

# A STUDY OF THE RELATIONSHIPS OF STRATEGIC IS PLANNING (SISP) APPROACHES, OBJECTIVES AND CONTEXT WITH SISP SUCCESS IN UK ORGANISATIONS

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## Abstract

*Strategic IS planning (SISP) is an important area for IS research. This study develops the SISP research agenda by examining, in a single study, how the SISP approach used, the SISP objectives of organisations and key dimensions of the SISP context relate together with SISP success. A conceptual model is developed based on SISP theory, strategy process theory and organisational theory. The proposed model was tested with a mail survey of the IT directors (or equivalent) of 70 UK organisations and structural equation modeling was used to analyse the data. Results support an influence on SISP success from both SISP approach and SISP objectives. Within SISP context only the IS maturity of the organisation and the orientation of its business strategy were found to strongly influence SISP success. No support was found for the influence of external environment, organisational structure or IS function structure on SISP success. SISP objectives were also found to influence SISP success indirectly through SISP approach. Similarly IS maturity and strategy orientation influence SISP success indirectly through SISP approach. These findings contribute to SISP theory and potentially provide an improved model for practitioners to pursue higher levels of success from their SISP activities.*

*Keywords: Strategic IS Planning, IT Strategy, IS Success, Structural Equation Modelling.*

## 1 INTRODUCTION

Strategic IS planning (SISP) is the process of deciding upon the direction, development and policies for an organisation's use and management of information and networking technologies. It includes identifying applications for IS/IT, developments to IT infrastructures, and improvements to the management and sourcing of IS/IT resources. The importance of SISP to practitioners has been demonstrated through surveys of CEOs and IT Directors throughout the 1990s. For senior executives, improving SISP practice has consistently been a major issue across all sectors and across many geographies (Watson, et al., 1997). However, it remains an important issue for which great variability in success is being experienced (Segars, Grover & Teng, 1998). Success at SISP was shown early to contribute to the effectiveness of IS/IT in companies (McFarlan, 1971) and today SISP is practiced by most large organisations in both the public and private sectors. Levy & Powell (2000) have also demonstrated its value for small and medium sized enterprises (SMEs), although the level of practice amongst SMEs lags that of larger companies.

## 2 THE RESEARCH QUESTION

An important theme within SISP research has been the examination of how the methods or approaches used for SISP relate to SISP success. Earl (1993) demonstrated that different categories of SISP approaches have different levels of SISP success in a study of 27 organisations in the UK. Segars, Grover and Teng (1998) similarly found in a survey of 253 US organisations that different SISP profiles are associated with different profiles for SISP success. Both studies included in their conclusions the opportunity for researchers to explore whether the relationship between SISP approach

and SISP success is influenced by contextual factors. Earl (1993) commented that ‘researchers could also explore whether different approaches fit, or work better, in different contexts’. Segars, Grover and Teng (1998) suggested that “a potentially interesting implication of (SISP) process co-alignment may be that emergent systems of planning should reflect the environmental and organisational context within which they function.” This study has made a contribution to this broad research question. It focused on the relationship between SISP approach and SISP success. Two contingent variables were examined 1) SISP context that encompasses the external environmental and internal organisational influences on SISP and 2) the SISP objectives of the organisation that are the motivations for SISP.

### **3 RESEARCH DEFINITION**

#### **3.1 SISP Success**

Measuring the effectiveness of planning system success is a theoretical challenge across many fields of organisational research. Early SISP researchers employed single dimension measures of SISP success (e.g. McKinsey, 1968) with no reporting of reliability or validity. More recently multi-dimensional, multi-item measures of SISP success have been proposed. Raghunathan & Raghunathan (1994) developed work from strategy process research (Venkatraman & Ramanujan, 1987) into a validated two-dimensional measure reflecting the ends and means of SISP. This measure recognised that SISP can be successful at achieving specific objectives for SISP, like improved resource allocation, and can also be successful at developing SISP capabilities, like co-ordinating IS decision making or identifying key problem areas. This measure of SISP success has been used by other studies (e.g. Wang & Tai, 2003). However alternative measures for SISP success are available. Segars and Grover (1999) employed the four dimensions of analysis, alignment, cooperation and improvement in capability that places less emphasis on means than ends.

#### **3.2 SISP Approach**

Early SISP research typically focused on the methodology used but later broadened into a focus on a measure of the overall approach to SISP. Several studies have used measures of approach focused on the process or behaviours used for SISP (Earl, 1993; Byrd, Sambamurthy & Zmud, 1995; Sabherwal, 1999). Other studies have also included a measure of the content or the agenda addressed within the SISP approach (Boynton & Zmud, 1987; Das et al., 1991). Some more recent studies have used multi-dimensional measures of SISP approach that combine dimensions of behaviours and agenda (Segar & Grover, 1999; Wang & Tai, 2003).

