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Abstract

Strategic information system planning (SISP) is one of the important steps in information system (IS) development. This proposed empirical study investigates factors leading to SISP success in a public organization. The research model and hypotheses were derived from two possible theories, agency theory and the political conflict model. The research methodology proposed uses the case study approach. The expected findings and a brief conclusion are also discussed.

Keywords: Strategic information systems planning, public organization, agency theory, political conflict model, case study

Introduction

Strategic information systems planning (SISP) is "the process of identifying a portfolio of computer-based applications that will assist an organization in executing its business plans and consequently realizing its business goals" (Lederer and Sethi 1988). Since the late 1980s, SISP studies have primarily focused on the SISP implementation. Less attention has been paid to assessing an organization's overall SISP effectiveness, also called SISP success (Segars and Grover 1998).

This study investigates the SISP effectiveness at a southeastern State Legislature. The problem of interest arises from the fact that one of the Joint Committees, a functional department within the Legislature that includes an information technology (IT) department, has proposed a replacement of its current database system with a new, cost-saving Graphical User Interface (GUI) system. However, the project was not approved by the House and the Senate because the current database is functional and the proposed system would not directly benefit the whole organization. Interestingly, the requesting department realized that the IT department lacks personnel with an adequate GUI database application knowledge. This caused frustration among organizational units and the requesting department, without receiving approval from the House and the Senate, eventually hired an independent programmer to develop the application.

The above scenario signals the problem that IS planning cannot effectively capture the users' needs and appropriately resolve the conflicts. Moreover, because decisions of the two highest competing authorities at the State Legislature are sometimes incompatible, the process of resolving disagreements takes time and that strongly impacts the operations of the subunits. Finally, due to the lack of effective IS planning, several subsequent IS initiations were deemed unacceptable by the users.

The primary objective of this study is to examine the overall SISP effectiveness in the public organization using SISP success constructs and measurements suggested by Segars and Grover (1998). Because the study by Segars and Grover (1998) intentionally excludes the public sector from the analysis, the second objective is to extend the instrument to public organizations. The third objective is to identify a descriptive model that could provide an explanation of what leads to SISP effectiveness in public organizations. Agency theory and the political conflict model serve as two possible theoretical models for this research.

Major contributions from this study are to add to SISP literature by testing the generalizability of the SISP success constructs and measurements and by developing a theoretical model explaining SISP processes in public organizations. For practitioners, both validated measurements and the theoretical model serve as management tools for SISP implementation.

The study begins with a literature review of public organizations and SISP success, agency theory and the political conflict model. The research model is then introduced and hypotheses are developed. The research design and implementation section describes the research plan including research procedure, sample selection, and statistical analysis. Finally, expected findings and conclusions from the study are discussed.

Literature Review

Public Organization and SISP

Public organizations are the primary mechanism that conduct public affairs ranging from the protection of individual rights to providing educational opportunities and health care (Jreisat 1992). Private and public sectors share a number of organizational and managerial characteristics, yet they differ in several ways including personnel management, decision making, and information systems (Bozeman and Bretschneider, 1986; Bretschneider, 1990; Watson and Carte 2000).

A study by Caudle et al. (1991) indicated that most of the key IS issues in the private sector also hold true in the public sector. Among the top ten list discussed in the study are three issues related to SISP: integration of technology, comprehensive planning integration, and long-term planning mechanisms. The results also revealed three IS management issues that differently influenced the success of information management in the public sector. These were (1) support from executives (2) development strategies and (3) the red-tape problem (Caudle et al. 1991).

The impact of SISP on organization performance is tremendous (Lederer and Sethi, 1988; Segars and Grover, 1998). Effective SISP facilitates an organization operating toward its goals, while inadequate utilization of SISP may result in both lost opportunities and inappropriate resource consumption.

Agency Theory

Agency theory was derived from the concept of risk-sharing among cooperating parties who maintain different goals in order to create the most efficient organizational environment (Eisenhardt 1989). In general, the agent is the one to whom responsibility has been delegated and the principal is the one who delegates responsibility to another (e.g. the agent).

Agency theory resolves three major principal-agent relationship problems through the use of contracts (Eisenhardt 1989). The first problem results from partially divergent goals between the principal and agent. The second problem relates to different attitudes toward risks. Finally, the third problem is the moral hazard problem in which agents shrink their operations and information regarding the agent's operations cannot be observed by the principal (information asymmetry).

Because organizational units, including the House and the Senate, at the State Legislature received services from the IT department, from the system development perspective, they are the principals and the IT department acts as an agent. From the managerial standpoint, the House and the Senate are principals and all Joint Committees are the agents facilitating the law-making process. Figure 1 summarizes principal-agent relationships in the State Legislature in which arrows point from the principals to the agents.

