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Investigating Stakeholders' Participation in the Process of Developing Strategic Information System Plans

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Abstract: *Since 1980, Strategic Information System Planning (SISP) has been the subject of interest for researchers and practitioners. Various methodologies have offered different guidelines on the role of stakeholders in the process of developing SISP. This paper is an attempt to find stakeholders' role in the literature and create a big picture of what previous literature provides on the participation of different actors in the process.*
Through a systematic literature review approach, an initial set of 2730 papers on SISP development have been studied. To discuss the result, 11 groups of participating roles and four possible activities for them in SISP have been identified and mapped to each other. The paper also provides three general viewpoints on participation in SISP development.

Keywords: Strategic Information System Planning, Information System Planning, SISP Development, Participation.

INTRODUCTION

Since the beginning of the Strategic Information System era and especially since 1990, Information Technology (IT) and Information Systems (IS) have greatly affected all types of businesses around the world. A survey of big companies in the European Union indicates that 50% of them have implemented at least one of the three leading IT initiatives (customer relationship management, e-business and supply chain management) in their business in the 10-year period since the introduction of the World Wide Web (Scholz, 2000).

This rapid change has resulted in massive investments for organizations. A survey of 260 Fortune 1000 manufacturing firms shows that the average company spends $9.6 million per annum on IT services, which is estimated to be 15% of the total cost for research and development (R&D) and about 0.3% of total sales (Kleis, Chwelos, Ramirez, & Cockburn, 2012). It was also estimated that the investment in IS would be over $450 billion by 2010 (Chen, Mocker, Preston, & Teubner, 2010).

The effectiveness of these investments has been one of the primary drivers of strategic planning for IS/IT (Earl, 1993) in 1980s. Then, after 1990, new issues like the proliferation of Internet-based computing, outsourcing, personal computers and user applications provided another reason for the promotion of IS/IT strategic planning (Grover & Segars, 2005). However, strategic and long-term planning for IS and IT has been one of the top ten management concerns for decades (Ball & Harris,

1982; Luftman & Ben-Zvi, 2011). At the same time, and since the 1980s, academia has also given its attention to this topic. Amrollahi, Ghapanchi, and Talaei-Khoei (2013) have identified six categories of SISP research. One of these categories is "SISP development methodologies" which provide step by step processes or guidelines toward development of organizational information systems objectives. Traditionally, top company managers were known as the only group of people who can influence the process of SISP development. But in recent years, many publications have recognized actors such as IT/IS personnel and managers (Lee & Pai, 2003), other personnel (Li, Niu, & Cai, 2007) and users of IS (Aladwani, 2001; Hovelja, Rožanec, & Rupnik, 2010; Palanisamy & Sushil, 2001) as being effective in the success/effectiveness of SISP. In the current paper various SISP methodologies have been studied in this regard. The focus of the current paper is on different research papers and case studies that have studied methodologies and techniques for SISP development and among them their advice or statistics about the participation of various stakeholders in SISP development have been subject of attention. This paper uses a systematic review approach in order to answer the following research question:

> *RQ. Who are the various participants involved in developing SISP in previous studies and they have been assigned to which activities?*

While the body of research in SISP tend to pay more attention on technical aspects and the development process, the role of human resources has been usually ignored in previous studies or has been studied as marginal topics. This study aims to provide a picture on the topic and show the used patterns in this regard. This could be consistent with the new critical studies on the role of human resources on the strategic effectiveness of organization (Amrollahi, Ghapanchi, & Talaei-Khoei, 2014; Whittington, Cailluet, & Yakis-Douglas, 2011) and extending the literature to the area of IS.

LITERATURE REVIEW

Since the presence of the SISP term (and other similar terms) in the literature its usage has also evolved: initial definitions are mainly around technological use of IT in organizations, since 2000 the managerial use of IS/IT and its strategic application have been highlighted more in literature. For the purpose of the current research an SISP definition by Lederer and Sethi (1991) has been selected

which describes SISP as a long-range planning process for computer applications that help organizations to achieve their goals.

