The relationship between the process of Strategic Information Systems Planning and its success;
An explorative study

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Abstract

This paper reports a study into the relationship between the configuration of the process of Strategic Information Systems Planning (SISP) and the success of SISP. SISP is an important activity in the alignment of information technology systems and services to business requirements. However, despite the obvious importance of a proper planning of information technology and information systems in organizations, success of SISP is not evident. And as the success of SISP is also influenced by the process followed in developing the SISP, the research question for this study was "How does the configuration of the SISP process influence the success of the SISP?".

Based on an explorative multi case study, we concluded that the specificity and comprehensiveness of strategies, goals and decisions in an organization has a positive effect on the success of SISP. Another conclusion was that a more dominant role of the IS/IT organization in the SISP process influences the quality of the SISP deliverable positively, but has a negative effect on the building of partnership between business and IT in the organization. A final conclusion was that following a formal SISP methodology does not seem to have an effect on the success of SISP.

These findings provide guidance for practitioners that plan to develop an SISP as part of their efforts to align business and IT.

1. Introduction

Strategic Information Systems Planning (SISP) is an important activity in the alignment of information technology systems and services to business requirements [14]. Despite the obvious importance of a proper planning of information technology (IT) and information systems (IS) investments in organizations, success of SISP is not evident [5]. Several authors reported different factors influencing SISP success (for example [4], [5], [15], [10]), but also different variables of (the perception of) SISP success [13]. One of the frequently mentioned factors influencing the success of SISP is the process with which the strategic IS plan was developed and the 'fit' of this process with the culture and situational factors of the organization.

This paper reports a study into the relationship between the configuration of the SISP process and the success of SISP. The research question was "How does the configuration of the SISP process influence the success of the SISP?" This question was motivated by the experience of the authors, both experienced consultants in SISP, that even while following the same methodology of SISP, the process will always be tailored to the specific organizational setting of a given SISP project.

The rest of this paper is structured as follows. First a literature review on the independent and dependent variables of the question, SISP process configuration and SISP success, will be reported, resulting in a detailed conceptual model of the study. Then we will reveal the research method of the study, which we qualified as an explorative study. After this the data collection strategy and the actual data will be showed, followed by an analysis of the findings. The paper will be concluded by a conclusion and a discussion of the implications of the results.

2. Strategic Information Systems Planning

Together with the rise of IS in organizations, the need for a structured planning and control cycle of IT systems and IT investments, arose. Information systems planning (ISP) is the term used for the early methodologies that aimed at implementing a structured planning process for IT investments and projects. These methodologies included Business Systems Planning [6], Information Systems Study and Information Engineering [9]. As these early methodologies were developed in the 1970s and 1980s, at a time when the use of IT in organizations was relatively new, it is not surprising that they were designed for building foundations for the development of large bespoke information systems. The methodologies therefore focused heavily on the analysis and structure of the data of organizations [14]. Table 1 [14] shows an overview of the characteristics of the main ISP methodologies.

From this overview it shows that methodologies of, and approaches to, ISP developed over the years. The practical application of the, quite formal ISP methodologies mentioned above, resulted in extensive schemes and reports that were hard to understand for non-IT professionals. ISP, designed as a tool for business management, turned out to be "a procedure by IT professionals for IT professionals" [11]. The rigid and structured nature of these methodologies, although theoretically sound, alienated the business and user side of organizations and their use faded.

Several authors [8], [15], [13] suggested that the methodological focus in the development of ISP methods, failed to identify the broader set of practices that influenced the use and effectiveness of ISP. These practices included the level of participation, the ownership of the project or the focus of the planning exercise. ISP, although designed as a tool for business management, became a procedure by IT professionals for IT professionals [11]. Consequently, Earl [4] suggested that, a combination of *method*, *process* and *implementation*, is the most complete way of realizing IS planning. This approach is known as the 'Strategic' Information Systems Planning (SISP) approach.

SISP process configuration

Earl [4] was not the only author to mention the importance of the process of SISP. For example, Basu et al. [1] and Wang & Tai [15], found that the involvement of top business management in the SISP process is an important enabler of SISP success. The involvement of top management would not only facilitate their input in the process, but would also ensure the commitment of resources (both money and people) to the process.

