This article describes how a medium-sized, Midwestern power company implemented an IT alignment planning process. The IT alignment planning process was a successful four-year activity that involved, first, a pilot implementation and then a companywide implementation of the IT alignment planning process. Designed to be flexible and to dovetail with corporate strategic planning processes, IT alignment planning achieved acknowledgment and approval in all divisions of the company. The IT alignment planning process improved and facilitated communication on IT and IT projects throughout the company, from the executive level to the operational level, and brought the IT and client units closer together.

ALIGNING THE BEHAVIOR OF THE STRATEGIC BUSINESS UNITS WITHIN THE CORPORATION

Aligning the behavior of the strategic business units within the corporation, and aligning the IT organization with those business units has become a primary concern for many senior managers. Firms such as Federal Express and Netscape have adopted corporate alignment. Furthermore, alignment has replaced business process reengineering (BPR) as the top issue for management, and is expected to remain so in the foreseeable future. The IT alignment process described in this article fits well with corporate strategic planning, particularly when that planning process is also a corporate alignment process.

IT alignment involves making the best possible use of IT resources to meet a corporation’s business objectives. Strategically, IT alignment planning is a process for anticipating the future IT requirements of the corporation in an effort to ensure that the corporation will be prepared to meet future challenges. Tactically, it is a process of corporatetwide IT resource allocation, analogous to labor or asset resource allocation. Operationally, it is a process for achieving IT effectiveness and efficiency, in an effort to keep the business running smoothly and supporting IT customer requirements. This article describes an implemented IT alignment planning process in a medium-sized, Midwestern power company. It is a successful four-year, two-stage activity: following a pilot study (not discussed), the company implemented the process across all business units.

DEREGULATION

The power industry in the United States is undergoing deregulation. Most legislators agree that portions of the electric power industry would be more efficient and cost effective in a competitive market. Directed by federal legislation, the electric utility industry is transitioning from a regional, monopolistic, regulated environment to a national, competitive, deregulated environment where retail customers choose suppliers of their electricity. As a result, the
power industry is now faced with competition, thus changing the way it uses IT and the way it does business.

Deregulation has had a major impact on IT alignment because client satisfaction and competitive effectiveness are critical outcomes of the IT alignment planning process.

Deregulated electric power companies no longer have monopolistic control of their regional clientele — competitive pricing and variable subscriptions introduce new and unfamiliar problems. As the full free-market forces take hold on the deregulating power industry, strategy and competitiveness become critical to company survival. Deregulation has therefore had a major impact on IT alignment because client satisfaction and competitive effectiveness are critical outcomes of the IT alignment planning process.

Full deregulation brings regional and possibly national competition. Customers are no longer captive and can pick their electricity suppliers. According to market research, price is a primary motivator for switching suppliers, but it is only a short-term motivator in a stable supply environment (OPPD internal research). In anomalous situations like California, where a controversial deregulation approach has produced supply instability and high prices, price becomes much more important. IT customer satisfaction is a secondary but longer-term motivator, and is therefore a strategic factor in attracting and retaining customers.

ALIGNMENT PLANNING AND INFORMATION QUALITY

Strategic alignment remains a key area of focus among business executives. In a supporting role, IT alignment planning, where the behavior of the strategic business units and the IT organization are aligned, also has emerged as a key area for many senior managers, and commercial IT research organizations such as Gartner have listed IT alignment as a top issue in American companies.

On the strength of possible benefits to executives and their companies, IT alignment is emerging as an important research area. Papp remarks that understanding and leveraging the business-IT partnership allows organizations to use IT as a business strategy enabler. The resulting harmony can be extended and applied throughout the organization as new opportunities arise.

With business strategy-IT harmony in mind, IT alignment planning is a process that enables IT clients to achieve their objectives by delivering to those clients quality information and quality IT products and services. IT alignment planning identifies needed information and needed IT products and services. Having identified them, the IT process can deliver the needed information, products, and services, and continually monitor and measure the effectiveness of delivery.

