
From Strategic Business Planning To Strategic Information Systems Planning: The Missing Link

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ABSTRACT

Strategic information systems planning is the most critical issue facing information systems (IS) executives. Presumably, two prerequisites to successful strategic information systems planning are (1) a strategic business plan of sufficient quality that IS management can use to develop its IS plans and (2) sufficient communication of the business plan to IS management. Paired studies of 18 business planners and 18 MIS executives from the same manufacturing organizations revealed a significant, positive correlation between the quality of *communication* of strategic business plans and the extent of strategic information systems planning. However, a correlation between the quality of the business plan and the extent of strategic information systems planning was neither positive nor significant. These findings suggest that a lack of communication of the existing business plan to information systems planners — the weak link between these planners — may be a more serious impediment to strategic information systems planning than the lack of a good business plan.

INTRODUCTION

Strategic information systems planning is the most critical issue facing information systems (IS) executives. Information systems have the potential to make enormous contributions to their host organizations as they attempt to carry out their strategies (1, 11). They can do this by both increasing profits and expanding market share. Conversely, the failure to use IS to realize an organization's goals and plans can have dire consequences. Moreover, the ability to use information systems strategically — the distinction between success and failure — may depend on the link between business planning and information systems planning, the subject of this article.

Several surveys have demonstrated the critical nature of strategic IS planning [1, 3, 4, 6]. General managers surveyed outside the IS department concurred with IS executives that planning was the most pressing issue for the IS department [3]. Another study substantiated that the most critical issue facing IS executives was planning and found that a related issue, the alignment of the IS function with the organization's goals and objectives, was the second most important [6].

A variety of reasons may account for the critical nature of strategic IS planning [16]. IS plans must remain reasonably stable in a volatile environment where changing technology, users, customers, competitors and government regulations create great uncertainty. Systems priorities shift with changing business needs and estimates of resource requirements and schedules therefore inevitably prove inaccurate. Moreover, the

establishment of a systematic planning methodology to overcome these problems often encounters stiff top management resistance [19].

Failure to identify top management's objectives is yet another difficulty faced by IS executives [15]. This not only obstructs strategic information systems planning in general, but also impedes alignment of IS functions with corporate goals and objectives, the second most critical issue mentioned above. "Top management either does not know their goals or are unwilling to confide their goals to the MIS function" while "IS does not know business goals and access to corporate five year plans does not help," observed IS executives reflecting their serious concerns about the matter [6].

These quotes demonstrate two prerequisites for strategic IS planning and the concomitant alignment of IS functions with corporate goals and objectives. First, top management must develop a business plan [8]. This is conventionally done through a strategic business planning process. The strategic business plan must be of sufficient quality that IS management can use it to develop its IS plans.

Second, the strategic business plan must be communicated to IS management. This link between business planners and information systems planners permits IS management to develop a systems plan and even to design specific applications [5]. Development of the plan is conventionally done through a strategic IS planning process.

This article reports a study of the link between the two

planning processes. To understand the link, it is first necessary to understand strategic business planning and strategic information systems planning.

Strategic Business Planning

Planning is one of the main functions of managers at all levels of all organizations. However, strategic business planning differs from lower level planning in that the time horizon of strategic planning is generally longer and its impact broader. Strategic business planning encompasses all decisions and actions leading to the attainment of long-range objectives [7] and affects the entire organization [24].

Strategic business planning has three distinct phases. The first, strategy formulation, is largely a responsibility of top management. The organization begins by defining its mission, namely, the reason for its existence. It stipulates its goals and objectives, identifying opportunities and threats to its external environment. It then creates strategies dealing with these opportunities and threats based on an analysis of the firm's strengths and weaknesses. The purpose of the strategies enables it to achieve its goals and objectives. Finally, it establishes policies providing a basis for general decision making throughout the organization.

The second phase of strategic business planning, the implementation phase, is primarily the responsibility of middle and lower level managers. They reduce the general goals to more narrow targets for their divisions and departments. They also translate the broad strategies into smaller programs. These targets and programs enable them to direct their divisions and departments as they contribute to achievements of organizational objectives defined by top management in the strategy formulation phase.

