Communications of the Association for Information Systems

Volume 4 Article 14

December 2000

Assessing Business-IT Alignment Maturity

Jerry Luftman
Stevens Institute of Technology

Communications of the Association for Information Systems

Volume 4, Article 14
December 2000

ASSESSING BUSINESS-IT ALIGNMENT MATURITY

Jerry Luftman
School of Management
Stevens Institute of Technology

jluftman@stevens-tech.edu

STRATEGY

ASSESSING BUSINESS-IT ALIGNMENT MATURITY

Jerry Luftman
School of Management
Stevens Institute of Technology

jluftman@stevens-tech.edu

ABSTRACT

Strategic alignment focuses on the activities that management performs to achieve cohesive goals across the IT (Information Technology) and other functional organizations (e.g., finance, marketing, H/R, manufacturing). Therefore, alignment addresses both how IT is in harmony with the business, and how the business should, or could be in harmony with IT. Alignment evolves into a relationship where the function of IT and other business functions adapt their strategies together. Achieving alignment is evolutionary and dynamic. It requires strong support from senior management, good working relationships, strong leadership, appropriate prioritization, trust, and effective communication, as well as a thorough understanding of the business and technical environments. Achieving and sustaining alignment demands focusing on maximizing the enablers and minimizing the inhibitors that cultivate alignment. The strategic alignment maturity assessment provides organizations with a vehicle to evaluate these activities. Knowing the maturity of its strategic choices and alignment practices make it possible for a firm to see where it stands and how it can improve. This paper discusses an approach for assessing the maturity of the business-IT alignment. Once maturity is understood, an organization can identify opportunities for enhancing the harmonious relationship of business and IT.

Keywords: Alignment of IT plans with business plans, IT strategic planning, IT management, information technology impact, organizational strategies, enabling and inhibiting activities.

I. INTRODUCTION

Business-IT alignment refers to applying Information Technology (IT) in an appropriate and timely way, in harmony with business strategies, goals and needs. It is still a fundamental concern of business executives. This definition of alignment addresses:

1. how IT is aligned with the business, and
2. how the business should or could be aligned with IT.

Mature alignment evolves into a relationship where IT and other business functions adapt their strategies together. When discussing business-IT alignment, terms like harmony, linkage, fusion, and integration are frequently used synonymously with the term alignment. It does not matter whether one considers business-IT alignment or IT-business alignment; the objective is to ensure that the organizational strategies adapt harmoniously.

The evidence that IT has the power to transform whole industries and markets is strong. (e.g., King, 1995; Luftman, 1996; Earl 1993; Earl, 1996; Luftman et. al., 1993; Goff, 1993; Liebs, 1992; Robson, 1994; Luftman, Papp, Brier, 1999; Luftman, Brier, 1999). Important questions that need to be addressed include the following:

- How can organizations assess alignment?
- How can organizations improve alignment?
- How can organizations achieve mature alignment?

The purpose of this paper is to present an approach for assessing the maturity of a firm's business-IT alignment. Until now, none was available. The alignment maturity assessment approach described in this paper provides a comprehensive vehicle for organizations to evaluate business-IT alignment in terms of where they are and what they can do to improve alignment. The maturity assessment applies the previous research that identified enablers/inhibitors to achieving alignment (Luftman, Papp, & Brier, 1995; Luftman & Brier, 1999), and the author's consulting experience that applied the methodology that leverages the most important enablers and inhibitors as building blocks for the evaluation. The maturity assessment is also based on the popular work done by the Software Engineering Institute (Humphrey, 1988), Keen's reach and range (Keen 1996) and an evolution of the Nolan and Gibson stages of growth (Nolan 1979).

This paper, after the Introduction, is divided into six sections. They are:

1. Why Alignment Is Important – presents some of the earlier work that was applied in creating the strategic alignment maturity assessment method. This research, along with the author's consulting experience, led to the strategic alignment maturity assessment method.
2. The Strategic Alignment Maturity Assessment Description – explains the essential components of the maturity assessment.
3. The Six Strategic Alignment Maturity Criteria - illustrates each of the six criteria that are evaluated in deriving the level of strategic alignment maturity. Examples from many of the previously conducted assessments are included.
4. Conducting a Strategic Alignment Maturity Assessment – describes the process applied in carrying out an evaluation. This section ties the respective assessment metrics together. Along with the examples in the Appendix, the last section served as the vehicle for validating the model.

5. Conclusions – summarizes the strategic alignment maturity assessment research, to date
6. Appendices
   - A - Strategic Alignment Maturity Assessment Experiences – highlights the experiences with 25 Fortune 500 companies that participated in the initial strategic alignment maturity assessments. It also includes summaries of six assessments of Fortune 200 companies and a large university.
   - B - The Five Levels of Strategic Alignment Maturity – describes each of the five levels of strategic alignment maturity.

II. WHY ALIGNMENT IS IMPORTANT

Alignment's importance has been well known and well documented since the late 1970's (e.g., McLean & Soden, 1977; IBM, 1981; Mills, 1986; Parker & Benson, 1988; Brancheau & Whetherbe 1987; Dixon & Little, 1989; Niederman et al., 1991; Chan & Huff, 1993; Henderson, J., & Venkatraman, N. 1996; Luftman & Brier, 1999). Over the years, it persisted among the top-ranked concerns of business executives. Alignment seems to grow in importance as companies strive to link technology and business in light of dynamic business strategies and continuously evolving technologies (Papp, 1995; Luftman, 1996). Importance aside, what is not clear is how to achieve and sustain this harmony relating business and IT, how to assess the maturity of alignment, and what the impact of misalignment might be on the firm (Papp & Luftman 1995). The ability to achieve and sustain this synergistic relationship is anything but easy. Identifying an organization's alignment maturity provides an excellent vehicle for understanding and improving the business-IT relationship.

Alignment continues in importance today as companies strive to link technology and business (Papp, 1995, Luftman, 1996, Luftman & Brier, 1999). Alignment addresses both

- doing the right things (effectiveness), and
- doing things right (efficiency).

In recent years, a great deal of research and analysis focused on the linkages between Business and IT (Luftman, Papp, & Brier 1995; Luftman & Brier 1999; Luftman, 1996; Earl, 1993; Henderson, Thomas & Venkatraman, 1992,), the role of partnerships between IT and business management (Keen, 1996; Ives, Jarvenpaa, & Mason, 1993) and the need to understand the transformation of business strategies resulting from the competitive use of IT (Boynton, Victor, & Pine, 1996; Davidson, 1996). Firms need to change not only their business scope, but also their infrastructure as a result of IT innovation (Keen, 1991; Foster, 1986; Weill & Broadbent, 1998). Much of this research, however, was conceptual. Empirical studies of alignment (Henderson & Thomas, 1992; Broadbent & Weill, 1993; Chan & Huff, 1993; Baets, 1996) examined a single industry and/or firm. Conclusions from such empirical studies are potentially biased and may not be applicable to other industries. It was the lack of consistent results across industries, across functional position, and across time that was the impetus for defining a vehicle for assessing business – IT alignment maturity.

The components of the strategic alignment model are shown in Figure 1, which is reproduced from Luftman, 1996. It is the relationships that exist among the twelve components of this model that further define business-IT alignment. The components of this model, in concert with the enablers/inhibitors research (Luftman et al., 1999), form the building blocks for the strategic alignment maturity assessment method. Aligning these components focuses on the activities that management performs to achieve cohesive goals across the information technology and other functional organizations (e.g., finance, marketing, H/R, manufacturing). Therefore, alignment addresses both how IT is in harmony with the business, and how the business should, or could be in

harmony with IT. Alignment maturity evolves into a relationship where the function of IT and other business functions adapt their strategies together. Achieving alignment is evolutionary and dynamic. IT requires strong support from senior management, good working relationships, strong leadership,

I. BUSINESS STRATEGY

1. Business Scope – Includes the markets, products, services, groups of customers/clients, and locations where an enterprise competes as well as the competitors and potential competitors that affect the business environment.
2. Distinctive Competencies – The critical success factors and core competencies that provide a firm with a potential competitive edge. This includes brand, research, manufacturing and product development, cost and pricing structure, and sales and distribution channels.
3. Business Governance – How companies set the relationship between management, stockholders, and the board of directors. Also included are how the company is affected by government regulations, and how the firm manages its relationships and alliances with strategic partners.