Another relevant process configuration factor refers to the line-up of the team performing the SISP process. Lederer & Sethi [7] and Basu et al. [1] found that a a multidisciplinary team configuration, with members both from business and from IT, was related to the success of the SISP, because this combined the input from both the requirements side, as the 'solution' side. The role of the IT organization in the SISP process provides also another configuration factor. Chi et al. [2] found that a leading role of the IT organization has a negative effect on the acceptation of the SISP result. Earl [4] distinguishes also the role of influencer of the SISP process as an important factor affecting SISP success.

Other SISP process configuration factors include the use of a formalized SISP methodology, the planning horizon, focus and scope of the SISP, the comprehensiveness of the organization's strategy and the flow of the SISP process (top down vs. bottom up). For the purpose of our analysis, we analyzed the factors identified in the different studies on SISP and grouped them into 15 process configuration variables. Table 2 provides an overview of these variables and their sources.

		Business Systems Planning IBM	Information Systems Study IBM	Information Engineering Facility James Martin
Business Strategy		red	red	green
Business Processes		green	green	green
Business Data		green	green	green
Business Organization		yellow	yellow	green
IT Applications	as-is	red	green	red
	to-be	green	green	green
IT Infrastructure	as-is	red	red	red
	to-be	yellow	yellow	yellow
IT Organisation	as-is	red	red	red
	to-be	yellow	red	green
Projects	portfolio	red	red	red
	new projects	green	green	green

Legenda:	green	= aspect has adequate attention
	yellow	= aspect has moderate attention
	red	= aspect has no attention

Table 1. Characteristics of the main IT planning methodologies. [14]

Variable		Description	Source
SMI	Senior management involvement	Championship of a top executive	[1]
RES	Resources	The degree to which the ISP process could be done with resources with the right competences and knowledge.	[8]; [1]
TI	Team involvement	Participation of user managers and information systems professionals in SISP	[1]
PA	Participation	The breadth of involvement in the strategic planning process (narrow vs wide)	[4]; [12]; [3]; [5]
SI	SISP Initiator	Individual who starts the SISP study (top management vs MIS management)	[2]
IN	Influencer	Organizational subunit or factor that has the greatest influence on the outcome of the IS planning process	[4]
ISR	IS role	The role of the IS department during the IS planning process	[4]
FOR	Formalisation / method	[Use] of structures, techniques and written procedures to support the planning process	[4]; [12]; [3]; [5]
PH	SISP Planning horizon	Time period from beginning of exeution of plan to its conclusion	[2]
SC	SISP Scope	Organizational level covered in the SISP study (enterprise level vs division level)	[2]
EA	Environmental assessment	Extent to which an organization evaluates external information and identifies business needs, objectives, external opportunities and threats during SISP	[2]; [15]
CO	Comprehensiveness	Extent to which an organisation attempts to be exhaustive in making and integrating decisions	[12]; [3]; [5]
FL	Flow	Locus of authority or devolution of responsibilities for strategic planning (bottom up, top down or interactive)	[4]; [12]; [3]; [5]
DF	Design focus	Extent to which the architectural design is focused at the future state organization (IST versus SOLL)	[4]; [3]; [8]
IMP	Implementation	Focus during the planning process on the implications for implementation	[4]; [3]; [8]

Table 2. Overview of the SISP process configuration variables.

Variables of SISP success

Fot the identification of the variables of SISP success, we followed a similar process. The most frequently mentioned variable of SISP success is alignment (linkage of the IS strategy and business strategy, or alignment of IT with business needs) [2; 3; 7; 12]. Alignment relates to other success variables, such as cooperation between IT and business management [7; 4; 13; 5; 10] and top management's commitment to IT. Other variables of success of SISP that are mentioned include: an improved understanding of the organization's processes, procedures and technology [4; 7; 13; 1; 15; 2], the extent to which SISP has helped developing an information architecture [7; 4; 13; 5; 10] and the extent to which the SIS plan has been implemented [13; 7; 3]. Also some institutional effects of SISP are mentioned, such as the improved planning capabilities resulting from the SISP process [7; 4; 13; 5; 10] and the extent to which SISP has helped identifying strategic applications for the organization [7; 13; 1; 15; 2].

In table 3, the factors found in literature are grouped into 10 variables of SISP success.

