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Background

A critical issue facing Top Managers everywhere concerns how to ensure that the different parts of the company are pulling together in the same strategic direction. Companies are investing millions of dollars in new information technologies (ITs), and yet many are unsure whether these investments effectively support the strategic direction of the business. There are significant risks that major decisions and on-going activities within the Information Systems Group (ISG) may be pulling the organization in directions that are opposed to what top management intends. This divergence may remain undetected because of differences in background, experience, and even language, between ISG personnel and business executives.

To manage these risks, top management makes use of what we're calling "strategic controls." The Strategic Control of Information Technology refers to the formal and informal mechanisms by which top management ensures that:
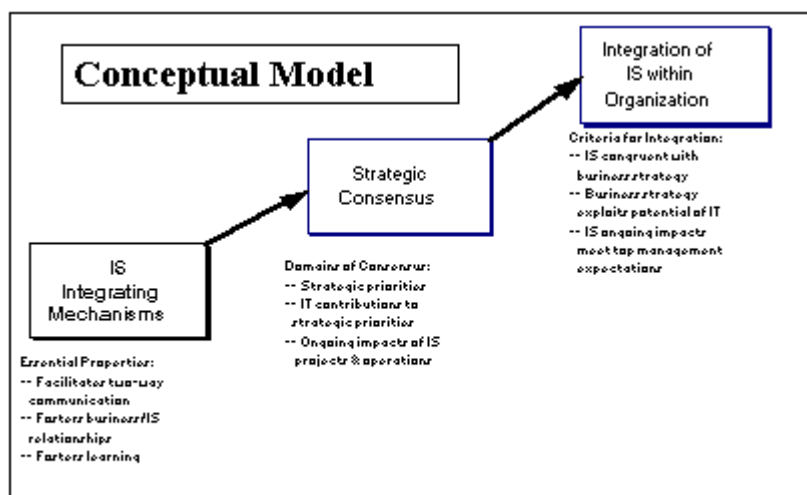

Figure 1. Conceptual Model of How IS Integrating Mechanisms Lead to Integration of IS within the Organization

- ISG decisions and operations are congruent with the overall business strategies,
- The strategies of the company utilize the full potential of IT, and
- The ongoing impacts of ISG projects and operations meet Top Management's expectations.

Executives maintain strategic control over IT by building strategic consensus -- a shared understanding among managers about the ends and means of strategy (Wooldridge and Floyd, 1989). When the outputs and inputs of one part of the organization, such as IS, are deeply interdependent with those of other areas, the absence of strategic consensus will produce patterns of decisions that do not fit together, such that the strategies are never implemented completely (St. John and Rue, 1991). On the other hand, a high level of strategic consensus facilitates smooth implementation of strategy (Wooldridge and Floyd, 1990), as it enables the different parts of the organization to make the mutual adjustments and accommodations necessary to ensure that the patterns of decisions fit together.

In the context of IS, strategic consensus refers to the shared understanding among executives of the strategic priorities of the organization, the contribution IT can make to the strategy, and the organizational impacts of ISG projects and operations. Low levels of strategic consensus (i.e., gaps in shared understanding) indicate that an organization's IS strategic controls are ineffective. Conversely, effective IS strategic controls are indicated by greater consensus about strategic priorities, IT contributions to strategy, and ISG impacts.

We consider this development of strategic consensus as the necessary (but not sufficient) condition for effective strategic control of IT. Achieving strategic consensus does not guarantee that an organization will have effective strategic control of IT. However, failure to achieve strategic consensus will severely limit the organization's ability to implement effective strategic controls.

IS integrating mechanisms are used to build strategic consensus by providing opportunities for business and IS executives to interact, share information, and learn from one another. The strategic control of IT is usually an implicit activity in organizations. It typically happens in the course of performing other functions, such as strategic planning or capital budgeting, but is rarely a stand-alone process. The MIS literature does address three areas which act as IS integrating mechanisms: Strategic Information Systems Planning, Strategic Partnerships, and Education of Top Management. Our preliminary research suggests that there are additional management activities which may facilitate attainment of strategic consensus among Top Managers and CIOs.