IT alignment can be undertaken by a steering committee. A strategic steering committee composed of a group of senior business executives can appoint an IT steering committee to concentrate on a number of assigned critical areas. This “dictated from on high” approach has immediate drawbacks: obtaining commitment from these executives is difficult; but keeping their commitment is even harder, requiring the maintenance and cooperation of three levels of steering committees (strategic, tactical, and operational). The business units in our company expressed a distinct aversion to the steering committee approach; but even so, the corporate planning model precluded it. Each unit created its own strategic plan and all unit jointly developed the unit’s IT alignment plan, and hence a portion of the corporate IT alignment plan.

By tying the IT planning process directly to each business unit’s critical success factors (CSFs) in their strategic plans, IT alignment planning takes a strategic view of information and IT systems, products, and services across the corporation (Exhibit 1). It identifies or discovers and creates new IT strategies, identifies and creates new IT resources, provides input into strategic and tactical planning processes, and factors in effects of competition with the objective of improving information quality for IT clients.

IT alignment planning suggests that an IT organization actively plan with its clients, not just plan for its clients. The IT organization actively partners with its clients to identify their information needs, information concerns, and candidate solutions to close the gaps between them. It works with its clients to prioritize solutions, allocate IT resources, and construct an IT alignment roadmap. To do this, the IT organization must understand client strategic and supporting plans, and how they integrate into the corporate strategic plan. IT will support the CSFs, processes, and drivers of all business units. IT becomes an integrative and binding force across the corporation (see Exhibit 2). Knowing how to align business and IT requires that the planners thoroughly measure and understand the level of information quality the clients are receiving.
Creating the IT Alignment Planning Model

We searched the research and practitioner literature extensively for an IT alignment planning model that would work for our company. After considering a variety of approaches, we began developing the first IT alignment planning model over an eight-month period as a pilot project, with five top managers of a strategic business unit, three top managers (including the CIO) of the IT division, and an external consultant. IT then took the lessons learned from the successful pilot and developed a strategy to implement the process across the entire company.

Four Information Dimensions Used to Assess Information Quality

There are four information dimensions in IT alignment to assess information quality (IQ): critical success factors (CSFs), business processes, information needs, and IT products and systems (Exhibit 3). The four dimensions were selected to examine information quality from the strategic down through the operational levels, and to highlight the areas of concern by examining the IQ dimensions two at a time (e.g., CSFs and business processes, CSFs and information needs, etc.).

Critical Success Factors (CSFs)

CSFs are strategic-level indicators of managerial responsibility. A CSF is a key operational or cultural indicator of success, critical to achieving the “main thing,” and is within control of the organization. Their strategic planning process, Plan-Deploy-Review (PDR), focuses on the subject organization’s reason for being or “main thing.” Each “main thing” is expressed with approximately three to six CSFs identified during strategic planning, against which the responsible managers are ultimately measured. CSFs from the corporate strategic plan drive down to CSFs at business-unit strategic plan CSFs, and so on. Managers are measured against one or more CSFs.

Business Processes

Managers are responsible for all or parts of business processes. A business process transforms inputs to outputs, adding value for the customer. It can span functional units of an
organization. For example, the electric customer service extends across three business units: generation, transmission and distribution, and energy services.

The corporation has five major business processes, while the business units have four to six business processes. Vice presidents are responsible for all processes within control of their business unit, and are partially responsible for shared processes across units. Division managers are responsible for all processes within control of their divisions, and are partially responsible for shared processes across divisions and units. The same follows for departmental managers.

**Information Needs**

Every employee needs information to perform. Whether or not they are able to acquire the information, if they need it, it is an information need. An information need is that information a person needs to do his or her job. Information needs are divided into five categories:

1. **Overall information need**: for example, performance information for a power generation unit
2. **Business core information need** (containing between five and seven specific needs): for example, customer knowledge, customer service, customer satisfaction for energy services unit
3. People information need: for example, employee retention and recruitment, employee skill assessment and training for all units.
4. Financial information need: for example, economic decision, analytical and forecasting for several units.
5. Information on IT: for example, technology support effectiveness, system selection information for several units.

Information needs can be satisfied with IT systems, products, and services, or by other means. However, if IT customers cannot access the information they need, IT should be aware of the unfulfilled need and, if it is important to the customer, work to remedy it.