II. ORGANIZATION INFRASTRUCTURE & PROCESSES

4. Administrative Structure – The way the firm organizes its businesses. Examples include central, decentral, matrix, horizontal, vertical, geographic, federal, and functional.
5. Processes - How the firm's business activities (the work performed by employees) operate or flow. Major issues include value added activities and process improvement.
6. Skills – H/R considerations such as how to hire/fire, motivate, train/educate, and culture.

III. IT STRATEGY

7. Technology Scope - The important information applications and technologies.
8. Systemic Competencies - Those capabilities (e.g., access to information that is important to the creation/achievement of a company's strategies) that distinguishes the IT services.
9. IT Governance - How the authority for resources, risk, conflict resolution, and responsibility for IT is shared among business partners, IT management, and service providers. Project selection and prioritization issues are included here.

IV. IT INFRASTRUCTURE AND PROCESSES

10. Architecture -The technology priorities, policies, and choices that allow applications, software, networks, hardware, and data management to be integrated into a cohesive platform.
11. Processes - Those practices and activities carried out to develop and maintain applications and manage IT infrastructure.

12. Skills – IT human resource considerations such as how to hire/fire, motivate, train/educate, and culture.

FIGURE 1. The Twelve Components of Alignment

appropriate prioritization, trust, and effective communication, as well as a thorough understanding of the business and technical environments. Achieving and sustaining alignment demands focusing on maximizing the enablers and minimizing the inhibitors that cultivate the integration of IT and business.

The strategic alignment maturity assessment provides organizations with a vehicle to evaluate these activities. Knowing the maturity of its strategic choices and alignment practices make it possible for a firm to see where it stands and how it can improve. Once the maturity is understood, the assessment method provides the organization with a roadmap that identifies opportunities for enhancing the harmonious relationship of business and IT.

Several proposed frameworks assess the strategic issues of IT as a competitive weapon. They have not, however, yielded empirical evidence nor do they provided a roadmap to assess and enhance alignment. Numerous studies focus on business process redesign and reengineering (Rockart & Short, 1989; Davenport & Short 1990; Hammer & Champy, 1993; Hammer & Stanton, 1995) as a way to achieve competitive advantage with IT. This advantage comes from the appropriate application of IT as a driver or enabler of business strategy.

Alignment of IT strategy with the organization's business strategy is a fundamental principle advocated for over a decade (Robson, 1994; Rogers 1997; Rockart et al. 1996). IT investment has been increasing for years as managers are looking for ways to manage IT successfully and to integrate it into the organization's strategies. As a result, IT managers need to:

- be knowledgeable about how the new IT technologies can be integrated into the business as well as among the different technologies and architectures

- be privy to senior management's tactical and strategic plans
- be present when corporate strategies are discussed, and
- understand the strengths and weaknesses of the technologies in question and the corporate-wide implications (Rockart et. al, 1996)

While alignment is discussed extensively from a theoretical standpoint in the literature, there is scant empirical evidence regarding the appropriate route to take in aligning business and IT strategies.

As previously discussed, known enablers and inhibitors help and hinder alignment. Executives experience them daily. Anecdotal publications have described them (Wang, 1997). Research underway since 1992 (Luftman et al., 1999; Luftman et al., 1995) identified these trends. Analysis of the research data shows that the six most important enablers and inhibitors, in rank order are those shown in Table 1.

Table 1. Enablers and Inhibitors of Strategic Alignment (Luftman et. al, 1999)

	ENABLERS	INHIBITORS
1	Senior executive support for IT	IT/business lack close relationships
2	IT involved in strategy development	IT does not prioritize well
3	IT understands the business	IT fails to meet commitments
4	Business - IT partnership	IT does not understand business
5	Well-prioritized IT projects	Senior executives do not support IT
6	IT demonstrates leadership	IT management lacks leadership

What is striking about Table 1 is that the same topics (executive support, understanding the business, IT-business relations, and leadership) show up as both enablers and inhibitors.

III. STRATEGIC ALIGNMENT MATURITY ASSESSMENT

As the summary of the maturity assessment in Figure 2 illustrates, the model involves the following five levels of strategic alignment maturity:

1. Initial/Ad Hoc Process
2. Committed Process
3. Established Focused Process
4. Improved/Managed Process
5. Optimized Process

Each of the five levels of alignment maturity focuses, in turn, on a set of six criteria based on practice validated with an evaluation of 25 Fortune 500 companies. A summary of the evaluations is presented in Appendix A. The five levels of maturity are described in detail in Appendix B. The same criteria are used for each level of maturity.

The six IT-business alignment criteria are illustrated in Figure 3 and are described in the following section of this paper. These six criteria are:

1. Communications Maturity
2. Competency/Value Measurement Maturity
3. Governance Maturity
4. Partnership Maturity
5. Scope & Architecture Maturity
6. Skills Maturity

