Creating An Information Systems Strategic Plan

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Introduction

Strategy is an action a company takes to attain one or more of its goals (Hill & Jones, 1997). Strategic business planning involves defining an organizational mission, core values, and objectives, along with strategic initiatives to achieve these. It requires an entity to focus on future outcomes and identify steps that will move it towards those desired outcomes, given the entity's competitive environment. In executing these steps, information technology resources can be used to provide information and support operations.

The purpose of this paper is to describe the strategic planning process as it applies to information technology resources (also referred to as information systems). Section 2.0 will overview the strategic planning process and the need for extending that process to include information systems (IS). Section 3.0 will present an IS strategic planning methodology. Section 4.0 will describe how the IS strategic planning process was applied in a small non-profit organization. The final section will summarize.

Strategic Planning and the Role of Information Technology

Strategic planning is not a new concept in managing organizations. The strategic planning process has the benefit of forcing an organization to define an identity (what are we?), a mission (what do we want to be?), values (what is important to us?), goals (what do we want to achieve?) and strategies (how can we achieve our goals and become what we want to be?). In essence, the strategic planning process aids an organization in eliminating nonvalue-added processes and focusing on core competencies to fulfill its mission. For a strategy to be successful it must, among other things, be a good strategy and be well executed. Bill Gates wrote, "A bad strategy will fail no matter how good your information is. And lame execution will stymie a good strategy." (Gates, 1999, 4).

Frequently organizations focus on the customer in reaching its goals and fulfilling its mission. For example, the balanced scorecard approach surrounds the vision and strategy with the customer, as well as financial factors, internal processes, and learning and growth (Kaplan & Norton, 1996). This approach allows for identifying cause-and-effect relationship among these factors, focusing on outcome measurement and control of the factors in achieving the strategic goals. Theoretically, all of an organization's activities should be conducted with an eye towards achieving the strategic goals.

Regardless of the organization and its strategic planning approach, the importance of technology and information resources in achieving the organizational goals cannot be understated. Information for not only the top level executives but also the middle managers and line employees is crucial in making timely, fact-based decisions (Gates, 1999). The infrastructure should provide for the effective creation, use, management, access and delivery of information or else the organization will become frustrated in its

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efforts to capitalize on this information (AICPA, 2000). In 1997, executives at the Boston Consulting Group proclaimed:

Over the past decade, managers have focused on adapting their operating processes to new information technologies. Dramatic as those operating changes have been, a more profound transformation of the business landscape lies ahead. Executives -- and not just those in high-tech or information companies -- will be forced to rethink the strategic fundamentals of their businesses. (Evans & Wurster, 1997, 70).

With technology's crucial role in strategic management quite evident, it may be surprising that the attention given to overall strategic management issues has not been extended to information technology issues. Automation efforts have frequently been fragmented, with heightened commitment to main-frame-based applications. Hardware and software are often incompatible and disparate. Data is frequently inaccessible. These flaws hamper the need for information systems to be "an essential, indispensable and strategic component of service delivery and no longer satisfy the business and service goals of many organizations. A revised approach to planning that recognizes the relationship between business planning and technical infrastructure is needed" (AICPA, 2000, 1).

Information Systems Strategic Planning

An IS strategic plan uses the strategic business plan of the organization as a starting point and in the design and implementation of the information systems necessary to support the business plan.¹ Without such an IS plan, executing the business plan can prove difficult and inefficient. According to the AICPA, an effective IS strategic plan has the goal of "design, delivery and maintenance of a seamless, integrated information resource environment that responds successfully to the need for cross-functional flows of information while providing the flexibility and adaptability to respond to incessant business and technological change" (AICPA, 2000, 6).

The three primary components of the IS planning process are: (1) determine strategic information needs; (2) baseline the existing environment; and (3) define the information resource environment. One could view the IS planning process as a "gap analysis." Determine where you need to be; determine where you are; determine how to bridge the gap between the two points. Once a plan is devised, the system is to be maintained using the "action plans" of the budget and IS operating plan. An overview of the IS planning process is presented in Figure 1. Note that the extent to which an organization follows each of the succinct steps in the planning process will be a function of the organization's size, IS sophistication, and importance of IS in meeting business objectives.

Determine Strategic Information Needs

The starting point for the strategic IS planning process is the strategic business plan or business direction. A well-developed strategic business plan will have identified strategies and initiatives that the organization is or will be undertaking to achieve its goals. These strategies should be scrutinized for *opportunities* where IS can contribute to or enhance the execution of the strategies. This provides the justification for moving forward with IS initiatives.