In general, it is difficult for a principal to monitor the operations of an agent. At the State Legislature, however, the House and the Senate are the highest authorities with equal power and, by law, they have rights to acquire any information about the Joint Committees' operations to prevent subsequent public investigation. Because this unique legitimate two-principals-one-agent relationship in the State Legislature does not exist in a regular business environment, focusing on the agency theory alone may not provide the best explanation for the phenomena. Therefore, this paper introduces the political conflict model as an alternative to agency theory.

Political Conflict Model

Numerous IS literatures have and continue to address the issue of power and politics in system development projects (e.g., Markus 1983; Levine 1994). This study adopts the concept of power in organizations suggested by Pfeffer (1981). In particular, power is "the capability of one social actor to overcome resistance in achieving a desired objective or result" while politics refer to "activities taken within organizations to acquire, develop, and use power…to obtain one's preferred outcomes" (Pfeffer 1981, p. 7).
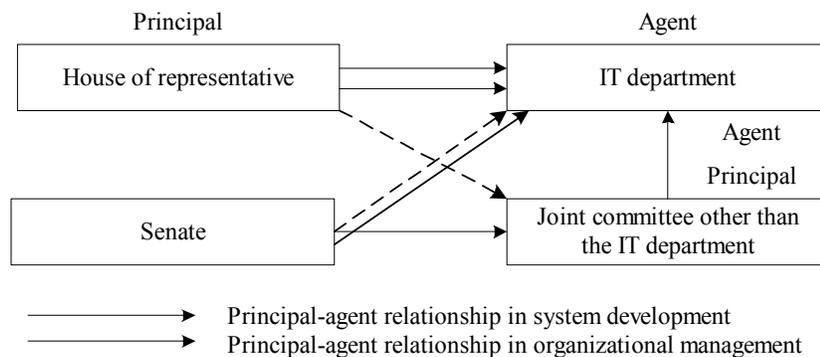
Figure 1. Principal-Agent Relationships in the State Legislature

According to Pfeffer (1981), there are three conditions that make power necessary and sufficient to generate conflict, and, in turn, encourage political activities in the organization. They are interdependence, i.e., a situation where an organizational actor affects what happens to others, heterogeneous or incompatible goals, and scarcity, i.e., the insufficient amount of resources as compared to demands (Pfeffer 1981). Figure 2 presents the model of organizational power and politics just described.
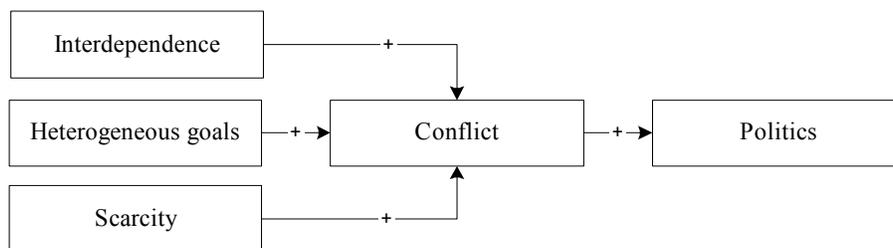

Figure 2. Organizational Power and Politics Model (Adapted from Pfeffer 1981, p. 69)

SISP Success

According to the study by Segars and Grover (1998), four factors supporting SISP success are alignment, analysis, cooperation, and improvement in capabilities. Alignment refers to "the close linkage of the IS strategy and business strategy [that] facilitates acquisition and deployment of information technology." Planning analysis is a process taken by IS planners to " better understand the internal operations of the organization in terms of its processes, procedures, and technologies." Cooperation involves "general agreement concerning development priorities, implementation schedules, and managerial responsibilities." Finally, improvement in capabilities is an assessment of "how the process of planning has adapted over time in order to gain a fuller determination of planning system effectiveness."

Research Model and Hypotheses

The proposed research model and hypotheses are presented in Figure 3. Both agency theory and the political conflict model serve as possible explanations for the SISP success at the State Legislature.