The third and final phase, known as evaluation and control, again is the responsibility of top management. This phase entails progress monitoring towards implementation of the plan and initiation of corrective action when deviations occur.

Typically, a large multi-business firm carries out these three phases at different levels: the corporate unit, the business unit, and the functional unit. At the corporate level, strategy is concerned with integrating all business units into a cohesive portfolio to achieve overall objectives. At the business unit level, strategy is aimed at supporting corporate goals as defined by top management. Finally, at the functional unit level, strategy may support either business unit or corporate goals depending on the reporting relationships of managers within the organization.

Strategic Information Systems Planning

Strategic information systems planning is "the process of deciding the objectives for organizational computing and of identifying potential computer applications which the organization should implement" [19]. Thus, it is meant to align systems objectives with business strategies [11, 18]. It represents the implementation phase of strategic business planning

where middle and operating managers reduce the general goals to more narrow targets for their divisions and departments as they translate the broad business strategies into smaller programs.

More specifically, the objectives of strategic information systems planning include the identification of new high-return computer applications that support business strategy, including better resource requirements forecasting, increased top management support, improvement of the IS departments, improved user communication, and development of an organization-wide data architecture. In effect, strategic information systems planning serves organizations by helping them use computer-based information systems in innovative ways to discourage new competitors from entering the marketplace, deter customers from buying from current competitors, generate new products, increase an organization's power over its suppliers, or even change the basis on which organizations presently compete [21].

To perform strategic information systems planning, an organization often chooses an existing methodology such as those proposed by IBM [10], James Martin [20], or Robert Holland [9]. Generally, the organization creates a committee of users and IS department representatives. With assistance of the vendor's trainers and consultants, it carries out lengthy procedures lasting weeks or months. The committee first learns about the organization's strategic business plans, identifies a portfolio of applications, and then prioritizes them. It also defines databases, data elements, and a network of computers and communications devices supporting the applications. Finally, it prepares schedules for developing and installing them.

The output of strategic information systems planning is a written plan containing objectives and strategies of the department, a portfolio of applications, a hardware plan and a manpower plan based on expected applications, and financial projections of the department for each of the plan's time periods [21]

Questions About the Link

As with any strategic business planning implementation, it has been suggested that strategic information systems planning can succeed only if top management has created a strategic business plan [23]. The strategic business plan must be of sufficient quality that IS management can use to develop its IS plans [14]. Without such a business plan, IS executives lack clearly conceived, recognized goals and strategies to guide them. Their choice of applications to implement can become arbitrary. Furthermore, without a good business plan, IS executives might perceive little necessity to plan extensively and the level of their business knowledge will probably not be sufficient to foster the alignment of the IS function with corporate plans and objectives.

Moreover, it has been suggested that the strategic business plan must be communicated to all departments within the organization to enable them to align their plans [24]. This

includes the IS department. The organization may have a good plan but if its communication to IS management is unclear, then IS management presumably will be unable to plan extensively and will know little about the business plan.

These two prerequisites to strategic information systems planning — the need for a high quality strategic business plan and the need for high quality communication of the business plan — were the basis for the following questions. Their answers may appear intuitively obvious, but observations of actual companies could confirm or refute our understanding of the link between strategic business planning and strategic information systems planning.

Does the quality of the strategic business plan influence (1) the extent of the strategic information systems planning effort and (2) the level of understanding of the strategic business plan possessed by the IS executive?

Does the quality of the communication of the strategic business plan influence (1) the extent of the strategic information systems planning effort and (2) the level of understanding of the strategic business plan possessed by the IS executive?

A Survey of Business Planners and IS Planners

We attempted to answer these questions in two stages. We first surveyed strategic business planners in manufacturing firms in the United States and Canada to learn about the quality of their organization's business planning efforts and the quality of their communication to those outside the planning department. We assessed the quality of the business planning effort by asking the planners to evaluate their corporation's adherence to the widely-recognized planning requirements in Table 1 [24]. Likewise, we assessed the quality of communication of the plan by asking the planners to rate their corporation's adherence to the widely recognized communication requirements in Table 2 [24]. Of the 161 planners who received the survey, 59 returned usable surveys, a response rate of 38 percent.