#### **3.3 SISP Context**

Researchers have suggested a great many context variables that could influence SISP success (Basu et al, 2002). Generally each study has selected a subset of variables from those that could be considered. For each study the aspects of SISP context that have been included have been individually justified through references to other literature. However, as studies have accumulated the total of all the context variables has become wide-ranging. Lenz (1981) reviewed the organisational theory literature on the determinants of organisational performance and derived a set of constructs that match well the breadth now represented in SISP context. Using this work to propose a structure for SISP context that attempted to unify this prior research grouped them into five constructs:

1. External environment (e.g. Sabherwal & King, 1992; Byrd, Sambamurthy & Zmud, 1995)
2. Organisational structure (e.g. Sabherwal & King, 1992, Wang & Tai, 2003)
3. IS function structure (e.g. Olson & Chevany, 1980)
4. Orientation of business strategy (e.g. Chan, 1992)
5. IS maturity (e.g. Premkumar & King, 1994; Wang & Tai, 2003)

### 3.4 SISP Objectives

Organisations have been shown to have a wide set of objectives (or goals) for undertaking SISP (Galliers, 1987; Bacon, 1991). These antecedent SISP objectives vary between organisations. Different combinations of objectives are associated with different SISP approaches (Earl, 1993). Organisations judge the success of their SISP processes, in part, on the fulfilment of their SISP objectives (Raghunathan & Raghunathan, 1994). This study followed Earl (1993) and included the influence of SISP objectives on both SISP approach and SISP success.

### 3.5 Fit Perspectives

Contingency theory identifies several ways in which two independent variables can potentially interact or fit together to influence a dependent variable (Kickert, 1983). Venkatraman (1989b) proposes a conceptual framework for the fit between business strategy and context. From that framework three theoretical perspectives on fit can be identified that could apply to the research question. The first labelled “mediation” is where SISP context influences SISP success through the mediation of SISP approach. The second labelled “moderation” is where SISP context and SISP approach interact and through the interaction influence SISP success. The third labelled “matching” is where different types of SISP approach match different categories of SISP context and through this matching influence SISP success. The key point that Venkatraman (1989b) makes is that studies of the fit of strategy processes and their contexts must consider all the different theoretical perspectives on fit. Where they do not, this becomes a serious challenge to validity because other untested perspectives may provide important and valid relationships.

## 4 RESEARCH MODEL & HYPOTHESES

Figure 1 depicts the research model for this study with the three potential forms (or perspectives) of fit. The model includes the direct relationships that both SISP approach and SISP context could have with SISP success. The model includes the dimensions or sub-variables of the independent variables.

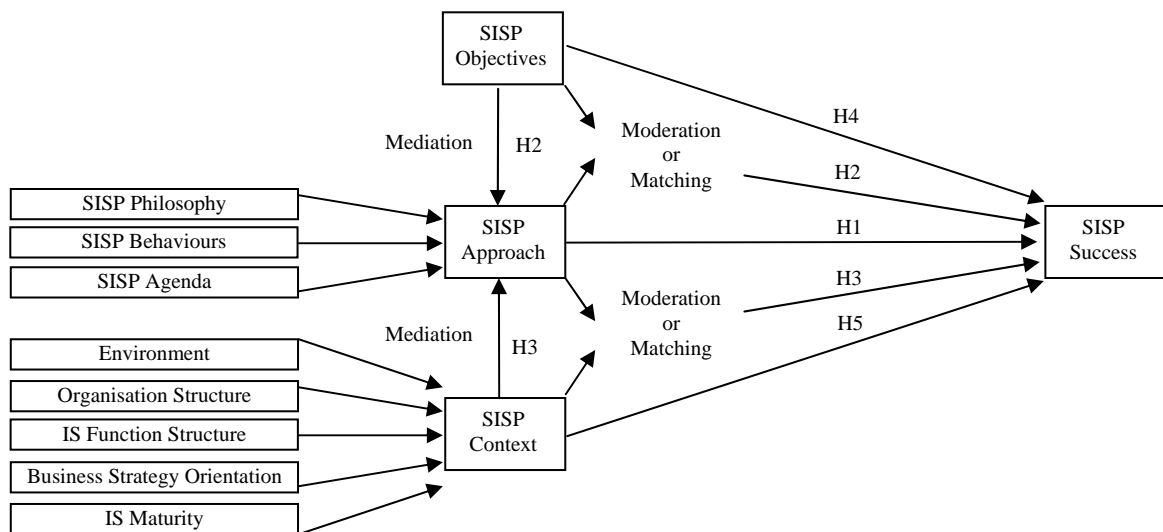


Figure 1. The Research Model Relating SISP Approach, SISP Context and SISP Objectives to SISP Success