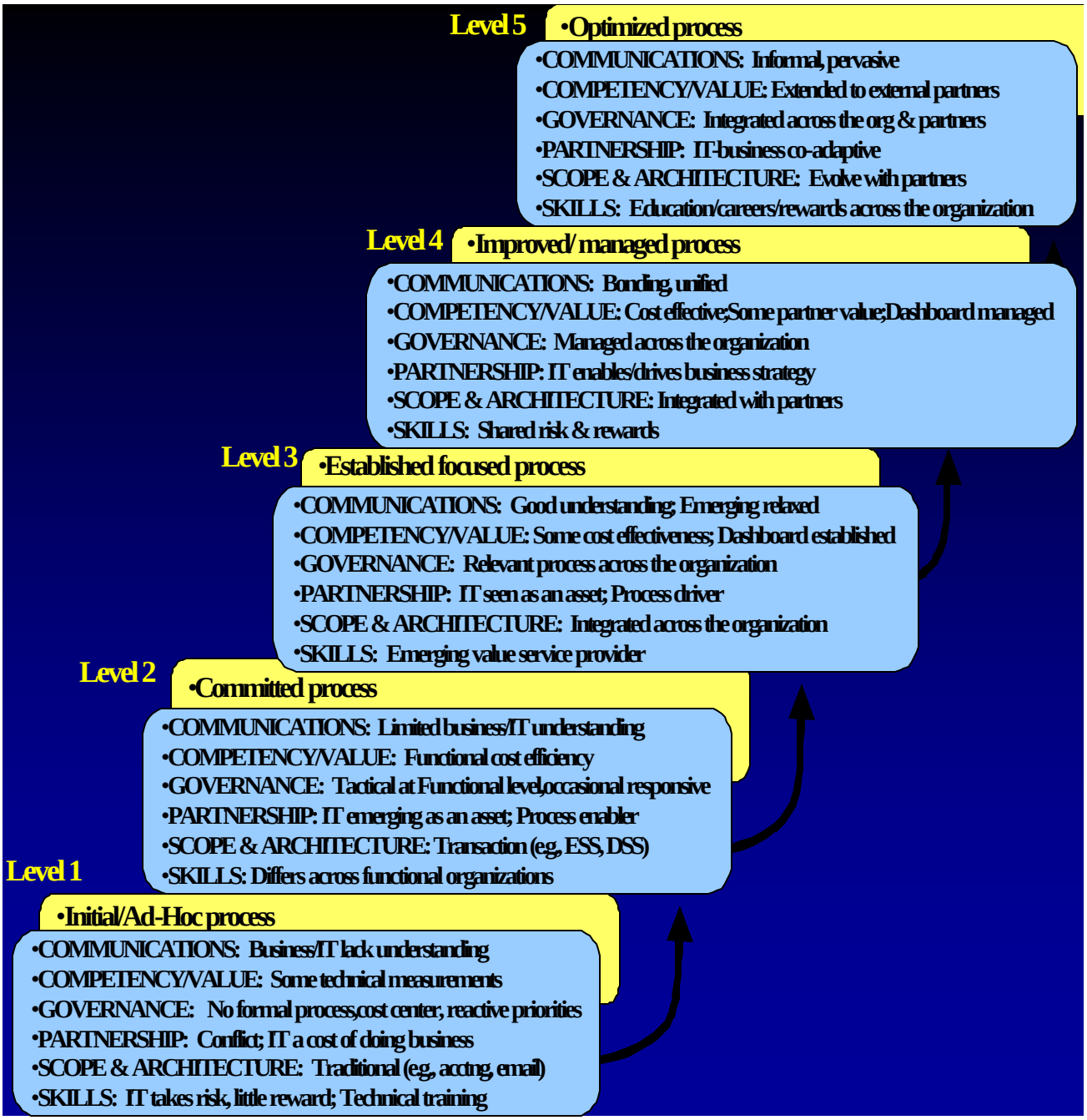

FIGURE 2 STRATEGIC ALIGNMENT MATURITY SUMMARY

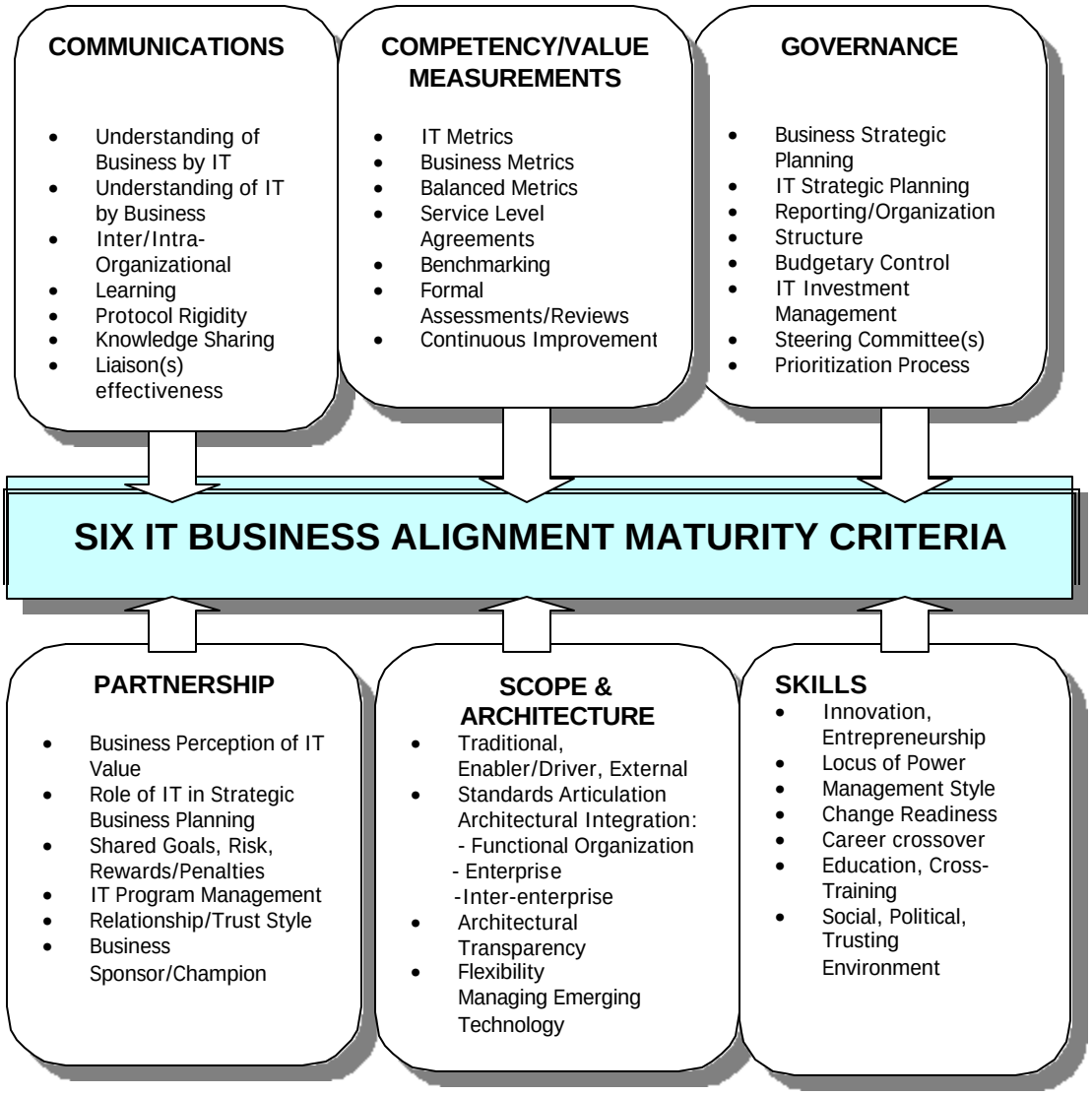

Figure 3. Alignment Maturity Criteria

The procedure for assessing maturity is as follows:

1. Each of the criteria is assessed individually by a team of IT and business unit executives to determine the firm's level of strategic maturity on this criterion. In other words, each of the six criteria is

found to be at either level 1, level two, level three, level four, or level five.

2. The evaluation team converges on a single assessment level for each of the six criteria. The discussions that ensue are extremely valuable in understanding both the current state of the organizations alignment maturity and how the organization can best proceed to improve the maturity.

3. The evaluation team, after assessing each of the six criteria from level one to five, uses the results to converge on an overall assessment level of the maturity for the firm. They apply the next higher level of maturity as a roadmap to identify what they should do next.

This conceptual framework (qualities and attributes) is described in Appendix B. The process of conducting a Strategic Alignment Maturity Assessment is described in more detail in Section V.

IV. THE SIX STRATEGIC ALIGNMENT MATURITY CRITERIA

This section describes each of the six criteria (illustrated in Figure 3) that are evaluated in deriving the level of strategic alignment maturity. Examples taken from actual assessment summaries illustrate the kinds of insights that can be identified. Appendix A includes a more complete description of seven of these studies, as well as the benchmark data attained thus far.

Most organizations today are at a level 2. This is similar to what has been found by the Carnegie software models that identifies the comparable stage of application development. Naturally, the objective of the Strategic Alignment Maturity model is to assess the organization at a higher stratum.

1. COMMUNICATIONS

Effective exchange of ideas and a clear understanding of what it takes to ensure successful strategies are high on the list of enablers and inhibitors to alignment. Too often there is little business awareness on the part of IT or little IT appreciation on the part of the business. Given the dynamic environment in which most organizations find themselves, ensuring ongoing knowledge sharing across organizations is paramount.

Many firms choose to draw on liaisons to facilitate this knowledge sharing. The key word here is facilitate. Often the author has seen facilitators whose role is to serve as the sole conduit of interaction among the different organizations. This approach tends to stifle rather than foster effective communications. Rigid protocols that impede discussions and the sharing of ideas should be avoided.

For example, a large aerospace company assessed its communications alignment maturity at level 2. Business-IT understanding is sporadic. The relationship between IT and the business function could be improved. Improving communication should focus on how to create the understanding of IT as a strategic business partner by the businesses it supports rather than simply a service provider. The firm's CIO made the comment that there is "no constructive partnership". However, in an interview with the firm's Director of Engineering & Infrastructure, he stated that he views his organization as a "strategic business partner". One way to improve communications and, more important, understanding would be to establish effective business function/IT liaisons that facilitate sharing of knowledge and ideas.

In a second case, a large financial services company's communication alignment maturity placed it in level 2 with some attributes of level 1. Business awareness within IT is through specialized IT business analysts, who understand and translate the business needs to other IT staff (i.e., there is limited awareness of business by general IT staff). Awareness of IT by the firm's business functions,

is also limited, although senior and mid-level management is aware of IT's potential. Communications are achieved through bi-weekly priority meetings attended by the senior and middle level management from both groups, where they discuss requirements, priorities and IT implementation.