For example, a strategic initiative may be "to identify and first respond to highly valued customers calling on the customer support line." At this point, the IS plan would identify ways in which technology and information can facilitate this initiative. In this example, it may require pre-categorizing cus-

¹ Information in this section is extracted primarily from AICPA, 2000.

FIGURE 1: The IS Planning Process

Adapted from AICPA, 2000, page 7.

tomers according to sales volume or product profit margin and using those categories in conjunction with a phone system that routes higher priority callers to the best customer service representatives. It may require routing such callers to the same designated representative each time. In this example, the IS plan would need to address both the information (e.g., category of customer) and the infrastructure (e.g., calling system, database, interfaces) needed to best accomplish the strategic initiative.

This early step is perhaps the most difficult of the entire IS planning process for several reasons. First, it requires top management to communicate the complete business strategic plan to the IS managers. Typically the business strategic plan is decomposed and distributed to the parts of the organization directly responsible for executing strategies and initiatives. In the prior example, the strategic initiative would likely be communicated to the customer relations management team. Second, IS managers may not be adequately trained in the strategic planning process. Forming a steering committee comprised of the IS executives and senior managers from key functional areas will ease the process. This will also allow the IS managers to more fully understand the functional areas' goals. Likewise, this committee will also bring the potential of the IS function to the forefront of the functional area managers' minds. Third, this step is the most creatively-driven step. Participants of the planning process should be encouraged to "think out of the box" in finding ways in which IS resources can best be used to achieve organizational objectives. Often a new idea of how to use information can significantly alter the way a company does business. For example, Microsoft was considered quite revolutionary when it decided to open up virtually all information in the company to middle and line managers. Their decision to "spend less time protecting financial data from employees and more time teaching them to analyze and act on it" was a new notion of how IS could be linked to a business' strategy (Gates, 1999, 18).

The results of this first step should be a written document that shadows the business strategic plan. The document should specify the exact business strategy or initiative, with the addition of how IS can be used to achieve the strategy or initiative. It is important to include IS applications that are currently in place and serving a strategy or initiative well, as well as proposed applications.

Baseline the Existing Environment

The purpose of baselining is to "develop a complete and adequate assessment of the current environment" (AICPA, 2000, 8). This baseline information will assist in assessing the risks and benefits of proposed changes, as well as guide the structuring of plans for change and framing the approach to managing the IS resources. Baselining is comprised of two primary components: (1) systems review, and (2) core business process and activity review. The systems review should include not only an inventory and documentation of systems components, but also should include information about: systems demographics (age, languages, hardware specifications, etc.), technical quality (date of last improvement, planned maintenance, etc.), and functional quality (user problems, availability, security, integrity, etc.). Each core business process such as sales, marketing, and collections should include a number of descriptive aspects, including:

- desired outcome
- starting or trigger point
- technology interfaces
- organizational interfaces
- external interfaces
- ownership and accountability, and
- end point.

It is important to note that the baselining process is not just an inventory and documentation exercise. Baselining will be most effective if it contains an evaluative component. Questions should be asked that address the *quality* of the processes in which IS is involved. Baselining will assist in understanding personnel and IS resources required, current policies and procedures, information flows, and the impact of one activity on other activities within and outside the organization. Using the earlier customer support example, baselining might address how customer service representatives currently operate. This would likely include documenting what information is available to the phone representatives, in what interface format, using what applications, via what technology, and with what level of flexibility and responsiveness.

Finally, note that the baselining process can be conducted concurrently with the process of determining business needs. In fact, it is very important that the “discovery” occurring in the baseline process be communicated with those studying the business needs. It is during the baseline process that problems may be initially identified that directly affect the ability of an organization to meet a business objective.

Define the Information Resource Environment

This third planning step is the crux of the “gap analysis.” It has been determined the current, baseline state of IS in the organization (where are we now?) and the potential for IS to be used in achieving organizational goals (where do we want to go?). This step specifies how the system would look after the plan were implemented. It can be viewed as a set of blueprints, just as constructing a house would involve specialized blueprints for the electricians, plumbers, framers, and finishers. The desired information resource environment should be defined in terms of the applications and data, technology, and infrastructure.