The three main hypotheses suggested by this contingency model are:

H1	The comprehensiveness of an organisation's SISP approach is related to the level of perceived success of its SISP.
H2	The fit between the comprehensiveness of an organisation's objectives for SISP and the comprehensiveness of its SISP approach is related to the level of perceived success of its SISP.
H3	The fit between the complexity of the SISP context and the comprehensiveness of its SISP approach is related to the level of perceived success of its SISP.

In addition, it was valuable to explore whether SISP objectives or SISP context influence SISP success directly. In the case of objectives it is plausible that where an organisation is pursuing comprehensive objectives for SISP that this could directly influence the perceived level of success irrespective of the approach used. The complexity of the SISP context might also be directly related to success. This provides two further hypotheses:

H4	The comprehensiveness of an organisation's objectives for SISP is related to the level of perceived success of its SISP.
H5	The complexity of the SISP context is related to the level of perceived success of its SISP.

## 5 RESEARCH METHODOLOGY

### 5.1 Survey Protocols

A mail survey of IT Directors of UK organisations was used to collect data. Small, medium and large organisations from both the private and public sectors were asked to participate. A random sample by sector and size was selected from a commercial database of IT directors or their equivalent (Grapevine, 2000). Other data (e.g. experience and time in post of respondents, spend on IT, revenue growth, etc) were collected during the survey and later used to further validate the representativeness of the sample. The questionnaire was larger than recommended for mail surveys and a sophisticated survey protocol, based on that employed by Chan (1992), was developed that aimed to encourage participation and address the potential impact on response rates of a large instrument.

### 5.2 Measurement

For the SISP success, approach and context constructs, multi-dimensional, multi-item measures were selected. For SISP objectives a multi-item measure was used. All measures employed a seven point Likert scale yielding continuous variables. The ordinal measures needed to examine all the fit perspectives were derived from the data using exploratory factor analysis & exploratory cluster analysis. Some updating of the measures and rewording of items was necessary. Measures were selected from prior studies to increase validity and comparability with other research.

- **SISP Success.** The validated construct measure for the level of SISP success developed by Raghunathan & Raghunathan (1994) was updated. This measure employs the two multi-item dimensions of 1) improvement in the *capabilities* of SISP activities (i.e. means), and 2) fulfillment of key *objectives* of the SISP activities (i.e. ends). It was chosen over other measures available because of the level of construct validation available both in the original work and through subsequent use in other studies.
- **SISP Approach.** A composite of prior measures was employed to improve on that used in other studies that operationalised suggestions from Earl (1993). Three dimensions were used that combined to provide a measure of the comprehensiveness of the SISP approach. These were 1) the underlying *philosophy* of the SISP approach which translated work across from strategy process

research by Bailey and Johnson (1994); 2) the planning *behaviours* used to create the IS strategy which operationalised the measures proposed by Earl (1993) from multiple case studies; 3) the planning *agenda* which updated the single dimension measure of Boynton & Zmud (1987).

- **SISP Context.** This construct was measured by operationalising Lenz's conceptual framework from organisation theory (Lenz, 1981) into five dimensions of 1) organisational *environment* using Dess & Beard (1994); 2) organisational *structure* using Pugh & Hickson (1969); 3) *IS function structure* updated from Olson & Chevany (1980); 4) *business strategy* using the STROBE measure from Venkatraman (1989a) and previously used in IS research by Chan (1992), and 5) the *IS maturity* of the organisation updated from Sabherwal and King (1992).
- **SISP Objectives.** The single dimension, multi-item measure of SISP objectives from Raghunathan & Raghunathan (1994) was used for antecedent SISP objectives.

### 5.3 Validation of Construct Measures

Content validation is a challenge in the field of MIS generally (Venkatraman & Grant, 1986). Grounding the measures in prior studies was a conscious tactic to assist validity. The construct measures were also subjected to peer review within three doctoral consortia (UKAIS, ECIS and ICIS). Finally 10 IS professors who had published research in SISP reviewed and commented on both the research design and the detailed construct measures.

### 5.4 Validating the Instrument and Survey Protocols

A survey instrument was developed and subjected to a multi-stage process to establish that the intended population of IT directors could complete it in 30-40 minutes. Initially two SISP researchers reviewed the instrument. Following revisions, three IT directors completed the questionnaire and provided feedback, which was incorporated. Finally three IT directors again tested the questionnaire without experiencing any difficulties and validation was deemed complete. Two pilot studies were carried out to refine the survey protocol and to validate the letters and reply cards that accompanied the instrument.