At the same time, and since 1980, academic research has paid great attention to socio-political aspects of developing IS/IT systems and related fields. This includes topics like: resistance to IS, social changes induced by IT and the study of IS, power (Myers & Young, 1997), social control (Nicolaou, 1999), and so on. The human side of research into SISP has also attracted the attention of researchers in recent years. Although many SISP methodologies introduce some activities and participants for the process, among previous research, we didn't find any paper that directly tackles the topic of participation in the SISP.

METHOD

This research is an attempt to understand the guidelines that are provided in previous methods and case studies of SISP development with regard to the participation of different stakeholders. The systematic literature review approach is used to do this. Systematic literature review was introduced by Kitchenham (2004) as a methodical way to identify, evaluate, and interpret the available empirical studies conducted on a topic, research question, or phenomenon of interest with these steps to follow: (1) identifying resources; (2) study selection; (3) data extraction; (4) data synthesis; and (5) writing up of study as a report (Amrollahi, Ghapanchi, & Najaftorkaman, 2014; Amir Hossein Ghapanchi & Aurum, 2011a; Kitchenham, 2004). While the aim of the current study is to understand the patterns of participation in previous SISP development studies, this method will suit the study best (Amir Hossein Ghapanchi, Aurum, & Low, 2011). In order to conduct our review, the research team first identified nine scientific databases and searched with our predefined set of keywords. Our initial search resulted in 2730 research papers. Irrelevant papers then were excluded in different stages of reviewing titles, abstracts and full-text papers. Finally, after an in-depth study of all the papers in full text, 84 papers were included and among them selected those that have directly tackled the issue and provided advice or statistics about the participation of different stakeholders.

Sources and exclusion criteria

Nine scientific databases were selected for this study and we search them with a pre-defined set of keywords (see appendix 1). These databases were selected because they cover various topics in areas

like management, business, IS, and technology (Falagas, Pitsouni, Malietzis, & Pappas, 2008; Meho & Yang, 2007). Moreover these databases have widely used in similar research papers in similar research papers (Ghanbarzadeh, Ghapanchi, Blumenstein, & Talaei-Khoei, 2014; A. H. Ghapanchi & Aurum, 2011b; Amir Hossein Ghapanchi & Aurum, 2012a, 2012b; Amir Hossein Ghapanchi, Jafarzadeh, & Khakbaz, 2008; Najaftorkaman, Ghapanchi, Talaei-Khoei, & Ray, 2014). Table 1 shows the frequency of the final set of papers in each scientific database.

<Insert table 1 about here>

Table 2 shows rounds of exclusion, the exclusion criteria, and the number of papers in each round.

<Insert table 2 about here>

DATA ANALYSIS AND RESULT

Eventually our search resulted in 84 papers that contained advice or statistics about the participation of different stakeholders in SISP development. Then related texts from selected papers were extracted. The extracted text consisted of sentences or tables in which the author advised which people should be involved in the planning process. Figure 1 illustrates our process for data analysis.

<Insert figure 1 about here>

In order to analyse those texts, principles of coding and analysis of qualitative data provided by Ezzy (2002) were used, and the analysis for each text have been done according to two sets of codes: 1. Different organization stakeholders and 2. Possible activities in SISP development. The research team also extracted appropriate titles for these codes by reviewing the related literature. To do this, we reviewed all related texts and then proposed a first set of codes. Then we tried to map related text with these codes and in these iterations we merged some codes with each other, renamed many and extended some others to different codes. Table 3 shows details of the two final sets of codes.

<Insert table 3 about here>

We select an appropriate code for each of the extracted quotes. Then refine those codes on various iterations, merge some of them together and divided some to more than one code which can best represent the extracted text. Then the extracted text has been analysed and presented the results in two categories of provided guidelines and statistics in literature. Table 4 contains sample texts extracted from literature and their relevant codes.