Determining what should be included in the information resource environment and how the components should relate is a potentially complex task. Modeling can be employed to facilitate this difficult task. Depending on the complexity of the system, modeling can be applied at many levels, with the process and data models being most commonly used. This will culminate in an overall enterprise model that integrates the other models. Examples of tools that can be used are data flow diagrams, entity-relationship diagrams, data dictionaries, and CASE tools. An expanded discussion of modeling can be found in the Appendix of AICPA (2000).

After the systems have been modeled, the target application and technology architectures should be detailed. These target architectures will define what the future system will look like. Systems architecture should include specification of applications, data, systems software, hardware, and communications. This portion of the IS plan should consider cost, user skills and training requirements, response time, availability, security, interface requirements, frequency with which an application might change and how the system will be managed. Returning to the blueprint analogy, the target architectures will convey information analogous to the type of wood to be used, the placement of closets, and the number of outlets in each room that would be specified on a construction blueprint.

Moving the Plan Forward

Though upper management should be involved to some degree in the entire IS planning process, plans should not be implemented without full endorsement of upper management. The IS plan should be presented in a concise, clear fashion that is most appropriate for upper management. Any proposed system or change should clearly be tied to the organization’s strategic plan in order for upper management to “buy in” to the proposal. If earlier stages are done well, this should not be a difficult task.

Once the desired information resource environment has been defined and approved, the IS plan should specify how and when the plan will be executed. This stage will require project management skills, particularly if the planned systems or changes are significant. The overall IS plan should be defined by project, with each project assigned a priority based on management need, costs, benefits, and risks. The priorities and other constraints (e.g., cost, time) will facilitate creation of a project schedule. Selecting and prioritizing projects is subjective, though objective tools can be used to measure a project's merit. For example, scoring mechanisms can be employed to evaluate and rank projects.

Consistent with systems development practices, policies, standards, and procedures governing the new or changed system should be developed prior to implementation. Likewise, after implementation occurs, the system should be periodically reviewed and evaluated for effectiveness. The success of an IS plan and its components will rest with its "ability to move the organization effectively in the desired direction at an acceptable cost." (AICPA, 2000, 19).

IS Planning for a Small Nonprofit Entity

It is easy to imagine how creating an initial IS strategic plan for an organization might be a daunting task. However, all organizations, whether small or large, for-profit or nonprofit, can benefit from creating and implementing an IS strategic plan. In this section, the IS planning process will be overviewed as it was applied in a small nonprofit organization.²

The nonprofit organization is a state society of CPAs, thus it has relatively few employees with a larger number of members. The Society is located in a smaller state and has over 1,400 members. The Society offices are located in the capital city, with five employees and a twelve-member board of directors. The Society completed a detailed and comprehensive strategic planning process in June 2000. The IS Plan was created by the Society's IT Committee.

Determine Strategic Information Needs

Since the strategic plan was very recently modified, the IT Committee obtained and reviewed the plan. The strategic plan included: the mission, the vision statement, shared core values, and four strategic initiatives. Within each initiative were one or more strategies, which in turn included one or more action plans and related target dates. The Committee focused first on understanding the "theme" of each initiative. For example, one initiative was: "provide leadership to the profession and our members." Upon further examination of the stated meaning and purpose of the initiative and its related strategies and action plans, it was evident that the "theme" of this initiative was communication with members. All of the strategies and action plans related to this initiative focused on communicating with members regarding chapter meetings, committee meetings, AICPA activities, alliances with others, or emerging issues. Next, the Committee addressed *each* initiative's action plans to determine if technology could facilitate or support the action plans. Continuing with the previous initiative's example, one action plan was: "participate in AICPA meetings to identify emerging issues and changes in the profession and communicate relevant information to the membership." The Committee determined that the Society web page would be an efficient way to execute this communication. This process was continued for the entire strategic plan.

After addressing each action plan contained in the strategic plan, it was very clear to the Committee that the Society was primarily in the business of gathering and disseminating information to its

² Details of the page plan are not provided for the sake of brevity. The following discussion will provide examples excerpted from the plan as applicable.

members and the public at large. This is how the Society adds value to its membership. Virtually each and every strategy and action plan focused on communication or information sharing amongst various parties. The Committee agreed that a well-designed, up-to-date web page would be the way in which technology could most immediately and efficiently support the strategic plan. The Committee came up with thirteen specific ways in which the web site could be used in implementing the strategic plan. The Society's current web page was quite simple, so these suggestions were all enhancements to the current web site.