### 5.5 Common Methods Bias

Common methods or common source bias is introduced into a research design where a single informant provides evidence on both the dependent and independent variables and this bias could apply to this study. Most survey based studies in the IS field risk this bias. Nevertheless, to address this within this study a regime was employed that sought to 1) minimise the bias within the research design, and 2) measure the presence or absence of the bias directly. Within the research design the measures pursued employed the commonly used tactics of making the questions as objective as possible and designing the questionnaire so as not to reveal the dependent variable in the study. The use of a senior level informant was also a tactic employed from other studies. IT directors are viewed as the most objective option for a single informant study of SISP.

Measuring for common methods bias is an ideal that is rarely employed because of the level of additional resources needed. Designing to use matched pairs of business and IT executives from each site has been shown in other studies to encounter difficulties in obtaining matched responses in sufficient numbers (Bailey & Johnson, 1994). Instead, this study sought to repeat the measurement of the constructs and relationships in the population of senior business managers. This involved the creation of another instrument using simpler measures for SISP success and SISP approach from Segars & Grover (1999) and SISP context from Patel (1995) and validating this instrumentation for business-side informants. This was administered to an additional 90 UK business executives. The high level relationships identified from the IT Directors were also found from business executives. This finding suggests that common methods bias is not a significant problem in this study.

## 6 ANALYSIS & RESULTS

### 6.1 Sample Characteristics

The main survey achieved valid responses from 70 UK organisations and a 22% response rate. Table 1 shows the demographics of the respondents.

<b>Sector</b>		<b>Organisational Size (Revenue or Expenditure)</b>	
Government	23%	Greater than \$1bn	34%
Health	11%	\$100m – 1bn	39%
Education	10%	Less than \$100m	27%
Not for Profit	3%		
Manufacturing	10%		
Transport & Distribution	6%		
Technology & Media	10%		
Financial Services	16%		
Other Services	11%		
		<b>Role Titles of Respondents</b>	
		Group IT Director	4%
		IT Director	70%
		IT Strategist	16%
		IT Manager	10%

Table 1 *Some of the Demographic Characteristics of Responding Organisations*

Non-response bias was measured using the extrapolation method (Armstrong & Overton, 1977) whereby it is assumed that respondents who reply less readily are more like non-respondents. In this method samples of early and late respondents are compared. No significant differences were found ( $p < .05$ ) supporting non-response bias as not being significant in this study.

### 6.2 Measures

As is to be expected with a complex measurement regime with broad organisational constructs, not all of the scales proved sufficiently reliable. The Cronbach alphas were derived and the overall reliability of the measurement regime is sufficient. Measures with very low reliability were excluded.

Confirmatory factor analysis was applied to the measures. The thresholds used for judging significance was a factor loading greater than 0.3. Scree tests, percentage of variance explained and the qualitative interpretations of emerging factors were used to develop the underlying factor structure within constructs. This was used to refine the measures originally used. For some measures (e.g. success) the underlying factors were confirmed. For others (e.g. SISP agendas) underlying factors were revealed.

### 6.3 Correlations

The correlations between the major constructs and their dimensions were measured and are reported in table 2 over. This correlation matrix shows the direct relationships between the constructs within the model including the relationships of sub-dimensions of constructs to their overall construct. This was used as initial evidence for the research model and then supplemented with other analyses such as multiple correlations and, in particular, structural equation models (SEM) which reveals the validity of the overall model comprising multiple, simultaneous relationships.

The correlations support the two dimensions (confirmed through factor analysis) of the SISP success construct. A relationship between SISP approach and SISP success was supported along with support for a role of all the three dimensions of SISP philosophy, behaviours and agendas. A direct relationship between SISP objectives and SISP success was supported. However, there was only

partial support for a direct relationship between SISP context and SISP success. Organisational environment, organisational structure and IS function structure do not directly relate to SISP success. But there was a correlation between SISP success and both the IS maturity of the organisation and the orientation of its business strategy.

The correlation analysis also showed a strong relationship between SISP objectives and SISP approach.