<Insert table 4 about here>

Four different activities were found for SISP development: Participation, Decision on content and Decision on participation and initiation. Most of the guidelines, however, used the general participation more than other terms. Details about each activity in SISP development are provided in the following subsections:

Initiation

This category of activities deals with those studies that have instructions for initiation of the SISPD process. Jyotirmoyee Bhattacharjya and Venable (2006b) suggest that CEOs should always initiate the SISP development process in a firm so they can keep supporting the process. Surveys of Australian companies (D. Falconer & Hodgett, 1995; D. J. Falconer & Hodgett, 1996) and the US governmental sector (Donna Dufner, Holley, & Reed, 2003; D. Dufner, Holley, & Reed, 2005; Holley, Dufner, & Reed, 2004) also indicate that CIOs and CEOs are the main initiators of the SISPD process in practice.

Decision on participation

Making the decision about stakeholders who should participate in any way in SISPD is usually assigned to CEOs and CIOs in the literature. This decision has usually been mentioned as the first step in the process that certainly affects other parts. Type, diversity and accuracy of SISP are dependent on the participants who are selected for participation in this initial phase. Most of the studies make no comment about making this important decision. Studies which are based on soft systems methodology (Jyotirmoyee Bhattacharjya & Venable, 2006b) or critical theory (Donald J Falconer, Castleman, Mackay, & Altmann, 2000; Morton, 2006) have given more attention to this critical decision.

Participation

This category of SISPD activities is used for those studies which do not provide details on the performed activities. In most cases (and according to the general structure of the papers) it can be inferred that the author meant activities like: participation in interviews, suggesting ideas and providing information about the "status quo" of an organization.

CEOs are the most cited role among SISPD participants. Groznik and Kovacic (2000) rank them second (after CIOs) in SISP development and almost all methodologies or case studies that use interviews as the main tool suggest CEO participation in the process (Jyotirmoyee Bhattacharjya &

Venable, 2006b; Cordoba, 2003). The approval and support of top managers has also been highlighted by Bulchand and Rodríguez (2003).

The second most frequent stakeholder in the literature is the CIO. More than participation in SISPD, CIOs may get involved in the process by introducing the current IS/IT to the planning team (Gwo-Guang & Gough, 1993). Middle managers and IT/IS department staff have also been cited in literature as participants in SISPD. Lederer and Mendelow (1989) mention the participation of IT/IS staff in SISPD as part of their attempt to achieve the organization's goals. They also recommend common participants for IS and business plans as a way to ensure alignment of the plan.

Some other studies have also suggested the participation of managers and personnel of other departments in SISPD. Jyotirmoyee Bhattacharjya and Venable (2006b) suggest participation in a workshop on SISP for selected staff of all departments in order to better document their conflicting interest with soft systems methodology. Hevner, Berndt, and Studnicki (2000) also define ten business fundamental objects that should be mentioned in planning for IS (personnel administration, contract management, financial services, etc.) and invite the participation of personnel from those departments in SISPD. We found few studies that referred to external businesses and customers as participants in SISPD. Most of these studies are based on critical systems thinking (CST), which highly recommends the participation of various stakeholders and the inclusion of different views in developing social systems (Cordoba, 2003; Córdoba & Midgley, 2008).

Decision on content

After discussion by several parties in the firm and receiving feedback from various stakeholders about their ideas on the future of IS/IT in the organization, it is time to develop a "plan" based on these ideas and transactions. Making the decision about the content of the final idea is another crucial process that should be addressed by SISPD methodologies. Here again few studies were found which addressed this; for example, J. Bhattacharjya and Venable (2006a) suggested the CEO as the final decision-maker concerning the SISP content, while Morton (2006) suggested the board of directors should make this decision and J. Bhattacharjya and Venable (2006a) assigned the activity to the CIO.

DISCUSSION

Frooman (1999) identifies three stakeholder theory research streams based on studies' attempt to answer one of these questions: "Who are stakeholders?" "What do they want?" and "How are they going to try to get it?" This study attempts to add a new stream to the SISP domain by answering the question: "How can they get involved in the planning process?" The current study, as a first step, provides the answer of previous methodologies to this question.

