of resources lack and scare of competition in the external environment. With HC2, an improved strategy conception leads to greater SISPS in case of environmental heterogeneity – resulting in HC2 not being supported.

6.4 Strategy Formulation

With sub- hypotheses H1D and H3D respectively, an improved strategy formulation leads to greater SISPS in case of environmental dynamism and environmental hostility. A support was then supplied to sub- hypotheses H1D and H3D. More strategy formulation will increase success in case of high rate of environment change and high scare of resources lack and scare of competition in the external environment. With H2D, an improved strategy formulation leads to greater SISPS in case of environmental heterogeneity leading to no supported for H2D.

6.5 Strategy Implementation

Sub-hypotheses of strategy implementation were fully supported in the present study. Strategy implementation predicted success in case of high rate of environment change, high heterogeneity and high scare of resources lack and scare of competition in the external environment. The strategy implementation planning phase is especially interesting, because implementation is generally seen as the major impediment to success. Plans may be conceived

and formulated but are rarely implemented. The present study showed that strategy implementation planning predicted success in the three environments; that is regardless of the degree of competition, strategy implementation planning has great impact.

7. IMPLICATIONS FOR FUTURE RESEARCH

The present research used only one category of SMMEs (medium enterprises) to investigate the relationship among constructs. Future researchers could investigate the relationship among them by gathering data from two or three categories of SMMEs (Medium, Micro and Small enterprises). Perhaps SMME size influenced the outcome of the hypotheses testing. Future researchers could use SMMEs from different industries. They could investigate the relationships among the constructs by using companies from specific industries. For example, SMMEs from the finance and banking sector could be investigated. Perhaps industry influenced the outcome of the hypotheses testing.

8. IMPLICATIONS FOR PRACTICE

These findings are especially relevant for practitioners seeking ways to improve market share and increase profitability. They support the notion that uncertain environment negatively influences SMMEs management and SISP might help practitioners to reduce uncertain environment impact. The present study provided some implication for practitioners.

First, the findings of this study can increase practitioners' understanding of environmental uncertainty with its sub-construct: dynamism, heterogeneity and hostility. Consideration of these constructs might make practitioners more aware of the challenges they face. Second, the findings of this study can help practitioners to understand the role of uncertainty and how they might respond to it. Third, the findings of this study can raise practitioners' awareness of the phases of SISP. Finally, the findings of this study can help practitioners by making them more aware of the components of SISPS.

9. LIMITATIONS OF THE STUDY

There were some limitations associated with the research methodology employed in the present research. The limitations observed include sample size and environmental hostility Cronbash's Alpha, research design, geographical coverage. Each of these is presented as follows:

The present study used a cross-sectional research study, where the unit of analysis was observed at one point in time. While it provided a useful "snapshot" in collecting data over a period of weeks to help in understanding the phenomenon under investigation, it could not explain possible changes in respondents' attitudes over time. Finally, the present study was conducted in South African Gauteng province only. To strengthen the finding of this research, future research should be conducted in more if not possible in all South African provinces. Despite these limitations, the present study provides valuable insights into the study of SISP

and environmental uncertainty in South African SMMEs. The limitations acknowledged above therefore provide some suggestions for further research.

10. CONCLUSION

From 15 sub-hypotheses, 9 were supported and 6 not supported. These results suggest that some SISPP phases are more effective in different environment and these phases can lead to the SISPS despite environmental uncertainty. The South African SMMEs sector is not out of environmental uncertainty influence. To enable South African SMMEs sector to stay and to be competitive in world market, chief executive officers and information systems executive must work together to make alignment between business strategies planning with strategic information systems planning.

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