	<b>Success</b>	Capabilities	Objectives	<b>Approach</b>	Philosophy	Behaviours	Agendas	<b>Objectives</b>	<b>Context</b>	Environment	Organisation Structure	IS Function Structure	Business Strategy	IS Maturity
<b>Success</b>		*** <b>.875</b>	*** .903	*** <b>.276</b>	* .040	*** .259	*** .228	*** <b>.310</b>	* <b>.184</b>	.184	.000	** .064	*** .172	*** .297
Capabilities			*** .606	*** .261	* .051	*** .227	*** .221	*** .320	*** .120	.001	.021	.027	*** .145	*** .257
Objectives				*** .231	.024	*** .232	*** .196	*** .239	*** .209	.084	.013	.094	*** .161	*** .271
<b>Approach</b>					*** .409	*** .590	*** .804	*** <b>.387</b>	*** <b>.134</b>	.027	** .092	.097	* .052	*** .141
Philosophy						* .052	*** .164	** .077	.026	.021	*** .157	* .050	.035	.071
Behaviours							*** .309	*** .350	*** .396	.007	.039	** .085	*** .125	*** .123
Agendas								*** .301	** .084	.007	.031	* .052	.017	*** .140
<b>Objectives</b>									<b>.031</b>	.038	.037	.010	** .063	** .076
<b>Context</b>										*** .340	*** .149	*** .480	*** .305	*** .473
Environment											.014	.012	.036	.036
Organisation Structure												*** .230	.001	.000
IS Function Structure													* .054	*** .167
Business Strategy														** .085
IS Maturity														

Table 2 Statistical Significance & R-Squared Correlations for the Study Variables  
 - \*\*\* is 99% Confidence Level (CL), \*\* is 95% CL, \* is 90% CL  
 - Major Constructs and Relationships are Bolded

#### 6.4 SISP Success

The data confirmed that organisations experience considerable variability in the success they experience with SISP. The construct measure from Raghunathan & Raghunathan (1994) was further validated by this study. The two dimensions of improvements in SISP capabilities and fulfilment of SISP objectives were not fully supported. A significant covariance was found between these two dimensions suggesting an overlap or interaction of these two concepts.

## **6.5 SISP Approach**

All three dimensions of SISP approach were found to be significant – philosophy, behaviours and agendas. This is an important development in the construct measurement of SISP approach, integrating earlier works. It provides an addition to the measurement regime of Segars and Grover (1999), although the regime proposed here might have narrower field applications because its granularity requires an IT director respondent and its complexity means a motivated respondent. It also develops and extends the regime of Earl (1993).

For SISP philosophy, an examination of its sub-dimensions using factor analysis revealed that only two are significant in this study – planning and incremental. This reflects the debate in the practitioner literature between SISP as a formal planning activity and SISP as a continuous, sometimes emergent process, suggesting that SISP approaches are combinations.

The operationalisation of SISP behaviours within this study was successful. It employed components of SISP approach developed by Earl (1993) from multiple case studies. However, although all five of Earl's sub dimensions were supported (business led; methods driven; administrative; technological; and organisational), significant covariances suggested overlaps between all these dimensions. Refinement through factor analysis revealed five new sub-dimensions of 1) technology-orientated organisational; 2) technological; 3) IS executive driven; 4) administrative; and 5) business-orientated organisational. This is a very important finding suggesting that SISP has evolved since the late 1980s with a decline in the use of proprietary consultancy methods.

Factor analysis on the items of SISP agenda revealed four dimensions contributing significantly to the overall measure. These were interpreted as 1) managing IT resources and risks; 2) identifying strategic IT opportunities; 3) addressing power issues; and 4) preparing for the future. This highlights the breadth of the content of contemporary SISP ranging through economic, strategic, micro-political and operational issues.

Cluster analysis revealed that organisations' approaches to SISP grouped into five broad types. In order of increasing relative success these were 1) Administrative Approach; 2) Technological Approach; 3) IS Department Led Approach; 4) Organisational Approach; 5) Comprehensive Approach. These are roughly equivalent to Earl's (1993) categories for four of the five types of SISP approach. The fifth type - the "comprehensive" approach - combined and balanced the five sub-dimensions of approach. Earl had suggested in his study that although this type was absent from his case studies, organisations should nevertheless pursue it and that he predicted that it would provide higher levels of SISP success, something confirmed by this study.

## **6.6 SISP Objectives**

Exploratory factor analysis revealed no significant sub-dimensions for the SISP objectives construct suggesting that it is unidimensional.

## **6.7 SISP Context**

Through path analysis neither a direct influence on SISP success nor a contingent influence through SISP approach was supported for organisations' external environments. This suggests that SISP is largely shielded from the external environment. Similarly, path analysis found no support for the influence on success of organisational structure (directly or via an influence on SISP approach). The relationship between IS function structure and SISP success was found (through path analysis) not to operate directly but through its influence on SISP approach. But this influence was weak. Larger more centralised, formal and integrated IS functions seem able to pursue the more comprehensive approaches to SISP that lead to higher levels of success.