Baseline the Existing Environment

An IT Committee member and a student (supervised by the IT Committee chair) visited the Society offices. During this visit, they toured the offices, obtained specifications for the technology currently used, observed applications in use, and interviewed the Executive Director and employees. The Society has seven computers, with two of these acting as servers, connected in an 8-node peer-to-peer network. The computers had a wide range of specifications, including several generations of processors, different sized monitors, various speeds and storage capacities, and different versions of software. Some workstations had ergonomic features, while others did not. The current practice, though not official policy, was to replace one computer per year. Technology expenditures had been made upon recommendation by the Executive Director and approval by the Board, though amounts were not routinely budgeted specifically for technology spending.

While the review of the strategic plan resulted in a number of recommendations that could be implemented on the Society's web page, the visit to the offices revealed other operational areas in which technology was currently used. Examples of operational uses of technology include email, desktop publishing, membership management (e.g., dues, mailings), CPE administration (e.g., fees, logistics), and word processing. The Society uses six different types of application software. The Society was using a web hosting service at the time of the on-site visit, though they brought the web hosting in-house shortly after the on-site visit.

Define the Information Resource Environment

In defining the information resource environment, the Committee considered the proposed role of the web page in executing the strategic plan, as well as recommendations related to daily operations at the Society's offices. The IT Committee addressed the IS environment in four categories: hardware, software, people, and policies/procedures. Each area was examined and recommendations made.

Because of the small size of the organization and its technology resources, the single end product of the IS planning process was a proposed "Information Technology Plan." The document explained the strategic planning process as it applied to IS, as well as the recommendations. The most difficult part was suggesting priorities for the recommendations, since funding all of the recommendations at once would be very expensive. The Committee wanted to give the Board a sense of what should be done first, and so on. Figure 2 shows the recommended actions for using IS resources in Society operations.

Moving the Plan Forward

The IT Committee approved the final plan which included as appendices the Society's strategic plan, existing equipment specifications, recommended uses of the web page, and recommended actions in using IS resources for Society operations (Figure 2 below). The Executive Director also provided her input before the plan was approved. Finally, the plan will be presented to the Board at the Society's annual meeting in June.

The cost of implementing and maintaining an IS plan can be large and continuous. Technology quickly becomes obsolete, causing problems in reliability, compatibility, and speed. It is interesting to note one option that the IT Committee proposed to the Board regarding updates of technology. One of the Society's operational problems was aged hardware and incompatibility between different versions of application software. This was largely an artifact of the piecemeal purchasing patterns of the past. The Committee provided an alternative to continuing with this approach. Instead of actually purchasing *some* hardware and software annually, a "reserve" could be established that would enable the Society to replace *all* computers and upgrade *all* programs in the offices at one time, preferably every three years. Over time, this would not be more costly than the actually annual expenditures proposed under a yearly purchase program, yet it would allow for all equipment and programs to be compatible and relatively new, adding stability to the system.

FIGURE 2: Recommended Actions in Using IT Resources for Society Operations

Recommendation	Priority
Replace at least two computers per year, beginning with the Pentium I class computers unless server performance is not satisfactory	High
Provide all employees with at least 17" monitors and ergonomic keyboards, beginning with those that use the computers most frequently.	High
Conduct a network architecture study.	Moderate
Explicitly designate one employee to manage the IT resources	Moderate
Hire a web manager or outsource this function to expand and improve the web site. ³	Urgent
Adopt an IT Plan	Urgent
Document existing policies and procedures	Moderate
Create and distribute a privacy policy regarding the website and other member-related databases	High
Perform a risk-based analysis every two years and update the policies and procedures	Moderate

Urgent = address within the next six months

High = address within the next year

Moderate = address within the next two years

While the IT Committee—comprised only of Society members—offered advice and technical expertise when implementing the plan, the Committee made it clear that the execution of and commitment to the plan was the responsibility of the Board and Society employees.

Summary

The potential for information technology to benefit organizations is great. However, using technology without a clear purpose or goal in mind can be inefficient and perhaps even counterproductive towards the organization's goals. An IS plan should be created relying heavily on the strategic business plan. Following a deliberate process should help keep the focus of technology applications on moving the organization in the desired direction. Regardless of the type or size of the organization an IS plan, as well as the process of creating the plan, can be beneficial. Applying the strategic planning process to information systems "allows an organization to set the direction and priorities of the Information Technol-

³ Note that the specific recommendations on how to use the web site are not included in this figure since they had been detailed earlier in the plan.

ogy function, while ensuring that business needs and priorities guide the IT investment decisions” (AICPA, 2000, 22).

References

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Notes