In a third example, a large utility company's communication alignment maturity places it at a level 2-. Communications are not open until circumstances force the business to identify specific needs. There is a lack of trust and openness between some business units and their IT team. IT business partners tend to be bottlenecks in meeting commitments. Its poor performance in previous years left scars that have not healed.

2. COMPETENCY/VALUE MEASUREMENTS

Too many IT organizations cannot demonstrate their value to the business in terms that the business understands. Frequently business and IT metrics of value differ. A balanced "dashboard" that demonstrates the value of IT in terms of contribution to the business is needed.

Service levels that assess IT's commitments to the business often help. However, the service levels have to be expressed in terms that the business understands and accepts. The service levels should be tied to criteria (see subsection 4. Partnership) that clearly define the rewards and penalties for surpassing or missing the objectives.

Frequently organizations devote significant resources to measuring performance factors. However, they spend much less of their resources on taking action based on these measurements. For example, an organization that requires an ROI before a project begins, but that does not review how well objectives were met after the project was deployed provides little to the organization. It is important to assess these criteria to understand (1) the factors

that lead to missing the criteria and (2) what can be learned to improve the environment continuously.

For example, a large aerospace company assessed its competency/value measurement maturity to be at a level 2. IT operates as cost center. IT metrics are focused at the functional level, and Service Level Agreements (SLAs) are technical in nature. One area that could help to improve maturity would be to add more business-related metrics to SLAs to help form more of a partnership between IT and the business units. Periodic formal assessments and reviews in support of continuous improvement would also be beneficial.

A large software development company assessed its competency/value measurement maturity at level 3. Established metrics evaluate the extent of service provided to the business functions. These metrics go beyond basic service availability and help desk responsiveness, evaluating such issues as end-user satisfaction and application development effectiveness. The metrics are consolidated on to an overall dashboard. However, because no formal feedback mechanisms are in place to react to a metric, the dashboard cannot be considered to be managed.

At a large financial services company, IT competency/value was assessed at a level 2 because they use cost efficiency methods within the business and functional organizations. Balanced metrics are emerging through linked business and IT metrics, and a balanced scorecard is provided to senior management. Service level agreements are technical at the functional level. Benchmarking is not generally practiced and is informal in the few areas where it is practiced. Formal assessments are done typically for problems and minimum measurements are taken after the assessment of failures.

3. GOVERNANCE

The considerations for IT governance were defined briefly in Figure 1. They are expanded in Luftman and Brier (1999). Ensuring that the appropriate business and IT participants formally discuss and review the priorities and allocation of IT resources is among the most important enablers/inhibitors of alignment. This decision-making authority needs to be clearly defined.

For example, IT governance in a large aerospace company is tactical at the core business level and not consistent across the enterprise. For this reason, they reported a level 2 maturity assessment. IT can be characterized as reactive to CEO direction. Developing an integrated enterprise-wide strategic business plan for IT would facilitate better partnering within the firm and would lay the groundwork for external partnerships with customers and suppliers.

A large communications manufacturing company assessed its governance maturity at a level falling between 1 and 2. IT does little strategic planning because it operates as a cost center and, therefore, cost reduction is a key objective. In addition, priorities are reactive to business needs as business manager's request services.

A large computing services company assessed their governance maturity at a level 1+. A strategic planning committee meets twice a year. The committee consists of corporate top management with regional representation. Topics or results are not discussed nor published to all employees. The reporting structure is federated with the CIO reporting to a COO. IT investments are traditionally made to support operations and maintenance. Regional or corporate sponsors are involved with some projects. Prioritization is occasionally responsive.

4. PARTNERSHIP

The relationship that exists between the business and IT organizations is another criterion that ranks high among the enablers and inhibitors. Giving the IT

function the opportunity to have an equal role in defining business strategies is obviously important. However, how each organization perceives the contribution of the other, the trust that develops among the participants, ensuring appropriate business sponsors and champions of IT endeavors, and the sharing of risks and rewards are all major contributors to mature alignment. This partnership should evolve to a point where IT both enables AND drives changes to both business processes and strategies. Naturally, this demands having a good business design where the CIO and CEO share a clearly defined vision.

For example, a large software development company assessed their partnership maturity at a level of 2. The IT function is mainly an enabler for the company. IT does not have a seat at the business table, either with the enterprise or with the business function that is making a decision. In the majority of cases, there are no shared risks because only the business will fail. Indications are that the partnership criterion will rise from a level 2 to 3 as top management sees IT as an asset, and because of the very high enforcement of standards at the company.

Partnership for a large communications manufacturing company was assessed at level 1. IT is perceived as a cost of being in the communications business. Little value is placed on the IT function. IT is perceived only as help desk support and network maintenance.

For a large utility company, partnership maturity was assessed at a level of 1+. IT charges back all expenses to the business. Most business executives see IT as a cost of doing business. There is heightened awareness that IT can be a critical enabler to success, but there is minimal acceptance of IT as a partner.

Partnership for a large computing services company was assessed at level 2. Since the business executives pursued e-commerce, IT is seen as a

business process enabler as demonstrated by the Web development,. Unfortunately, the business now assigns IT with the risks of the project. Most IT projects have an IT sponsor.

5. SCOPE AND ARCHITECTURE

This set of criteria tends to assess information technology maturity. The extent to which IT is able to:

- go beyond the back office and the front office of the organization
- assume a role supporting a flexible infrastructure that is transparent to all business partners and customers
- evaluate and apply emerging technologies effectively
- enable or drive business processes and strategies as a true standard
- provide solutions customizable to customer needs

Scope and Architecture was assessed at a level of 2+ at a large software development company. This is another area where the company is moving from a level 2 to a level 3. ERP systems are installed and all projects are monitored at an enterprise level. Standards are integrated across the organization and enterprise architecture is integrated. It is only in the area of Inter-enterprise that there is no formal integration.

A large financial services company assessed their scope and architecture at level 1. Although standards are defined, there is no formal integration across the enterprise. At best, only functional integration exists.

6. SKILLS

Skills were defined in Figure 1. They include all of the human resource considerations for the organization. Going beyond the traditional considerations such as training, salary, performance feedback, and career opportunities, are

factors that include the organization's cultural and social environment. Is the organization ready for change in this dynamic environment? Do individuals feel personally responsible for business innovation? Can individuals and organizations learn quickly from their experience? Does the organization leverage innovative ideas and the spirit of entrepreurship? These are some of the important conditions of mature organizations.

For example, a large aerospace company assesses their skills maturity at a level 2. A definite command and control management style exists within IT and the businesses. Power resides within certain operating companies. Diverse business cultures abound. Getting to a non-political, trusting environment between the businesses and IT, where risks are shared and innovation and entrepreneurship thrive, is essential to achieve improvements in each of the other maturity tenets.

Skills maturity at a large computing services company is assessed at a level of 1. Career crossover is not encouraged outside of top management. Innovation is dependent on the business unit, but in general is frowned upon. Management style is dependent on the business unit, but is usually command and control. Training is encouraged but left up to the individual employee.

V. CONDUCTING A STRATEGIC ALIGNMENT MATURITY ASSESSMENT

An essential part of the assessment process is recognizing that it must be done with a team including both business and IT executives. The convergence on a consensus of the maturity levels and the discussions that ensue are extremely valuable in understanding the problems and opportunities that need to be addressed to improve business-IT alignment. The most important part of the process is the creation of recommendations addressing the problems and opportunities identified. The most difficult step, of course, is actually carrying out

the recommendations. This section ties the assessment metrics together. The examples and experiences provided in Appendix A, together with the procedure described here, served as the vehicle for validating the model.

Each of the criteria and levels are described by a set of attributes that allow a particular dimension to be assessed using a 1 to 5 Likert scale, where:

1 = this does not fit the organization, or the organization is very ineffective

2 = low level of fit for the organization

3 = moderate fit for the organization, or the organization is moderately effective

4 = this fits most of the organization

5 = strong level of fit throughout the organization, or the organization is very effective

Different scales can be applied to perform the assessment (e.g., good, fair, poor; 1, 2, 3). However, whatever the scale, it is important to evaluate each of the six criteria with both business and IT executives to obtain an accurate assessment. The intent is to have the team of IT and business executives converge on a maturity level. Typically, the initial review will produce divergent results. This outcome is indicative of the problems/opportunities being addressed.