Further analysis revealed that three sub-dimensions of business strategy orientation (STROBE) play a part in SISP success – both directly and through their influence on SISP approach. These were analysis, futurity and proactiveness. These may be antecedents to good SISP by providing the content components of business strategies necessary for the alignment of business strategy and SISP.

The strongest influence by far from the SISP context was for IS maturity. This was found to operate strongly both directly on SISP success and through SISP approach. Irrespective of the comprehensiveness of the SISP approach used, those organisations that have higher levels of IS maturity will achieve higher levels of perceived success from SISP. But in addition, IS maturity seems to enable the more comprehensive approaches to SISP that adds further to success.

### 6.8 Testing Alternative Perspectives for Fit

Structural equation modelling (SEM) was used to test the different models of fit and to build up an overall model that best represents the data. Within this document the findings cannot be presented in detail. But as argued by Venkatraman (1989b), it is necessary to review alternative perspectives on fit to ensure validity. The analyses of fit supported strongly a mediation relationship of SISP objectives with SISP success through the influence on SISP approach. It also provided strong support for the mediation relationship of SISP context (i.e. business strategy orientation and IS maturity) with SISP success through their influence on SISP approach. No support was found for moderation or matching and so these were eliminated from the model.

### 6.9 The Final Model

A model was therefore tested that included only mediation. Sample size allowed the inclusion of the four major constructs and the major dimensions of each, but not the sub-dimensions. This model is presented in figure 2 with the paths and the regression weights. The data was an excellent fit to this model providing significance above the 99% confidence level.

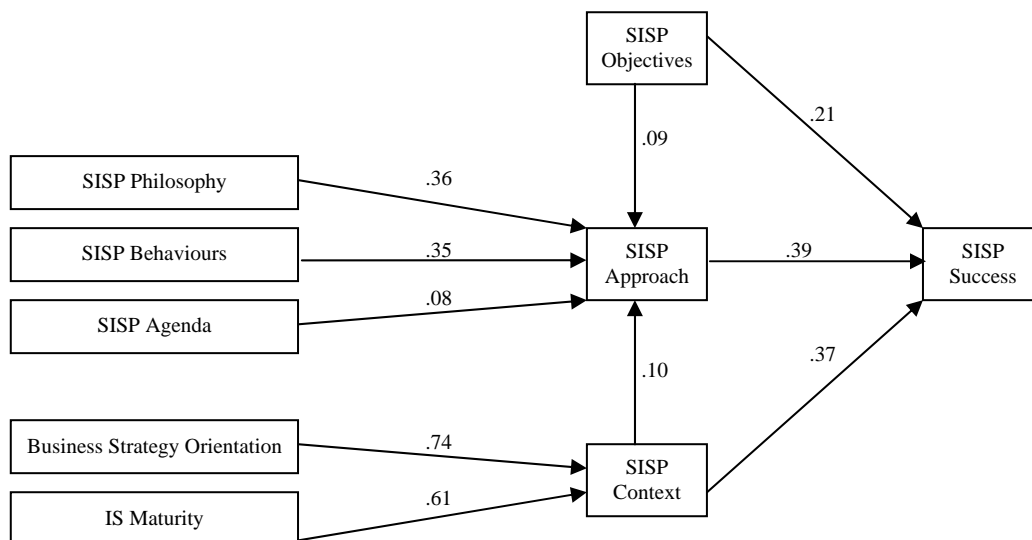


Figure 2 Path Diagram of the Relationships Between the Core Constructs (with Regression Weights)

## 6.10 Hypotheses Supported

<b>H1</b>	The comprehensiveness of an organisation's SISP approach is related to the level of perceived success of its SISP.	<b>Supported.</b> SEM also confirms the causality being SISP approach influencing SISP success.
<b>H2</b>	The fit between the comprehensiveness of an organisation's objectives for SISP and the comprehensiveness of its SISP approach is related to the level of perceived success of its SISP.	<b>Partially supported.</b> The mediation perspective only was supported suggesting that SISP objectives influence SISP success indirectly through their influence on the comprehensiveness of the SISP approach used.
<b>H3</b>	The fit between the complexity of the SISP context and the comprehensiveness of its SISP approach is related to the level of perceived success of its SISP.	<b>Partially supported.</b> Again, only the mediation perspective was supported and also only two dimensions of SISP context. This suggests that business strategy orientation and IS maturity influence SISP success indirectly through their influence on the comprehensiveness of the SISP approach used.
<b>H4</b>	The comprehensiveness of an organisation's objectives for SISP is related to the level of perceived success of its SISP.	<b>Supported.</b> SEM also confirms the causality being SISP objectives influencing SISP success.
<b>H5</b>	The complexity of the organisational context is related to the level of perceived success of its SISP.	<b>Partially supported.</b> Only two of the dimensions of SISP context used in this study were supported – business strategy orientation and IS maturity.