**IT Systems and Products**

Information is provided to company employees by IT information systems, products, and services. Information systems play a major role and are integral to the functioning of the company. These systems include everything from custom systems developed 20 years ago to purchased ERP systems implemented within the past two years.

Based on customer perceptions of performance, some IT products may need to be enhanced, some may require more IT customer training, and some may suggest that a study or strategy be developed to understand the customer concern. Exhibit 3 illustrates the four business information dimensions used in this study, listed in order from the most strategic to the most operational, with the most strategic information dimension being the CSFs, which come from the business unit strategic plans.

**METHODOLOGY**

We prepared a planning template constructed with four information matrices and paired information dimensions, empty of data. We primed the rows and columns of each matrix with preliminary information from corporate documents, databases, and human sources. The CSFs columns came from the corporate strategic plan; the business processes and information systems were extracted from IT
Because we are interested in perceived information quality, detailed knowledge of data or processes is not necessary.

1. Key management-level personnel from each business unit are identified and contacted to collect IT alignment information, including the information needs of and major systems important to that unit. This information is used to prepare a template IT alignment roadmap and an information quality survey.

2. The Information Quality Assessment Survey is administered electronically to managerial-level personnel for each business unit. The three surveys and approximately 700 questions is administered using an electronic data collection tool, used to improve accuracy and speed. The questions are jointly designed by the IT and users, grouped together, and are both quick and easy to answer — with discrete scales (e.g., radio buttons with low-medium-high-N/A, or Likert scales). All questions on the three surveys can be completed in about 90 minutes, with the first survey taking slightly longer to complete than the other two. The survey results are plotted in four $2 \times 2$ matrices, using color to indicate missing (black), inadequate (red), marginal (yellow), or adequate (green) information. Managers can view information quality trends in color; for example, a predominantly green chart indicates the business unit perceives it is receiving adequate information and a predominantly red chart indicates inadequate information.

3. Based on perceived importance of the information the managers receive, the survey results are stratified in three categories: high importance, medium importance, and low importance. Those areas receiving the highest importance and the lowest quality scores comprise the gaps, and are grouped into information concerns. These information concerns are presented to the business unit managers for verification and prioritization.

4. Based on the results of the survey analysis and the business unit verification, both IT and the business units jointly identify possible solutions for the top information concerns. Solutions may include (1) strategies, such as studies, plans, tasks; (2) new projects, such as major product acquisitions, process reengineering efforts, or enhancements of existing systems; and (3) systems, such as new or acquired systems specifically designed to address information issues. The IT alignment participants then estimate budget, cost/benefit, schedule, and resource requirements, and assign priority to the solutions. Later, business cases will be developed for those solutions highest in priority.

**INFORMATION QUALITY MATRICES**

IQ scores collected from management were recorded in four information quality matrices: (1) Matrix A: Business Processes to CSFs, (2) Matrix B: Information Needs to CSFs, (3) Matrix C: Business Processes to IT Systems or Products, and (4) Matrix D: Information Needs to IT Systems or Products.

1. **Matrix A: Business Processes to CSFs.** This matrix represents the highest strategic level of inquiry. Managers are responsible for all or part of one or more processes. They may also be assigned to perform one or more CSFs. Management was asked to assess the information quality they receive as they perform a process and as they satisfy the CSF.

2. **Matrix B: Information Needs to CSFs.** Every manager has information needs, which can be assessed individually. Assessing how that information need is served in the performance of a specific CSF gives focus to the issue and serves as the basis for user-directed discussion.

3. **Matrix C: Business Processes to IT Systems or Products.** Managers and their employees are clients of IT and users of IT systems and other products. Managers were provided with a list of IT systems and products they have identified as important to them. Managers were asked to assess the quality of information they receive from these systems...
Examine the IQ of information needs and business processes provided an information quality view of information requirements from a job function perspective through to a business process perspective.

ASSIGNING AN INFORMATION QUALITY SCORE TO A QUESTION

During data collection, respondents were asked to assess the quality of information they receive as they perform their jobs. If they receive the “right” information to make the best decisions or the “right” information to do their job, then the information quality is adequate. Detailed knowledge of neither the delivery technology nor the information origin is necessary. They were asked to use their own perceptions of information quality, reflecting their own job needs, point of view, and best judgment.