The relative importance of each of the attributes within the criteria may differ among organizations. For example, in some organizations the use of SLAs (Service Level Agreements) might not be considered as important to alignment as the effectiveness of liaisons. Hence, giving SLAs a low maturity assessment should not significantly impact the overall rating in this case. However, it would be valuable if the group discusses why the organization does not consider a particular attribute (in this example, SLAs) to be significant.

Using a Delphi approach with a Group Decision Support Tool (Luftman, 1997) often helps in attaining the convergence. The author's experience suggests that "discussions" among the different team members helps to ensure a clearer understanding of the problems and opportunities that need to be addressed.

Keep in mind that the primary objective of the assessment is to identify specific recommendations to improve the alignment of IT and the business. The evaluation team, after assessing each of the six criteria from level one to five, uses the results to converge on an overall assessment level of the maturity for the firm. They apply the next higher level of maturity as a roadmap to identify what they should do next. A trained facilitator is typically needed for these sessions.

Experience with 25 Fortune 500 companies indicates that over 80 percent of the organizations are at Level 2 maturity with some characteristics of Level 3 maturity. Figure 4 (including parts A through F) in Appendix A illustrates the "average" results of the Strategic Alignment Maturity assessments for these 25 companies. These results are the start of a Strategic Alignment Maturity Assessment benchmark repository. As the sample grows, it is anticipated that exemplar benchmarks based on factors such as industry, company age, and company size will be available. The figure shows the maturity attributes for each of the six maturity components. Figure 4 (without the average numbers) can be used as the basis for determining an organizations maturity level.

The specific results of the maturity assessment for seven firms are also included in Figure 4. Keep in mind that the results of these maturity assessments were not the principal objective of this exercise. Rather, the goal is to provide the firm with specific insights regarding what it can do to improve the maturity level and thereby improving IT-business strategic alignment.

STRATEGIC ALIGNMENT AS A PROCESS

The approach applied to attain and sustain business-IT alignment focuses on understanding the alignment maturity, and on maximizing alignment enablers and minimizing inhibitors. The process (Luftman & Brier 1999) includes the following six steps:

1. *Set the goals and establish a team*. Ensure that there is an executive business sponsor and champion for the assessment. Next, assign a team of both business and IT leaders. Obtaining appropriate representatives from the major business functional organizations (e.g., Marketing, Finance, R&D, Engineering) is critical to the success of the assessment. The purpose of the team is to evaluate the maturity of the business-IT alignment. Once the maturity is understood, the team is expected to define opportunities for enhancing the harmonious relationship of business and IT. Assessments range from three to twelve half-day sessions. The time demanded depends on the number of participants, the degree of consensus required, and the detail of the recommendations to carry out.

2. *Understand the business-IT linkage.* The Strategic Alignment Maturity Assessment is an important tool in understanding the business-IT linkage. The team evaluates each of the six criteria. A trained facilitator can be valuable in guiding the important discussions.

3. *Analyze and prioritize gaps.* Recognize that the different opinions raised by the participants are indicative of the alignment opportunities that exist. Once understood, the group needs to converge on a maturity level. The team must remember that the purpose of this step is to understand the activities necessary to improve the business-IT linkage. The gap between where the organization is today and where the team believes it needs to be are the gaps that need to be prioritized. Apply the next higher level of maturity as a roadmap to identify what can be done next.

4. *Specify the actions (project management).* Naturally, knowing where the organization is with regards to alignment maturity will drive what specific actions are appropriate to enhance IT-business alignment. Assign specific remedial tasks with clearly defined deliverables, ownership, timeframes, resources, risks, and measurements to each of the prioritized gaps.

5. *Choose and evaluate success criteria.* This step necessitates revisiting the goals and regularly discussing the measurement criteria identified to evaluate the implementation of the project plans. The review of the measurements should serve as a learning vehicle to understand how and why the objectives are or are not being met.

6. *Sustain alignment.* Some problems just won't go away. Why are so many of the inhibitors IT related? Obtaining IT-business alignment is a difficult task. This last step in the process is often the most difficult. To sustain the benefit from IT, an "alignment behavior" must be developed and cultivated. The criteria described to assess alignment maturity provides characteristics of organizations that link IT and business strategies. By adopting these behaviors, companies can increase their potential for a more mature alignment assessment and improve their ability to gain business value from investments in IT. Hence, the continued focus on understanding the alignment maturity for an organization and taking the necessary action to improve the IT-business harmony is key.

The research to derive the business-IT alignment maturity assessment has just begun. The author would appreciate hearing from practitioners, researchers, and consultants, as the strategic alignment process and the alignment maturity

assessment needed are applied. The intent is to enhance the alignment assessment tool and provide a vehicle to benchmark exemplar organizations.

VI. CONCLUSIONS

Achieving and sustaining IT-business alignment continues to be a major issue. Experience shows that no single activity will enable a firm to attain and sustain alignment. There are too many variables. The technology and business environments are too dynamic.

The strategic alignment maturity assessment provides a vehicle to evaluate where an organization is and where it needs to go to attain and sustain business-IT alignment. The careful assessment of a firm's alignment maturity is an important step in identifying the specific actions necessary to ensure IT is being used to appropriately enable or drive the business strategy. If you are interested in participating in the benchmarking of alignment maturity, please contact the author. The journey continues.

Editor's Note: This article was received on September 15, 2000 and was published on December 31, 2000.

REFERENCES

Baets, W. (1996) "Some Empirical Evidence on IS Strategy Alignment in Banking," *Information and Management*, Vol. 30:4, pp. 155-77.

Boynton, A., B. Victor, and B. Pine II, (1996) "Aligning IT With New Competitive Strategies" in J. N. Luftman (ed.) *Competing in the Information Age*, New York: Oxford University Press.

Brancheau, J., & Wetherbe, J. (1987) "Issues In Information Systems Management," *MIS Quarterly*, 11(1), 23-45.

Broadbent, M. and P. Weill (1993) "Developing Business and Information Strategy Alignment: A Study in the Banking Industry," *IBM Systems Journal*, (32), 1.

Chan, Y., and S. Huff (1993) "Strategic Information Systems Alignment," *Business Quarterly* (58),1 pp. 51-56.

Davenport, T., & Short, J. (1990). "The New Industrial Engineering: Information Technology and Business Process Redesign," *Sloan Management Review*, Vol. 31, No. 4, 11-27.

Davidson, W. (1996) "Managing the Business Transformation Process," in J. N. Luftman (ed.) *Competing in the Information Age* New York: Oxford University Press.

Dixon, P., & John, D. (1989). "Technology Issues Facing Corporate Management in the 1990s," *MIS Quarterly*, 13(3), 247-55.

Earl, M. J. (1993) *Corporate Information Systems Management* Homewood, Ill: Richard D. Irwin, Inc.

Earl, Michael J (1996). "Experience in Strategic Information Systems Planning," *MIS Quarterly*, 17(1), 1-24.

Faltermayer, E. (1994). "Competitiveness: How US Companies Stack Up Now," *Fortune*, 129(8), (April 18), 52-64.

Foster, R. (1986) *Innovation: The Attacker's Advantage* New York: Summit Books.

Goff, L. (1993). "You Say Tomayto, I Say Tomahto," *Computerworld*, (Nov. 1, 1993), page 129.

Hammer, M., & Champy, J. (1993). *Reengineering the Corporation: A Manifesto For Business Revolution*, New York: Harper Business.

Hammer, M., & Stanton, S. (1995). *The Reengineering Revolution*, New York: Harper Business.

Henderson, J., & Venkatraman, N. (1990). *Strategic Alignment: A Model For Organizational Transformation Via Information Technology*, Working Paper 3223-90, Cambridge, MA: Sloan School of Management, Massachusetts Institute of Technology.

Henderson, J., J. Thomas, and N. Venkatraman (1992) *Making Sense Of IT: Strategic Alignment and Organizational Context,* Working Paper 3475-92 BPS, Cambridge, MA: Sloan School of Management, Massachusetts Institute of Technology.