## 7 LIMITATIONS OF THIS STUDY

This study aimed to be both a contribution to SISP theory and to SISP practice. As a result it had to balance the pursuit of research rigour with achieving relevance for practitioners.

With 70 respondents this study is below the average for SISP surveys. However, the larger SISP surveys are generally associated with narrower studies, simpler analytical techniques and shorter instrumentation, whilst lower sample sizes are typical for those investigating more complex construct measures involving causal modelling and onerous instrumentation. The survey instrument for this study needed to be 18 pages in length to measure the full set of constructs and dimensions. This was relatively large and a corresponding major effort was needed to encourage completion by the senior level respondents of IT directors. This made a larger survey impossible within the resources available.

Sample size alone is not the only consideration for research rigour. A large sample size would not allow generalisation if the research design introduced challenges to validity or incorporated biases. The attention paid to grounding this study in prior research and the extensive efforts to address biases – particularly common methods bias – are examples of the attention paid to rigour. Some of this work enhances the generalisability of the core survey. For example, common methods bias was measured by a survey of 90 business executives. This revealed, with less detail, many of the core relationships of the main study but from a different set of observers, thus adding confidence to the core model.

Interpreting statistical significance requires attention to two measures: 1) "power" being the probability that statistical significance will be indicated when it is indeed present; and 2) "alpha" the probability of concluding that significance exists from research, when in fact it really does not. This study was designed to achieve levels of power of 0.8 and an alpha of 0.05. This means that it should be generalised only with care and qualification. For its contribution to theory this is very much in line

with the underlying research paradigm and the level of development of construct measures. For practitioners this achieves a model with reliability that is comparable with other management tools, making it a useful guide that should generally help improve performance, but not yet robust enough to rely upon as delivering certainty of outcomes.

## **8 DISCUSSION & IMPLICATIONS**

Organisations that are achieving higher levels of success with SISP do so on a broad set of criteria that encompass both specific strategic objectives for SISP and improvements to their organisational capabilities in IS/IT strategy formulation. These higher levels of SISP success are also in organisations that are employing more comprehensive approaches and objectives for SISP, have reached higher levels of IS maturity and have proactive and analytical business strategies that address the future.

Comprehensive approaches to SISP use planning philosophies that combine formal planning with incremental activities; that employ sophisticated planning processes that provide a broad, balanced focus for SISP; and pursue the widest possible agendas within SISP. Organisations are broadly pursuing five different types of SISP approach with the most success being associated with the most comprehensive approach. Pursuing comprehensive SISP objectives also contributes to SISP success and these can also be pursued through the SISP approach used.

Organisations that are achieving higher levels of success from SISP are typically creating business strategies that are proactive, exhibit high levels of strategic analysis and pay considerable attention to planning for the future. High SISP success is also associated with organisations that are mature users of IS/IT. The approach used for SISP should therefore recognise the organisation's business strategy and level of IS maturity. This study suggests that higher levels of success with SISP may be available to organisations irrespective of their external environment, organisation structure or IS function structure, all of which were not found in this study to be major determinants of SISP success.

Both individually and in combination these findings offer opportunities for organisations to pursue higher levels of success from their SISP. They also provide insights into why SISP success differs between organisations and in some cases will provide a rationale for a lower level of current SISP success, for example where an organisation has not invested sufficiently in the past to have yet achieved a high level of IS maturity.

This study is, by design, better able to reveal the relationships in SISP and the potential that flow from them than the underlying causes and the difficulties implementing improvements in SISP. To this end further research is underway to 1) use case studies to investigate in greater depth the relationships, and 2) to deploy the research model within SISP practice and judge its practical utility.

## **References**

- Armstrong, J. S. and Overton (1977), T. S. Estimating Non Response Bias in Mail Surveys. *Journal of Market Research*, 14, 196-402.
- Bacon, N (1991). Information Systems Strategies in Government: Recent Survey Evidence. *Journal of Information Technology*, 6, 94-107.
- Bailey, A. and Johnson, G (1994). A Framework for a Managerial Understanding of Strategy Development. EIASM International Workshop on Schools of Thought in Strategic Management, Rotterdam, Netherlands, December.
- Basu, V., Hartono, E., Lederer, A. L. and Sethi, V (2002). The Impact of Organisational Commitment, Senior Management Involvement and Team Involvement on Strategic Information Systems Planning. *Information & Management*, 39, 513-524.
- Boynton, A. C. and Zmud, R. W (1987). Information Technology Planning in the 1990's: Direction for Practice and Research. *MIS Quarterly*, March 1987, pp 59-71.