Tables 2 and 3 represent a literature-based conceptualization of the two main concepts of our study: the configuration of the SISP process and the variables of SISP success. Based on these two conceptualizations, the next section will present the research design of the study.
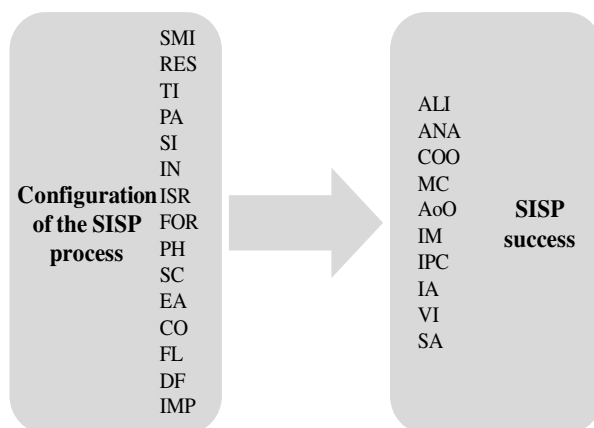
3. Research approach

Conceptual model

Based on the SISP process configuration variables and the variables of SISP success found in the literature, we can now specify the conceptual model of the study.

Figure 1 depicts this conceptual model.

Variable		Description	Source
ALI	Alignment	Improvement of linkage of the IS strategy and business strategy, or alignment of IT with business needs	[7]; [4];[13]; [5]; [10]
ANA	Analysis	Improved understanding of internal operations of the organization in terms of its processes, procedures and technology	[4]; [7]; [13]; [1]; [15]; [2]
COO	Cooperation	General agreement concerning development priorities, implementation schedules and managerial responsibilities	[7]; [4];[13]; [5]; [10]
MC	Management commitment	Extent to which SISP has helped increasing top management commitment to IT	[7]; [4];[13]; [5]; [10]
AoO	Achievement of objectives	Extent to which SISP achieves its objectives	[4]; [13]; [7]; [3]
IM	Implementation	Extent to which strategic information systems plans have, or are thought likely to be, implemented	[13]; [7]; [3]
IPC	Improvement planning capabilities	Assessment how the process of planning has improved the organization's capability to perform business or IT planning.	[7]; [4];[13]; [5]; [10]
IA	Information architecture	Extent to which SISP has helped developing an information architecture	[7]; [4];[13]; [5]; [10]
VI	Visibility	Extent to which SISP has helped increasing visibility of IT in the organization	[4]; [7]; [13]; [1]; [15]; [2]
SA	Strategic application	Extent to which SISP has helped identifying strategic applications	[4]; [7]; [13]; [1]; [15]; [2]

Table 3. Overview of the variables of SISP success.

Figure 1. Conceptual model of the study

The study has an explorative nature. For that reason we selected a qualitative approach, based on cases of the application of SISP.

Research methodology

Given the contextual nature of the variables, we selected a multiple case study approach to study their relationships. Case study research is an adequate method to study complex phenomena that can best be studied within a specific contest [16]. We selected 16 cases from the practice of consulting firms in the Netherlands. The cases were selected based on the criteria:
- Performed a SISP project within the last 3 years.
- The SISP project is completed.
- The project leader and project sponsor of the SISP project are available for interviews.
- The cases used a similar SISP method.
- Company size was between 500 and 5000 employees (mid and large size).

Table 4 shows the industries represented in the cases.

Industry	Number of cases
Transport and Logistics	4
Banking	1
Insurance	8
Public	2
Entertainment	1
Total	**16**

Table 4. Overview of the cases in the study.

As mentioned earlier, the study was done in the Netherlands. 12 of the 16 cases represented international companies.

Data collection

Data collection was done in semi-structured interviews with the project leader and the project sponsor of each case. The respondents were asked how they assessed the relationship between each of the 15

SISP process configuration variables and the 10 variables of SISP success. The interviews were transcribed and then analyzed for relations between the different variables.

The relationships were then summarized for all cases and scored on a five-point scale:
- - for a strongly indicated negative relationship;
-   for a moderately indicated negative relationship;
0   for no relationship indicated;
+   for a moderately indicated positive relationship;
+ + for a strongly indicated positive relationship.

Validation

On two moments in the research process, a focused group discussion with the project leaders of the SISP cases was organized to validate the findings. The first moment was after the completion of the literature analysis, when the sets of variables of the two concepts, situational factors and SISP success, were identified. The variables as shown in Tables 2 and 3were validated by the focused group.

The second validation was the validation of the relationships between the variables that appeared from the analysis of the cases, reported in the next section.