Table 1
REQUIREMENTS FOR STRATEGIC BUSINESS PLANNING

1. Develop assumptions about the economic environment
2. Develop assumptions about the political/regulatory environment
3. Develop assumptions about the competitive environment
4. Develop assumptions about the sociocultural environment
5. Develop assumptions about the technological environment
6. List corporate strengths
7. List corporate weaknesses
8. Write a mission statement
9. Write corporate objectives

10. Write corporate strategies
11. Write corporate policies
12. Write programs
13. Prepare budgets
14. Periodically review actual performance versus planned performance
15. Analyze deviations from plan as to their probable cause
16. Take corrective action for deviations

Table 2
REQUIREMENTS FOR THE COMMUNICATION OF STRATEGIC BUSINESS PLANNING

- | | |
|-------------------------------------|------------------------------------|
| 1. Promulgate the mission statement | 3. Promulgate corporate strategies |
| 2. Promulgate corporate objectives | 4. Promulgate corporate policies |

Next, through phone calls to the 59 firms, we identified a top IS executive in 47 cases. We mailed a second survey to these individuals to learn about the extensiveness of the IS planning effort and the level of knowledge of the corporate plan possessed by the IS executive. We assessed the extensiveness of the planning effort by asking the IS planners whether their written IS plan contained a statement of department objectives and strategies, a portfolio of applications, a hardware plan based on expected applications, a manpower plan based on those applications, and department financial projections for each time period of the plan [21]. We assessed their knowledge of the corporate plan with a single question asking them to rate themselves.

The 18 usable responses represented a rate of 38 Percent. Table 3 presents some characteristics of the final 18 manufacturers who participated in the study.

Table 3
THE RESPONDENTS

Main Product	Annual Sales*	Planner's Job Title	IS Executive's Job Title
Tires	\$500	Manager Financial Planning & Analysis	VP, Information Systems
Chemicals	\$27,000	Director, Corporate R&D Planning	Division Director
Foods	\$6,100	Director, Planning & Analysis	VP, Information Management
Paper	\$4,000	Corporate Planner	VP, Information Resources
Electrical Products	\$6,000	Director, Planning & New Business Development	Manager, Corporate MIS Administration

Drugs	\$1,500	Assistant VP, Corporate Planning & Development	Director, Information & Communications Department
Rubber Products	\$1,000	Manager, Business Development	Director, Information Systems
Metal Products	\$1,000	President	Secretary/Treasurer
Main Product	Annual Sales*	Planner's Job Title	IS Executive's Job Title
Chemicals	\$6,800	Manager Business Services	Manager, IS & Communication Services
Metal Cans	\$2,900	VP, Corporate Planning & Research	Manager, Corporate Computer Service
Steel	\$2,200	Director, Financial Services	VP, Information Services
Electrical Products	\$10,700	Director of Corporate	Director, Data Center Planning
Aluminum	\$6,000	Manager, Planning & Design	Director, MIS
Diversified Conglomerate	\$4,100	Director, Strategic Planning	VP, Information Systems Services
Drugs	\$300	VP, Corporate Development	Director, Data Processing
Lumber	\$900	Planning & Control Analyst	Director, Information Systems
Aircraft	\$9,500	Director of Strategic Planning	Director, Technical & Industry Affairs, Information Systems Group
Food	\$1,500	Manager, Strategic Planning	Director, Information Processing and Telecommunications

* in \$000,000

Thus, the two-stage study collected the perceptions of 18 business planners and their 18 IS counterparts about the link between strategic business planning and strategic information systems planning. Most noteworthy is that neither the business planner nor the IS executive knew the other was participating in the study.

Results

The statistical analysis of the paired responses revealed both expected and unexpected results. Table 4 shows the unexpected finding that business plan quality neither correlated significantly with the extent of IS planning nor with the level of the IS executive's knowledge of the business plan.