In search for answering the main research question of the current study, both participants in the SISPD process and the activity which they performed have been investigated. In regards to the roles Figure 2 shows the frequency of papers that cite the participation of different roles respectively in methodologies and statistics. As can be seen from the figures, most of the methodologies have introduced top managers as having an important role in SISP development. Middle and operational managers and personnel in different departments are ranked second and third, and finally a few papers mentioned people outside the firm as having an influence on SISP development.

<Insert figure 2 about here>

To address the second part of the research question, we then paid attention to the role of each stakeholder and mapped the identified four activities of roles in SISPD with the organizational role that performed that. During this mapping specific patterns of participation in SISPD were observed which could be tracked in different papers. Based on this recognised pattern, a general framework of activity– role is developed. In order to better reflect different viewpoints, slight changes to elements of this table are made from what recognized in the literature: We broke down the general term participation to two different activities which are idea generation and strategy development. We also changed the common department based view in the literature to a hierarchy based view which contains: CEO, Board of directors, CIO, Middle managers, Operational level and customer. Table 5 illustrates our proposed framework.

<Insert table 5 about here>

Based on these new categories we defined our participation framework and identified three general viewpoints in the literature: First of all we recognized studies which were focused on CEO decisions on most of the activities. Although these studies sometimes highlighted the role of (usually outsider) consultants but the main decisions should still made by CEO or his/her representative according to

them. Research papers in this category are usually focused on other topics other than participation mostly guidelines on development process or positivist research on planning effectiveness. This category is named centralized view on participation in SISP development.

The second viewpoint is more supportive for participation of lower levels of organizational hierarchy especially in recognition of various ideas in idea generation phase. This view has more tendencies to designate middle managers (especially CIO) as decision makers in team and strategy development; however they usually require centralized approval as final decision. Based on related literature in leadership studies (Robbins, 2009), this category is named consultative view on participation in SISP development. Research on this category is usually focused on interview and interpretive approaches in idea generation.

Finally a third viewpoint in the literature exists which proposed a central position for all stakeholders in SISP development. We named this category shared view on participation in SISP development which is mainly focused on idea generation and strategy development phases and strongly calls for participation of all stakeholders (even customers) in SISP development. Researches in this category are usually focused on the participation and critical research is the main paradigm of research in this category. Table 6 reflects three different viewpoints which we recognized in the literature.

<Insert table 6 about here>

Implication for practice

Inclusion of stakeholders has always been a challenge in long term planning practice. This challenge relates to both stakeholders who should participate in the plan and the roles which they should perform in the planning process. It may be one of the reasons for remarkable failure rate in SISP projects (Lederer & Sethi, 1988) and ignorance of SISP research by practitioners (Teubner, 2007). The current study is an advancement to respond to the real needs of SISP practitioners which provides a picture of previous research in the area by categorizing 11 groups of actors, which could be used by various groups of practitioners (such as CIOs, consultant companies, and so on) as a general framework for possible participants in the field. Practitioners can also compare the participation of stakeholders in their business with the actual practice in other companies.

Moreover, as depicted in Figure 2, most of the current participation in both methodologies and practice belongs to top company managers. This may be an indicator of less attention to other stakeholders in SISP. In other words, users and customers have been less involved in the process unless they have been assigned by top managers. This may provide practitioners with a wider view of selecting participants for SISP development or help them to compare different methodologies.

Implication for research

The current paper is the first attempt to review previous research on SISP development with a focus on the advice of literature on stakeholders who should be involved in the process. It may help to raise the topic in future research so that its different aspects can be studied in detail.

We also found some shortcomings in the literature, to which future research may give attention. First of all, and as depicted in Figure , most of the methodologies in the literature focus on higher levels of the organizational hierarchy (including CEOs, CIOs and operational managers). In this regard, we encourage future researchers (especially those who work in the context of the public sector) to give more attention to other stakeholders and users of IS.

The effectiveness of participation could be one of these diverse aspects. Upcoming research may study the effectiveness of different levels of participation for SISP development and approaches that may help to increase or optimize this participation. On the other hand, while much research has emphasized the role of management support in the success of SISP (Goldsmith, 1991; Lederer & Sethi, 1988, 1992), current literature has completely ignored the role of users and participants outside the organization in the success of SISP.