Respondents went through a two-stage assessment process to score an item. First, the information had to be important to them in the performance of their job. If it was not, they skipped the question and it received the default N/A. Second, if the information was important, they assessed the information quality with a score of 3, 2, 1, or 0. IQ scores collected from management were recorded in the four Information Quality Matrices described previously. IT alignment was color coded. Also, for ease of recognizing IT systems and products, we used color coding for the various stages of the development process.

RESULTS

Assessing the information quality (IQ) of the CSFs and the IT products/systems provided an information quality view from strategic down through the operational levels of the organization. Examining the IQ of information needs and business processes provided an information quality view of information requirements from a job function perspective through to a business process perspective.

As a result, strategic thinking at all levels of management increased. The process supported the development of strategic IT plans for individual business units, and helped identify new solutions by examining information needs from multiple perspectives of strategy, business processes, information needs, and operational performance. It elevated information quality awareness to a strategic level and enhanced IT infrastructure planning. The alignment planning process resulted in the IT highest customer satisfaction ratings since measurement of customer satisfaction began. It facilitated a corporate wide view of corporate strategies, CSFs, projects, information needs, IT resources, IT issues and concerns, candidate IT solutions, and IT priorities.

LIMITATIONS

The sheer number of individuals involved and the data collected during the IT alignment planning process were daunting. Not surprisingly, the several meetings we required of each participating manager sometimes encountered resistance or lack of enthusiasm in some client business units. In two of these units, meeting together to collect data as a group simply did not work well, requiring that we collect data from some managers individually and with an online questionnaire. This individual attention doubled the data collection time window, from our scheduled two months to four months. However, once we processed the data, all managers with whom we validated our findings exhibited interest and enthusiasm, especially because this validation prioritized their own unit’s IT projects and services side-by-side the projects and service demands of competing units.

Despite the successful pilot study with a major business unit, other units initially resisted because the pilot took eight months to develop, despite our having developed a streamlined version. The vice president of the pilot unit championed the process; and with the support of the company president, all units eventually participated. Immediate and full participation would have greatly sped up the process.

Medium to large companies may benefit from the alignment planning process described in this article. However, the process is designed to accommodate multiple, large business units, and would need modification for small companies.

CONCLUSIONS

The IT alignment planning process was a successful four-year activity that initially involved a
pilot implementation and then a companywide implementation of that IT alignment planning process. We summarize the benefits the company received in Exhibit 4. After taking the five company divisions through the IT alignment planning process, we achieved corporatewide alignment of the business unit goals and associated IT with the IT unit goals and priorities. In addition, we created a uniform and consistent decision tool and a capital budgeting tool for proposing, evaluating, and measuring IT projects across the corporation.

Designed to be flexible and to dovetail with corporate strategic planning processes, IT alignment planning achieved acknowledgment and approval in all divisions of the company. This model provided an intuitive color-coded* alternative to reams of statistics, and teamed IT managers with non-IT managers. Non-IT perceptions of “not good enough information” called attention to problems that had not been previously addressed. The products of this planning activity, together with a high level of user satisfaction, were shared throughout the company. We found that the IT alignment planning process improved and facilitated communication on IT and IT projects throughout the company — from the executive level to the operational level — and brought the IT and client units closer together.

Acknowledgment
The authors wish to acknowledge and express their gratitude to senior and middle management of OPPD and, in particular, our friend Verlyn Kroon, the division manager of IT, with whom we jointly conceived of this process and who sponsored its development and implementation. ▲

References

* The authors would be happy to e-mail the color figure images for this article in Adobe .PDF format. Because this model depends on color for visual cues and interpretation (e.g., red = inadequate, yellow = fair, green = adequate), seeing the figures in color as they are used in the corporate environment can be revealing. A mass of red on an information quality matrix is usually not a good sign, while a mass of green usually is.

EXHIBIT 4 Major Results and Benefits of the IT Alignment Planning Process

Aligns corporate and client business goals with IT
Creates a decision and capital budgeting tool for IT projects across the corporation
Develops IT vision integrated with business goals and critical success factors
Facilitates executive-level understanding and communication on IT across the company
Helps improve operational IT support of clients while addressing long-term client needs
Brings IT and client closer together

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