Table 4
QUALITY OF STRATEGIC BUSINESS PLANNING AND STRATEGIC INFORMATION SYSTEMS PLANNING

Corporate Planner	IS Executive	Correlation Coefficient	Significance Level
Business Plan	Extent of IS Planning Effort	-0.03	not significant
Business Plan	Level of Business Plan Knowledge Possessed by IS Executive	0.34	not significant

However, Table 5 shows the expected finding that the quality of communication of the business plan correlated both with the extent of IS planning (at the 0.10 level of significance) and with the level of the IS executive's knowledge of the business plan (at the 0.01 level of significance).

Table 5
QUALITY OF COMMUNICATION OF STRATEGIC BUSINESS PLANNING AND STRATEGIC INFORMATION SYSTEMS PLANNING

Corporate Planner	IS Executive	Correlation Coefficient	Significance Level
Quality of Communication of Business Plan	Extent of IS Planning Effort	0.40	0.10
Quality of Communication of Business Plan	Level of Business Knowledge Possessed By IS Executive	0.57	0.01

Implications of the Findings

Because it has been suggested that strategic information systems planning can succeed only if top management has created a suitable strategic business plan, correlations of the quality of the strategic business plan with the extent of IS planning and with the level of IS executive's understanding of the plan were expected. Failure to find statistically significant

correlations may imply that the efforts of business planners creating high quality business plans have little effect on the IS department's efforts to plan strategically.

That is, requirements for high quality business planning as depicted in Table 1 may have little influence on IS planners. Business planners might make diligent efforts to develop highly accurate planning assumptions, to fully comprehend their corporation's strengths and weaknesses, to create achievable objectives, to develop executable strategies, and so on. However, findings in this study suggest that these efforts may be insufficient in encouraging IS departments to plan.

On the other hand, significant correlations of the quality of communication of strategic business plans with the extent of IS planning and with the level of IS executive's understanding of the plan tell another story. While the business plan itself need not be excellent, the explanation of it to IS planners needs to be first-rate. Correlations confirm the notion that IS planners do not know what to plan if the business plan has not been clearly elucidated to them. They confirm the importance of communication of the organization's mission, objectives, strategies, and policies (see Table 2) to IS planners.

The Importance of Communication

Because strategic information systems planning is the most critical concern of IS executives, the findings from this study suggest that executives may first question their own satisfaction with the quality of communication of their organization's strategic business plan to them. If dissatisfied, they probably will want to seek improvement in that communication.

In general, there are three potential sources of such communication [13]. Written documents from management are one such source. Many organizations have a plan book which includes its assumptions, mission, goals, objectives, and strategies. This study suggests that IS planners might request that this document be clearly written, ask to see it, and then study it closely. Financial statements and public relations brochures might serve as similar sources. However, other studies suggest that these documents are too general and thus not particularly useful in helping IS management translate business plans into information systems plans [6, 13, 15].

Oral information is a second source. Directives from management during staff meetings can communicate the organization's strategic business plan. This study suggests that IS planners might want to make the most of these directives. Likewise, informal conversations with top management and even hearsay or gossip can serve as sources of information about the strategic business plan. However, other studies suggest that such oral information is inadequate in helping IS management develop strategic information systems plans [6, 13, 15].

Finally, participation in business strategy formulation with top management is a third source of information regarding a strategic business plan. In some organizations, IS management attends top management business strategy formulation meetings to learn about top management's plans and how they will

affect the IS department. Information systems management presents its plans in these meetings and makes suggestions to top management about the contents of the business plan. In some firms, IS management participates in the formulation of division or functional area objectives or serves on strategy subcommittees.

Moreover, previous studies have shown that participation in strategy formulation helped IS management prepare strategic information systems plans [13, 15]. Thus, IS executives might want to persuade top management to permit them to participate in business strategy formulation. IS managers most often do this by convincing top management of the strategic potential of information systems and hence the value of IS management participation in the business strategy formulation process [17].

Conclusion

The continued presence of strategic information systems planning as the most critical issue facing IS executives might stem from the weak or missing link between strategic business planning and strategic information systems planning. If executives — both general managers and information systems managers — feel that their organization's information systems planning is unsatisfactory, it may be because IS managers are receiving insufficient information about their organizations' strategic business plans. It may be that the absence of IS executives from participation in business strategy formulation is preventing their organizations from most effectively using computer-based information systems.