Henderson, J. and J. Thomas (1992) "Aligning Business and Information Technology Domains: Strategic Planning In Hospitals" *Hospital and Health Services Administrative*, 37(1), pp. 71-87.

Henderson, J., & Venkatraman, N. (1996). "Aligning Business and IT Strategies," in J. N. Luftman (ed.) *Competing in the Information Age: Practical Applications of the Strategic Alignment Model*, New York: Oxford University Press.

Humphrey, W.S., "Characterizing the Software Process: A Maturity Framework," IEEE Software, 1988 Vol. 5, No. 2, pp. 73-79.

IBM (1981) Business Systems Planning, Planning Guide, GE20-0527, White Plains, NY: IBM Corporation

Ives, B., S. Jarvenpaa, and R. Mason, (1993). "Global Business Drivers: Aligning Information Technology To Global Business Strategy," *IBM Systems Journal*, (32) 1, pp.143-161.

Keen, P. (1991). *Shaping the Future*, Boston, MA: Harvard Business School Press.

Keen, P. (1996). "Do You Need An IT Strategy?" in J. N. Luftman (ed.) *Competing in the Information Age,* New York, Oxford University Press.

King, J. (1995) "Re-engineering Focus Slips," *Computerworld*, March 13, 1995;

Liebs, S. (1992). "We're All In This Together," *Information Week*, October 26, 1992;

Luftman, J., Lewis, P., & Oldach, S. (1993). "Transforming the Enterprise: The Alignment of Business and Information Technology Strategies," *IBM Systems Journal*, 32(1), 198-221

Luftman, J., Papp, R., & Brier. T. (1995). " The Strategic Alignment Model: Assessment and Validation," In *Proceedings of the Information Technology Management Group of the Association of Management (AoM) 13th Annual International Conference*, Vancouver, British Columbia, Canada, August 2-5, 1995, 57-66.

Luftman, J. (1996). *Competing in the Information Age: Practical Applications of the Strategic Alignment Model*, New York: Oxford University Press;

Luftman, J. (1997). "Align in the Sand", Computerworld, February 17,1997.

Luftman, J. and Brier, T., (1999) "Achieving and Sustaining Business-IT Alignment," *California Management Review*, No. 1, Fall 1999, pp 109-122.

Luftman, J., Papp, R. Brier, T. (1999) "Enablers and Inhibitors of Business-IT Alignment," *Communications of the Association for Information Systems*, (1) 11.

McLean, E., & Soden, J., (1977). *Strategic Planning for MIS*, New York, John Wiley & Sons

Mills, P., (1986), *Managing Service Industries*, New York Ballinger;

Niederman,F.,Brancheau, J., and Wetherbe, J. (1991). "Information Systems Management Issues For the 1990s," *MIS Quarterly*, 15(4), 475-95.

Nolan, R.L. (1979), "Managing the Crises In Data Processing," Harvard Business Review, March 1, 1979.

Papp, R. (1995). *Determinants of Strategically Aligned Organizations: A Multi-industry, Multi-perspective Analysis*, (PhD Dissertation), Hoboken, New Jersey: Stevens Institute of Technology.

Papp, R., and Luftman, J. (1995). "Business and IT Strategic Alignment: New Perspectives and Assessments," In *Proceedings of the Association for Information Systems, Inaugural Americas Conference on Information Systems,* Pittsburgh, PA, August 25-27, 1995.

Parker, M., & Benson, R., (1988). *Information Economics*, Englewood Cliffs, New Jersey: Prentice-Hall.

Robson, W. (1994). *Strategic Management and Information Systems: An Integrated Approach*, London: Pitman Publishing.

Rockart, J., & Short, J. (1989). "IT in the 1990's: Managing Organizational Interdependence," *Sloan Management Review*, 30(2), 7-17

Rockart, J., Earl, M., and Ross, J. (1996). "Eight Imperatives for the New IT Organization". *Sloan Management Review*, (38)1, 43-55.

Rogers, L. (1997). "Alignment Revisited". *CIO Magazine*, May 15, 1997.

Wang, C. (1997). *Techno Vision II*, New York: McGraw-Hill.

Watson, R., & Brancheau, J. (1991). "Key Issues In Information Systems Management: An International Perspective," *Information & Management*, Vol. 20, pp. 213-23;

Weill, P., & Broadbent, M. (1998). "Leveraging the New Infrastructure", Harvard University Press.

APPENDIX A

STRATEGIC ALIGNMENT MATURITY ASSESSMENT EXPERIENCES

As of November 2000, formal assessments of 25 Fortune 500 firms have been completed. The last column in Figure 4 (A, B, C, D, E, and F) in this appendix illustrates the "average" evaluations (rated using a Likert scale) for the six criteria of the Strategic Alignment Maturity assessments for these 25 firms. The numbers are the average responses from all participants (e.g., IT, Finance, Marketing from all 25 firms) for each of the respective components of the six criteria. These results are the start of a Strategic Alignment Maturity Assessment benchmark repository. Future assessments will be included to provide exemplar benchmarks based on decisive factors such as industry, and company size.

Figure 4 (A, B, C, D, E, and F) in this appendix also includes the responses from six actual assessments of Fortune 200 companies and a large university. These seven assessments represent the average evaluations (rated using a Likert scale) that the multi functional group (e.g., IT, Finance, Marketing) from each of the firms identified. They are a subset of the twenty-five firms.

Typically, after getting the individual responses from the participants for their perception of the level of maturity for each of the six criteria, a discussion was facilitated to obtain consensus on the respective maturity level for each of the six criteria. In one case, a Delphi was used to derive the consensus. The maturity level at the bottom of each column represents the consensus for the respective group. Most of the examples used in the main part of this paper, especially in the section The Six Alignment Maturity Criteria, come from these seven firms. Figure 4 (without the average numbers) can be used as the basis for determining an organizations maturity level.

	7 Assessments Summarized							Initial
	1	2	3	4	5	6	7	25 Firms
UNDERSTANDING OF BUSINESS BY IT								
1. IT management not aware	3	3	1	3	2	1	0	2
2. Limited IT awareness	4	3	3	2	2	4	2	4
3. Senior and mid-management	2	1	3	1	1	2	5	3
4. Pushed down through organization	0	0	1	0	0	0	1	1
5. Pervasive	0	0	0	0	0	0	0	1
UNDERSTANDING OF IT BY BUSINESS								
1. Business management not aware	2	3	2	3	2	2	2	3
2. Limited business awareness	4	3	4	2	3	4	3	4
3. Emerging business awareness	1	1	1	0	0	1	2	1
4. Business aware of potential	0	0	0	0	0	0	0	1
5. Pervasive	0	0	0	0	0	0	0	0
INTER/INTRA-ORGANIZATIONAL LEARNING								
1. Casual, ad-hoc	3	2	2	3	2	1	0	4
2. Informal	3	4	3	2	3	4	5	4
3. Regular, clear	0	1	2	0	0	0	0	1
4. Unified, bonded	0	0	0	0	0	0	0	1
5. Strong and structured	0	0	0	0	0	0	0	0
PROTOCOL RIGIDITY								
1. Command and control	4	3	2	4	4	4	5	4
2. Limited relaxed	2	2	4	2	2	2	0	3
3. Emerging relaxed	0	0	1	0	0	1	0	1
4. Relaxed, informal	0	0	0	0	0	0	0	1
5. Informal	0	0	0	0	0	0	0	0
KNOWLEDGE SHARING								
1. Ad-hoc	1	2	1	2	1	0	1	
2. Semi structured	2	2	3	3	2	4	5	5
3. Structured around key processes	2	4	3	1	1	3	0	3
4. Institutionalized	0	0	0	0	0	1	0	1
5. Extra-enterprise	0	0	0	0	0	0	0	0
LIAISON(S) BREADTH / EFFECTIVENESS								
1. None or ad-hoc	4	2	1	2	1	1	1	2
2. Limited tactical technology based	1	2	3	3	4	4	4	4
3. Formalized, regular meetings	0	0	4	0	1	2	2	3
4. Bonded, effective at all internal levels	0	0	1	0	0	0	0	1
5. Extra-enterprise	0	0	0	0	0	0	0	0
MATURITY LEVEL	2	2	2	2	2	2	2	2+