			Alignment	Analysis	Cooperation	Management commitment	Achievement of objectives	Implementation	Improvement planning capabilities	Information architecture	Visibility	Strategic application
			ALI	ANA	COO	MC	AoO	IM	IPC	IA	VI	SA
SMI	Senior management involvement		0	0	0	0	0	0	0	0	0	0
RES	Resources		0	0	0	0	0	0	0	+	0	0
TI	Team involvement		0	-	0	0	0	0	0	0	0	0
PA	Participation		0	0	0	0	0	0	0	0	0	0
SI	SISP Initiator		0	0	0	0	0	0	+	0	0	+
IN	Influencer		+	0	- -	+	0	0	0	0	+	0
ISR	IS role		0	0	0	0	0	0	- -	0	0	0
FOR	Formalisation / method		0	0	0	0	0	0	0	0	0	0
PH	SISP Planning horizon		0	0	0	0	0	0	0	- -	0	0
SC	SISP Scope		0	0	0	0	0	0	0	0	0	0
EA	Environmental assessment		0	0	0	0	0	0	0	++	0	0
CO	Comprehensiveness		++	++	+	0	+	0	++	++	0	++
FL	Flow		0	0	0	0	0	0	0	0	0	0
DF	Design focus		0	0	0	0	+	0	0	0	0	++
IMP	Implementation		0	0	+	0	0	0	0	+	0	0

Table 5. Relationships between SISP process configuration variables and the variables of SISP success.

4. Results and discussion

Table 5 shows the relationships found in the cases. A visual inspection of this matrix learns that most of the potential relationships were assessed as neutral or non existing.

A remarkable relationships that did not appear in the study is the use of a formalized SISP method. This factor is not considered to have had an effect on the success of the SISP. Given the history of SISP, with a strong methodological development, this finding may be considered surprising. However, this finding is in line with the observations of Silvius [14], who states that, in order to gain acceptance for the results of the planning process, "The modern approach to IT planning is less formal in methodology".

Even more remarkable, however, may be the finding that 'Senior Management Involvement' did not show an effect on SISP success. In the focused group discussion for the validation of the results, this was not recognized. In the discussion it was emphasized that the commitment that senior business management has to the SISP does have an effect on its success.

Next to the relationships that did not appear in the cases, also some meaningful relations did appear. The most striking one being the strong positive effect of 'comprehensiveness' on many variables of success. Comprehensiveness is about the specificity of directions, strategies, goals and decisions. The more clear an organization can formulate its goals and ambitions, the more successful the SISP will be. The positive relations found for the variable 'implementation', which indicates whether the SISP has a strong focus on implementation, may also be an indication for this conclusion. The more specific, the better.

Interesting results were also found for the variables 'influencer', 'SISP initiator' and 'IS role'. These results can be interpreted as that a leading role of the IS department in the SISP process has a positive effect on the deliverable of the process, but does not create cooperation of or partnership between business and IT. This effect was very recognizable for the participants of the focused group discussion. They stated that if SISP became IT/IS dominated, the ultimate goal of the process, partnership and alignment of business and IT, suffered.

5. Conclusion

In this paper we reported a study into the relationship between the configuration of the SISP process and the success of SISP. The research question was "How does the configuration of the SISP process influence the success of the SISP?".

Based on the exploration of 16 cases of SISP in the Netherlands, we found the following most striking relationships.

- The specificity and comprehensiveness of strategies, goals and decisions in an organization has a positive effect on the success of SISP.
- A more dominant role of the IS/IT organization in the SISP process influences the quality of the SISP deliverable positively, but has a negative effect on the building of partnership between business and IT in the organization.
- Following a formal SISP methodology does not seem to have an effect on the success of SISP.

These findings provide guidance for practitioners that plan to develop an SISP as part of their efforts to align business and IT. They also confirm the conclusion of Earl [4] that SISP is not merely a method, but a combination of method, process and implementation.

6. Implications

The implications of the findings of this study for IT/IS professionals should be that 'pushing' SISP as an action to enhance business and IT alignment only makes sense if there is a certain level of commitment of business to the SISP process, demonstrating the partnership between business and IT. Of SISP becomes a process that is driven by the IT/IS department, the success is only on the level of the output and not on the level of the outcome.

For business professionals, the implications of this study is that an effective business and IT alignment, of which SISP is an important element, starts with a clear and specified business strategy and direction that IT can be aligned with. Alignment without direction is not successful.

For academics the implications of this study may imply that more extensive research should be done into the partnership of business and IT as a foundation of successful SISP and thereby a successful alignment of business and IT.

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