Another shortcoming is the conciseness of methodologies on different activities in SISP development. As can be seen in Figure 2, most of them have provided general terms like participant or relevant terms as advice for participation. Few papers have mentioned actors who should decide on content or participation of others. The same issue exists in papers that provide statistics, and after synthesizing, we concluded that their advice only concerned participants and initiators. However, our study indicates that previous research usually lacks detailed information about how different stakeholders can participate in SISPD and what the many activities are that they can play in this process.

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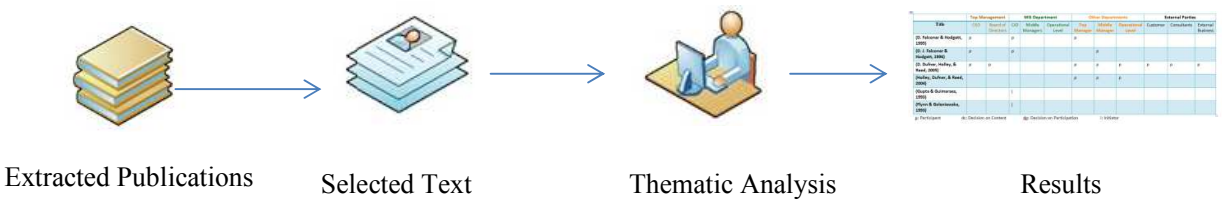

Figure 1. Data Analysis Process

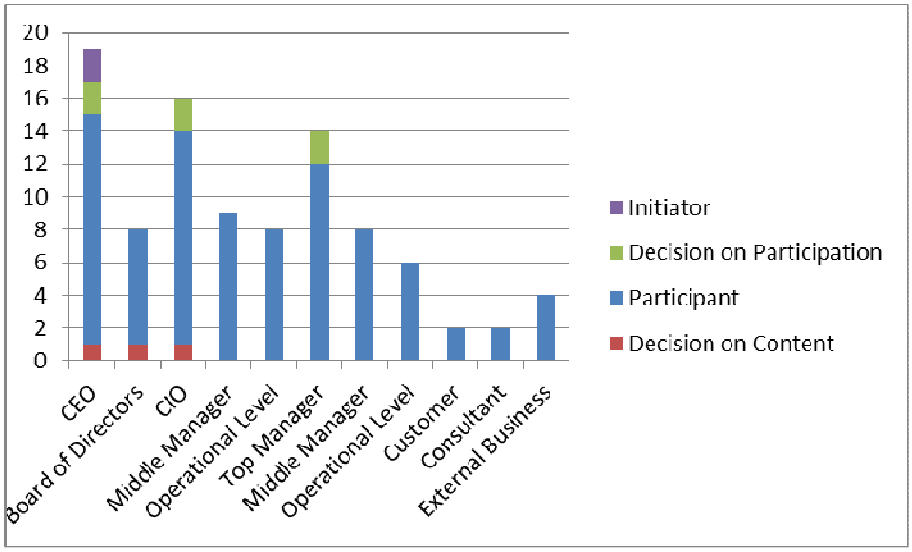

Figure 2. Frequency of each role in SISPD studies

Table 1. Distribution of first/final set of papers in different databases

Database	First set of papers	Final set of papers
Association for Information Systems electronic library	68	17
Emerald	30	5
IEEE Xplore	80	9
Business Source Premier	194	5
ProQuest	290	24
Science Direct	139	7
Scopus	1681	17
Springer Link	235	0
ACM Digital Library	13	0
Total	2730	84

Table 2. Different Stages of Inclusion/Exclusion and Number of Papers in Each Round

Round	Exclusion criteria	Number of Papers Excluded	Number of Papers Remaining
Initial list of papers	-	NA	2730
Exclusion based on title	relevance with SISP topic	1522	1208
Exclusion based on abstract	Is the paper is a SISP development methodology?	741	467
Removal of duplicated papers	Remove duplicated studies	34	433
Exclusion based on full text	Does the paper suggest any process or approach to facilitate SISP development?	411	84
Final List		-	84