Figure 4A. Communications

	7 Assessments Summarized							Initial
	1	2	3	4	5	6	7	25 Firms
IT METRICS								
1. Technical; Not related to business	4	2	1	5	3	4	5	5
2. Cost efficiency	3	3	4	4	4	4	5	4
3. Traditional financial	3	4	4	3	4	3	3	3
4. Cost effectiveness	1	3	2	1	1	0	0	2
5. Extended to external partners	0	1	1	0	0	0	0	1
BUSINESS METRICS								
1. Ad-hoc; Not related to IT	4	2	2	4	4	2	5	4
2. At the functional organization	3	3	3	4	4	4	4	4
3. Traditional financial	2	4	4	4	4	4	5	4
4. Customer based	0	3	1	1	1	1	0	3
5. Extended to external partners	0	1	1	1	0	0	0	2
BALANCED METRICS								
1. Ad-hoc metrics unlinked	3	2	0	1	3	3	4	3
2. Business and IT metrics unlinked	4	3	2	5	5	4	4	4
3. Emerging business and IT metrics linked	0	2	4	0	0	2	0	3
4. Business and IT metrics linked	0	0	1	0	0	0	0	1
5. Business, partners and IT metrics linked	0	0	0	0	0	0	0	1
SERVICE LEVEL AGREEMENTS								
1. Sporadically present	1	2	2	0	3	4	4	3
2. Technical at the functional level	5	3	5	5	4	2	3	4
3. Emerging across the enterprise	1	4	1	2	1	0	0	2
4. Enterprise wide	0	1	1	1	0	0	0	1
5. Extended to external partners	0	0	1	0	0	0	0	1
BENCHMARKING								
1. Not generally practiced	2	1	1	1	1	3	2	2
2. Informal	4	2	4	3	2	4	5	4
3. Focussed on specific processes	2	4	3	4	4	3	1	3
4. Routinely performed	2	3	1	2	3	1	0	2
5. Routinely performed with partners	1	1	0	1	1	0	0	1
FORMAL ASSESSMENTS/REVIEWS								
1. None	1	0	0	1	0	2	2	2
2. Some; Typically for problems	4	2	4	4	4	5	4	4
3. Emerging formality	2	3	2	3	4	1	0	2
4. Formally performed	2	3	1	1	2	0	0	1
5. Routinely performed	0	0	0	1	1	0	0	0
Continuous Improvement								
1. None	1	0	2	0	2	2	3	2
2. Minimum	3	2	3	3	3	3	3	3
3. Emerging	1	4	3	3	3	1	2	3
4. Frequently	1	1	1	2	2	0	0	2
5. Routinely performed	1	1	1	1	1	0	0	1
MATURITY LEVEL	2	3	2	2	2	2	2	2+

Figure 4B. Competency/Value Measurements

	7 Assessments Summarized							Initial
	1	2	3	4	5	6	7	25 Firms
BUSINESS STRATEGIC PLANNING								
1. Ad-hoc	3	1	1	4	2	1	2	3
2. Basic planning at the functional level	5	3	5	3	4	5	3	5
3. Some inter-organizational planning	2	2	2	1	2	3	1	2
4. Managed across the enterprise	0	1	1	0	1	0	0	1
5. Integrated across and outside the enterprise	0	0	0	0	0	0	0	0
IT STRATEGIC PLANNING								
1. Ad-hoc	3	1	1	4	5	4	4	3
2. Functional tactical planning	5	4	5	2	2	2	5	4
3. Focussed planning, some inter-organizational	2	4	4	1	1	1	1	4
4. Managed across the enterprise	0	1	1	1	0	0	0	1
5. Integrated across and outside the enterprise	0	0	0	0	0	0	0	0
REPORTING/ORGANIZATION STRUCTURE								
1. Central/Decentral; CIO reports to CFO	2	0	3	5	3	5	4	4
2. Central/Decentral; Some co-location; CIO reports to CFO	5	4	5	2	4	1	4	4
3. Central/Decentral; Some federation; CIO reports to COO	1	3	0	1	0	0	0	3
4. Federated; CIO reports to COO or CEO	0	4	0	0	0	0	0	2
5. Federated; CIO reports to CEO	0	2	0	0	0	0	0	2
BUDGETARY CONTROL								
1. Cost Center; Erratic spending	2	2	3	3	4	4	5	3
2. Cost Center by functional organization	5	5	5	5	3	1	3	5
3. Cost Center; Some investments	1	4	1	1	1	0	1	3
4. Investment Center	0	0	0	0	0	0	0	1
5. Investment Center; Profit Center	0	0	0	0	0	0	0	1
IT INVESTMENT MANAGEMENT								
1. Cost based; Erratic spending	4	2	3	5	5	5	5	4
2. Cost based; Operations and maintenance focussed	4	2	5	4	4	4	5	5
3. Traditional; Process enabler	1	4	2	2	1	1	4	3
4. Cost effectiveness; Process driver	0	0	1	0	0	0	0	1
5. Business value; Extended to business partners	0	0	0	0	0	0	0	0
STEERING COMMITTEE(S)								
1. Not formal/regular	2	2	2	4	4	4	2	2
2. Periodic organized communication	5	4	3	3	2	3	5	4
3. Regular clear communication	0	2	1	0	0	0	1	1
4. Formal effective committees	0	0	1	0	0	0	0	1
5. Partnership	0	0	0	0	0	0	0	0
Prioritization Process								
1. Reactive	4	2	3	5	4	4	5	4
2. Occasional responsive	4	4	5	3	2	2	2	4
3. Mostly responsive	1	4	2	0	0	0	0	3
4. Value add, responsive	0	1	0	0	0	0	0	1
5. Value added partner	0	1	0	0	0	0	0	0
MATURITY LEVEL	2	3	2	1+	1+	1	2	2+

Figure 4C. Governance

	7 Assessments Summarized							Initial
	1	2	3	4	5	6	7	25 Firms
BUSINESS PERCEPTION OF IT VALUE								
1. IT perceived as a cost of business	4	4	3	5	5	4	5	4
2. IT emerging as an asset	5	5	5	1	1	5	3	5
3. IT is seen as an asset	2	1	2	0	0	2	0	2
4. IT is part of the business strategy	1	0	1	0	0	0	0	1
5. IT business co-adaptive	0	0	0	0	0	0	0	0
ROLE OF IT IN STRATEGIC BUSINESS PLANNING								
1. No seat at the business table	2	5	3	5	5	5	5	4
2. Business process enabler	5	5	5	2	2	5	4	5
3. Business process driver	0	0	0	0	0	0	0	1
4. Business strategy enabler/driver	0	0	0	0	0	0	0	0
5. IT Business co-adaptive	0	0	0	0	0	0	0	0
SHARED GOALS, RISK, REWARDS/PENALTIES								
1. IT takes risk with little reward	5	5	3	5	5	5	4	4
2. IT takes most of the risk with little reward	4	5	5	2	2	4	3	5
3. Risk tolerant; IT some reward	1	0	1	0	0	0	3	1
4. Risk acceptance and rewards shared	0	0	0	0	0	0	0	0
5. Risk and rewards shared	0	0	0	0	0	0	0	0
IT PROGRAM MANAGEMENT								
1. Ad-hoc	2	1	1	1	2	2	4	2
2. Standards defined	5	5	5	4	4	3	4	4
3. Standards adhered	2	4	3	2	2	2	2	2
4. Standards evolved	2	3	3	2	0	0	0	2
5. Continuous improvement	0	0	1	0	0	0	0	0
RELATIONSHIP/TRUST STYLE								
1. Conflict/Minimum	3	3	3	4	4	4	4	3
2. Primarily transactional	4	4	5	3	3	4	5	4
3. Emerging valued service provider	2	3	3	0	0	0	0	2
4. Valued service provider	1	1	1	0	0	0	0	0
5. Valued partnership	1	0	0	0	0	0	0	0
BUSINESS SPONSOR/CHAMPION								
1. None	2	4	3	5	4	3	4	4
2. Limited at the functional organization	2	4	4	2	4	3	4	4
3. At the functional organization	4	2	3	0	0	0	4	3
4. At the HQ level	1	1	1	0	0	0	0	1
5. At the CEO level	1	1	0	0	0	0	0	1
MATURITY LEVEL	2	2	2	1	1+	2	2	2+