REFERENCES

- [1] Ball, L. and Harris, R. "SMIS Members: A Membership Analysis," *MIS Quarterly*, 6(1), March 1982, pp.19-38.
- [2] Benjamin, R.I., Dickson, G., Jr. and Rockart, J.F. "The Changing Role of the Corporate Information Systems Officer," *MIS Quarterly*, September 1985, pp.177-188.
- [3] Brancheau, J. and Wetherbe, J. "Key Issues in Information Systems Management," *MIS Quarterly*, 11(1), March 1987, pp.23-45.
- [4] Dickson, G., Leitheiser, R., Wetherbe, J. and Nechis, M. "Key Information Systems Issues for the 1980s," *MIS Quarterly* (3), September 1984, pp. 135-159.
- [5] Camillus, J.C. and Lederer, A.L. "Corporate Strategy and the Design of Computerized Information Systems," *Sloan Management Review*, 26(3), pp. 35-42.
- [6] Hartog, C. and Herbert, M. "1985 Opinion Survey of MIS Managers: Key Issues," *MIS Quarterly*, 10(4), December 1986, pp. 350-361.
- [7] Harvey, D.F. *Strategic Management and Business Policy*, 2nd edition, Merrill Publishing Co., Columbus, Ohio, 1988.
- [8] Head, Robert V. "Information Resource Planning,"

Journal of Systems Management, 34(10), October 1983, pp.6-9.

[9] Holland Systems Corporation, *Strategic Systems Planning*, Ann Arbor, Michigan, document #M0154-04861986.

[10] IBM Corporation, *Business Systems Planning - Information Systems Planning Guide*, Publication # GE20-0527-4, 1975.

[11] Ives, B. and Learmonth, G. "The Information System as a Competitive Weapon," *Communications of the ACM*, 27(12), December 1984, pp.1193-1201.

[12] King, W.R. "Strategic Planning for Management Information Systems," *MIS Quarterly*, 2(1), March 1978, pp.27-37.

[13] Lederer, A.L. and Burky, L. "Understanding Top Management's Objectives: A Management Information Systems Concern," *Journal of Information Systems*, 3(1), Fall 1988, pp. 50-66.

[14] Lederer, A.L. and Mendelow, A.L. "Paradoxes of Information Systems Planning," *Proceedings of the Seventh International Conference on Information Systems*, December 15-17, 1986, San Diego, CA., pp.255-264.

[15] Lederer, A.L. and Mendelow, A.L. "Information Resource Planning: Overcoming Difficulties in Identifying Top Management's Objectives," *MIS Quarterly*, 11(3), September 1987, pp. 389-400.

[16] Lederer, A.L. and Mendelow, A.L. "Information Systems Planning: Top Management Takes Control," *Business Horizons*, 31(3), May-June 1988a, pp.73-78.

[17] Lederer, A.L. and Mendelow, A.L. "Convincing Top Management of the Strategic Potential of Information Systems," *MIS Quarterly*, 12(4), December 1988b, pp. 525-536.

[18] Lederer, A.L. and Putnam, A. "Connecting Systems Objectives to Business Strategy with BSP," *Information Strategy: The Executives' Journal*, 2(2), Winter 1986, pp. 12-18.

[19] Lederer, A.L. and Sethi, V. "The Implementation of Strategic Information Systems Planning Methodologies," *MIS Quarterly*, 12(4), September 1988, forthcoming.

[20] Martin, J. *Strategic Data-Planning Methodologies*, Prentice-Hall Inc., Englewood Cliffs, N.J., 1982.

[21] McFarlan, F.W. "Problems in Planning the Information System," *Harvard Business Review*, 49(2), March-April 1971, pp. 75-89.

[22] McFarlan, F.W. "Information Technology Changes the Way You Compete," *Harvard Business Review*, 62(3), May-

June 1984, pp. 98-103.

[23] McGlashan, R. and Singleton, T. *Strategic Management*, Merrill Publishing Co., Columbus, Ohio, 1987.

[24] Wheelen, T.L. and Hunger, J.D., *Strategic Management and Business Policy*, 2nd Edition, Addison-Wesley, Reading, Massachusetts, 1986.

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