- Chan, Y. E (1992). Business Strategy, Information Systems Strategy and Strategic Fit: Measurement and Performance Impacts. PhD Thesis, University of Western Ontario, 1992.
- Das, S., Zahra, S., and Warkentin, M (1991). Integrating the Content and Process of Strategic MIS Planning with Competitive Strategy. *Decision Sciences*, 22, 953-984.
- Dess, G. G. and Beard, D. W (1984) Dimensions of Organisational Task Environments. *Administrative Science Quarterly*, 29, 52-73.
- Earl, M. J (1993). Experiences in Strategic Information Systems Planning. *MIS Quarterly*, 13 (1), 1-24.
- Galliers, R. D (1987). Information Systems Planning in the UK and Australia - A Comparison of Current Practice. *Oxford Surveys in IT*, 4, 223-255.
- Grapevine. The Grapevine Index of Technology & Telecoms Executive, 2000-2001. 5<sup>th</sup> Edition.
- Kickert, W. J. M (1983). Research Note: Research Models Underlying Situational Dependency. *Organisation Studies*, 4 (1), 55-72.
- Lenz, R. T (1981). Determinants of Organisational Performance: An Interdisciplinary Review. *Strategic Management Journal*, 2, 131-154.
- Levy, M. and Powell, P (2000). Information Systems Strategy for Small and Medium Sized Enterprises: An Organisational Perspective. *Journal of Strategic Information Systems*, 9, 63-84.
- McFarlan, F. W (1971). Problems in Planning the Information Systems. *Harvard Business Review*, March-April, 75-89.
- McKinsey (1968). *Unlocking the Computer's Profit Potential*, McKinsey & Co., New York.
- Olson, M. H. and Chervany, N. L. (1980) The Relationship Between Organisational Characteristics and the Structure of the Information Services Function. *MIS Quarterly*, 4 (2), 57-67.
- Patel, S (1995). Recognising and Enhancing the Potential Contributions of Integrated IS: The Management and Organisational Imperatives. PhD Thesis, Cranfield School of Management.
- Premkumar, G. and King, W. R (1994). Organisational Characteristics and Information Systems Planning: An Empirical Study. *Information Systems Research*, 5 (2), 75-109.
- Pugh, D. S., Hickson, D. J. and Hinings, C. R (1969). An Empirical Taxonomy of Work Organisations. *Administrative Science Quarterly*, 14, 115-126.
- Raghunathan, B. and Raghunathan, T. S (1994). Adaptations of a Planning Success Model to IS Planning. *Information Systems Research*, 5 (3), 326-430.
- Sabherwal, R (1999). The Relationship Between Information Systems Planning Sophistication and Information Systems Success. *Decision Sciences*, 30 (1), 137-168.
- Sabherwal, R. & King, W. R (1992). Decision Processes for Developing Strategic Applications of Information Systems: A Contingency Approach. *Decision Sciences*, 23 (4), 917-943.
- Segars, A. H. and Grover, V (1999). Profiles of Strategic Information Systems Planning, *IS Research*, 10 (3), 199-232.
- Segars, A. H., Grover, V. and Teng, J. T. C (1998). Strategic Information Systems Planning: Planning System Dimensions, Internal Coalignment, and Implications for Planning Effectiveness. *Decision Sciences*, 29 (2), 303-345.
- Venkatraman, N (1989a). Strategic Orientation of Business Enterprises, *Management Science*, 35 (8) 942-962.
- Venkatraman, N (1989b). The Concept of Fit in Strategy Research: Toward Verbal and Statistical Correspondence. *Academy of Management Review*, 14 (3), 423-444.
- Venkatraman, N. & Grant, J. H (1986). Construct Measurement in Organisational Strategy Research: A Critique and Proposal. *Academy of Management Review*, 11 (1), 71-87.
- Venkatraman, N. and Ramanujan, V (1987). Planning Systems Success: A Conceptualisation and an Operational Model. *Management Science*, 8 (6), 687-705.
- Wang, E.T.G and Tai, J.C.F (2003). Factors Affecting Information Systems Planning Effectiveness: Organisational Contexts and Planning Systems Dimensions. *Information & Mgt*, 40, 287-303.
- Watson, R. T., Kelly, G. G., Galliers, R. D. and Brancheau, J. C (1997). Key Issues in Information Systems Management: An International Perspective. *Journal of MIS*, 13(4) 91-115.