Table 3. Two sets of codes in thematic analysis

Set	Codes			
Set 1. Role (actor)	Top Management	MIS Department	Other Departments	External Parties
	CEO, Board of Directors	CIO, Middle Managers, Operational Level	Top Managers, Middle Managers, Operational Level	Customers, Consultants, External Businesses
Set 2. Activity in SISPD	Participation	Where details on the duty of the actor are not specified		
	Decision on Content	Where the actor decides which content should be in the final plan		
	Decision on Participation	Where the actor decides who should participate in the planning process		
	Initiation	Where the actor initiates the planning process		

Table 4. Sample of codes in thematic analysis

Reference	Extracted Text	Codes in set 1	Codes in set 2
(Córdoba et al. 2008)	"We involved around 40 individuals from inside and outside the institution, including staff members, students, administrators, IS designers and members of the wider community (e.g. business leaders and other citizens)" (p.136).	CEO	Participant
		CIO	Participant
		MIS middle managers	Participant
		MIS operational level	Participant
		Department top managers	Participant
		Department mid managers	Participant
		Department personnel	Participant
		Customers	Participant
		Consultants	Participant
		External business	Participant
(Gwo-Guang & Gough, 1993)	"The central part of each phase is carried out by three sets of stakeholders together: top managers, line managers and IS managers" (p.234).	CEO	Participant
		Board of Directors	Participant
		CIO	Participant
		Department top managers	Participant
		Department mid managers	Participant

Reference	Extracted Text	Codes in set 1	Codes in set 2
(J. Bhattacharjya & Venable, 2006a)	(1) The problem situation would be investigated through interviews with management team members, followed by interviews with other key staff as recommended by business unit heads (who were also members of the management team). (2) The researcher would undertake a preliminary analysis of the problem situation based on the documents provided and the interviews. (3) The results of this analysis would be forwarded to the CEO and the Senior Project Officer for feedback. (4) A decision would be made regarding who amongst the interviewed staff needed to participate in workshops facilitated by the researcher to undertake the logic-based stream of analysis, and discuss and develop IS strategies and plan and prioritize appropriate systems. (5) The final plan would be created based on the discussions at the workshops (p.5).	CEO	Participant , Decision on content , Decision on participation
		CIO	Participant , Decision on content , Decision on participation
		Department top managers	Participant , Decision on content , Decision on participation

Table 5. Viewpoints on participation in SISPD

	Team development	Idea generation	Strategy development	Approval
CEO				
Board of directors				
CIO				
Middle managers				
Operational level				
Customers				

Centralized view
Consultative view
Shared view

Table 6. Three different viewpoints on SISPD

Viewpoint	Main guideline on participation	Related Research paradigm	Main Studies
centralized view	CEO is major decision maker	Positivist	(Gwo-Guang &

Viewpoint	Main guideline on participation	Related Research paradigm	Main Studies
	Inside / outside consultants help him/her		Gough, 1993; Hevner et al., 2000; Morton, 2006)
consultative view	Central role of CIO and middle managers Selective participation of other stakeholders in idea generation	Interpretive	(J. Bhattacharjya & Venable, 2006a; Donald J Falconer et al., 2000)
shared view	Wide participation of all stakeholders	Critical	(Cordoba, 2003; Córdoba & Midgley, 2008)

Appendix 1.

We searched for the following keywords on title, keywords and abstract of papers depending on the services offered by the relevant search engines without mentioning any time constraints for the papers: "Strategic Information Systems Planning" OR "Strategic Information Systems Plan" OR "Strategic Information System Planning" OR "Strategic Information System Plan" OR "SISP" OR "Information Management Plan" OR "Information Management Planning" OR "Strategic Information Plan" OR "Strategic Information Planning" OR "Information System Plan" OR "Information System Planning" OR "Information Systems Plan" OR "Information Systems Planning" OR "Information Technology Plan" OR "Information Technology Planning".