The Exploratory Study

Eight pairs of Top Managers (TMs) and CIOs completed surveys designed to measure their perceptions of strategic priorities, IT contributions, and ISG impacts. In order to limit the influence of extraneous factors, we focused our study on a particular form of IT: client-server technology. The surveys suggest that:

- Both TMs and CIOs are skeptical about the resulting organizational, productivity, and budget impacts of moving applications to a Client-Server computing environment. However, TMs were more disappointed in the actual impacts (compared to the anticipated impacts) which resulted from this new technology. These differences in perceptions between Top Managers and CIOs may be attributed to a lack of communication between these individuals. One of the insights gained from our discussions with these executives is that Top Managers may not be getting feedback on the impacts of ISG implementations through the formal control processes. It appears that they are forming their opinions through informal communications, such as ad hoc meetings with internal ISG customers and "Managing-By-Walking-Around." As a result, there seems to be a lack of shared understanding about the impacts of this new technology.
- Top Managers and CIOs do not agree on the contribution of IT towards attaining and implementing the strategic priorities of the company. For most priorities, the CIOs perceive the contribution of IT to be much than the Top Managers. Due to human nature, we anticipated that the CIOs would rate the contribution of their own area higher than would other managers and executives. However, in some organizations, the Top Managers rated the IT contribution to a specific priority higher than the CIOs while in other organizations the CIO rated the contribution higher than the Top Manager. This suggests a lack of shared understanding about the IT contribution to the strategic priorities.
- There are differences in TM and CIO perceptions of the importance of both existing and future strategic priorities. These misunderstandings can have a profound affect on the CIOs efforts to maintain strategic alignment. CIOs make expenditure and resource allocation decisions that support their vision of strategic direction. These technology decisions could be shaping the organization in ways that are contrary to what top management intends.
- The contributions from IT do not match the strategic importance of the priorities. In addition, the IT contributions are best aligned with existing strategic priorities, suggesting that the existing IT infrastructure may not adequately contribute to future strategic priorities. Thus, the existing IT infrastructure may be misaligned and the existing IT resources may be misallocated.

CIO involvement in the company's strategy-making processes is one particular form of an IS integrating mechanism. We expected that by interacting together within the company's strategic planning system, CIOs and TMs would develop the "shared understandings" necessary for maintaining effective strategic control of IT. The results suggest that in organizations whose CIOs are highly involved in their company's strategy-making processes, CIOs and TMs may indeed have a better shared understanding of priorities, contributions, and impacts.

Of course, CIO involvement in strategy-making processes is just one of many ways that the shared understandings necessary for strategic control may be developed. The study also used panel sessions of TMs and CIOs to develop a comprehensive listing of the formal and informal mechanisms that managers may be using to ensure strategic control of the IT function. The three TMs and eight CIOs who participated in these two

brainstorming sessions identified a wide variety of mechanisms by which Top Managers and CIOs develop shared understandings of business strategies and priorities, the contributions of IT towards those business strategies and priorities; and the ongoing impacts of ISG projects and operations. Initial analysis of these focus sessions yielded the following insights:

- The existing formal control mechanisms in use by most organizations are not adequate to maintain effective strategic control of IT.
- Top Managers may not be hearing the "bad news" through the existing formal mechanisms.
- Many organizations must rely on less formal personal interactions between Top Managers and the CIO.
- Organizations may need to establish more explicit and formal IS integrating mechanisms that are dedicated to the strategic control of IT.

Future Directions

Our long-term research objective is to identify those management activities in which strategic control of IT may occur, and then describe the key variables underlying the activities that explain why strategic control is more or less effective. The results of the completed study will help us learn:

- Which combinations of formal and informal IS integrating mechanisms are most effective at developing those shared understandings necessary to maintain effective strategic control.
- The organizational and situational variables that influence the effectiveness of these strategic control mechanisms.

Ultimately, we hope to develop an assessment instrument (i.e., a set of benchmarks) that will enable managers to evaluate their own strategic control systems, and will guide them in re-designing their systems to facilitate better strategic control over their information technology.

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