Agency theory assumes that humans are self-interested (Eisenhardt 1989). Together with the economic theorem of division of labor, an individual should develop a specialization of activities to maximize long-term benefits from investment. This concept implies the need for different special skills among organization members, and, in turn, indicates the divergent departmental goals between the principal and the agents. Thus,

H1: The agent's possibility to act according to the principal's interest is positively related to the alignment.
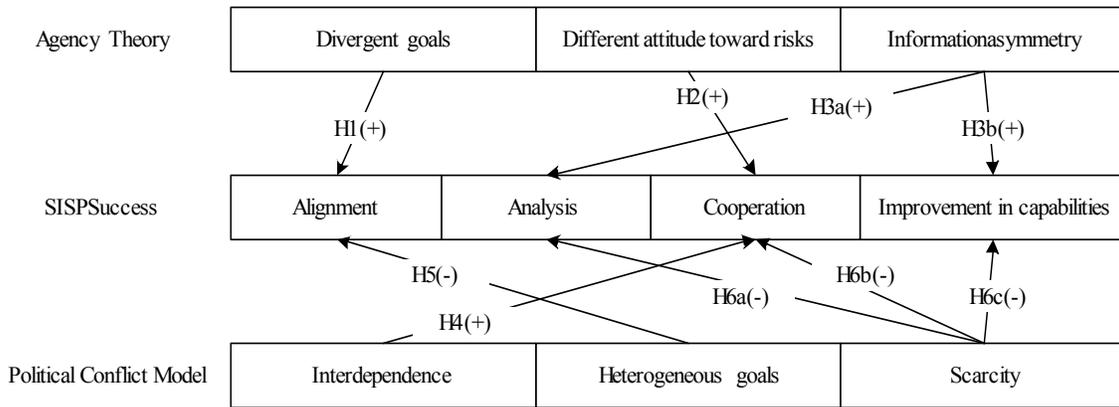
Figure 3. Research Model and Hypotheses

Because agents are assumed to be risk-averse (Eisenhardt 1989) and there are multiple agents working at the organization, they tend to express more concern relative to the principal, not only about the their own performance, but also about that of the others. In order to minimize their risks, agents may seek cooperation among departments to minimize their risks. Therefore,

H2: The agent's perceived risk level is positively related to the cooperation.

Agency theory assumes (1) risk-averse agents and (2) information asymmetry between principals and agents. Therefore, agents will (1) carefully analyze the principal's internal operations and (2) try to improve their capabilities to achieve the highest level of SISP effectiveness. Consequently,

H3: Agent's knowledge about the principal's operations as compared to knowledge about its own operations is positively related to (a) the analysis, and (b) the improvement in capabilities for SISP success.

Interdependence refers to "the degree to which the actions and outcomes of one department are controlled by or contingent on the receipt of resources from another" (Wybo and Goodhue 1995). Hence, the more interdependence, the more cooperation among departments.

H4: Perceptions of existing interdependence is positively related to the cooperation.

Previous research has shown that different opinions or objectives lead to lower levels of consensus and cooperation. Therefore, higher levels of inconsistent goals among departments lead to lower levels of alignment of IS planning to the organization's overall objectives. Thus,

H5: The level of goal inconsistency among departments is negatively related to the alignment.

With the scarcity of organizational resources, it is difficult for a department to (1) better understand the internal operations of the organization (Analysis), (2) encourage agreements among departments (Cooperation), and (3) assess the effectiveness of adopted IS planning (Improvement in Capabilities). Therefore,

H6: Scarcity is negatively related to (a) analysis, (b) cooperation, and (c) improvement in capabilities for SISP success.

Research Method

To conduct this research, the case study method was chosen (Lee, 1989). Data will be collected using structured interviews and surveys (Dillman, 1978; Pinsonneault and Kraemer, 1993). The unit of analysis is the department in which all measures will be combined and analyzed at the departmental level. The dependent variables are those derived from agency theory and the political conflict model, and independent variables are the four factors supporting SISP success. The variables will be measured using

survey questions with seven-point Likert scale. Subjects are administrative authorities, chief information executives, IS developers, and users of the organization.

The initial structured interview, with 10 selected employees from the State Legislature, will serve as a guideline to create and modify survey items. Then, 200 questionnaires will be distributed to randomly selected subjects. Subsequent interviews with key personnel may be conducted if additional information is necessary. Data will be analyzed using multiple regression analysis in which statistical correlations indicate causal relationships between the hypothesized models and SISP success. Also, Confirmatory Factor Analysis will be used to test the validity of the SISP success measurements.

Expected Findings and Conclusion

Ideally, results from the study would provide support for a descriptive model, depicting either the agency theory or the political conflict model, leading to SISP success in public organizations. In addition, the validation of SISP success measurement would indicate factor loadings according to the initial model with insignificant cross-loadings between variables.

As one of the critical steps in information system development, SISP helps managers identify a set of IS applications to support business operations. Using the case study approach, this proposed study examines factors leading to SISP success at a State Legislature. Agency theory and the political conflict model are two possible theoretical explanations of the SISP success at the organization. Using the SISP measurement obtained from previous research, this study will also help to validate the instrument to cover the domain of public organizations.

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