Figure 4D. Partnership

	7 Assessments Summarized							Initial
	1	2	3	4	5	6	7	25 Firms
TRADITIONAL, ENABLER/DRIVER, EXTERNAL								
1. Traditional (e.g., accounting, email)	2	2	3	4	2	4	5	2
2. Transaction (e.g., ESS, DSS)	2	3	4	3	3	2	2	3
3. Expanded scope (e.g., business process enabler)	5	4	3	2	4	0	0	4
4. Redefined scope (business process driver)	1	0	0	1	0	0	0	1
5. External scope; Business strategy driver/enabler	0	0	0	0	0	0	0	0
STANDARDS ARTICULATION								
1. None or ad-hoc	0	0	4	4	0	4	3	2
2. Standards defined	5	4	3	2	4	1	4	4
3. Emerging enterprise standards	4	3	1	3	4	0	1	3
4. Enterprise standards	3	3	0	0	3	0	0	1
5. Inter-enterprise standards	0	0	0	0	0	0	0	0
ARCHITECTURAL INTEGRATION:								
Functional Organization								
1. No formal integration	0	0	5	4	1	4	5	2
2. Early attempts at integration	3	3	2	2	2	3	1	5
3. Integrated across the organization	4	4	0	0	4	0	0	1
4. Integrated with partners	1	0	0	0	0	0	0	0
5. Evolved with partners	0	0	0	0	0	0	0	0
Enterprise								
1. No formal integration	1	2	5	5	1	4	4	3
2. Early attempts at integration	3	4	3	3	3	3	1	4
3. Standard enterprise architecture	4	3	2	1	4	1	1	3
4. Integrated with partners	1	1	0	0	0	0	0	0
5. Evolved with partners	0	0	0	0	0	0	0	0
Inter-Enterprise								
1. No formal integration	2	3	5	4	3	4	4	3
2. Early concept testing	4	3	2	2	3	1	0	3
3. Emerging with key partners	3	1	0	0	1	0	0	2
4. Integrated with key partners	2	0	0	0	0	0	0	1
5. Evolved with all partners	0	0	0	0	0	0	0	0
ARCHITECTURAL TRANSPARENCY, FLEXIBILITY								
1. None	2	2	3	5	4	4	3	4
2. Limited	4	4	5	2	4	4	4	4
3. Focussed on communications	5	3	2	3	3	1	2	3
4. Effective emerging technology management	3	2	0	2	2	0	0	2
5. Across the infrastructure	2	1	0	0	2	0	0	2
MATURITY LEVEL	3	2+	1	1	2+	1	1	2+

Figure 4E. Scope and Architecture

	7 Assessments Summarized							Initial
	1	2	3	4	5	6	7	25 Firms
INNOVATION, ENTREPRENEURSHIP								
1. Discouraged	3	3	4	3	4	5	3	4
2. Dependent on functional organization	4	5	5	4	5	3	4	3
3. Risk tolerant	1	2	0	0	1	1	2	2
4. Enterprise, partners, and IT managers	0	0	0	0	0	0	0	1
5. The norm	0	0	0	0	0	0	0	0
LOCUS OF POWER								
1. In the business	3	2	4	2	2	5	3	3
2. Functional organization	4	4	2	4	4	2	4	4
3. Emerging across the organization	4	2	0	1	1	1	1	2
4. Across the organization	0	0	0	0	0	0	0	1
5. All executives, including CIO and partners	0	0	0	0	0	0	0	0
MANAGEMENT STYLE								
1. Command and control	5	3	4	3	4	4	3	4
2. Consensus-based	2	4	2	3	3	1	2	3
3. Results based	1	2	2	2	2	1	3	2
4. Profit/value based	0	0	0	1	0	0	0	1
5. Relationship based	0	0	0	0	0	0	0	0
CHANGE READINESS								
1. Resistant to change	4	4	5	3	4	4	3	4
2. Dependent on functional organization	4	5	1	5	4	3	4	4
3. Recognized need for change	2	2	1	2	2	2	4	2
4. High, focused	0	0	0	0	0	0	1	0
5. High, focused	0	0	0	0	0	0	0	0
CAREER CROSSOVER								
1. None	2	1	5	2	1	4	3	3
2. Minimum	5	5	3	5	4	2	4	4
3. Dependent on functional organization	1	3	2	1	3	2	1	2
4. Across the functional organization	0	0	0	0	0	0	0	0
5. Across the enterprise	0	0	0	0	0	0	0	0
EDUCATION, CROSS-TRAINING								
1. None	3	2	1	1	3	4	4	3
2. Minimum	4	4	5	4	4	2	4	4
3. Dependent on functional organization	4	4	4	2	4	2	3	3
4. At the functional organization	0	0	0	0	0	0	1	1
5. Across the organization	0	0	0	0	0	0	0	0
SOCIAL, POLITICAL, TRUSTING ENVIRONMENT								
1. Minimum	3	3	4	2	2	4	3	4
2. Primarily transactional	4	4	3	3	3	1	4	3
3. Emerging valued service provider	3	3	1	0	2	0	3	3
4. Valued service provider	0	0	0	0	0	0	0	1
5. Valued partnership	0	0	0	0	0	0	0	0
MATURITY LEVEL	2	2	1	2	2	1	2+	2

Figure 4F. Skills

APPENDIX B

THE FIVE LEVELS OF STRATEGIC ALIGNMENT MATURITY

This appendix describes each of the five levels of strategic alignment maturity summarized in Figure 2. Each of the six criteria described in the main part of this article are evaluated in deriving the level of strategic alignment maturity.

LEVEL 1 – INITIAL/AD HOC PROCESS

Organizations that meet many of the characteristics of the attributes in the six Strategic Alignment Maturity criteria for Level 1 can be characterized as having the lowest level of Strategic Alignment Maturity. It is highly improbable that these organizations will be able to achieve an aligned IT business strategy, leaving their investment in IT significantly unleveraged.

COMMUNICATIONS

ATTRIBUTE	CHARACTERISTICS
• Understanding of Business by IT	Minimum
• Understanding of IT by Business	Minimum
• Inter/Intra-organizational learning	Casual, ad-hoc
• Protocol Rigidity	Command and Control
• Knowledge Sharing	Ad-hoc
• Liaison(s) Breadth/Effectiveness	None or Ad-hoc

COMPETENCY/VALUE MEASUREMENTS

ATTRIBUTE	CHARACTERISTICS
• IT Metrics	Technical; Not related to business
• Business Metrics	Ad-hoc; Not related to IT
• Balanced Metrics	Ad-hoc unlinked
• Service Level Agreements	Sporadically present
• Benchmarking	Not generally practiced
• Formal Assessments/Reviews	None
• Continuous Improvement	None

GOVERNANCE

ATTRIBUTE	CHARACTERISTICS
• Business Strategic Planning	Ad-hoc
• IT Strategic Planning	Ad-hoc
• Reporting/Organization Structure	Central/Decentral; CIO reports to CFO
• Budgetary Control	Cost Center; Erratic spending
• IT Investment Management	Cost based; Erratic spending
• Steering Committee(s)	Not formal/regular
• Prioritization Process	Reactive

PARTNERSHIP

ATTRIBUTE	CHARACTERISTICS
• Business Perception of IT Value	IT Perceived as a cost of business
• Role of IT in Strategic Business Planning	No seat at the business table
• Shared Goals, Risk, Rewards/Penalties	IT takes risk with little reward
• IT Program Management	Ad-hoc
• Relationship/Trust Style	Conflict/Minimum
• Business Sponsor/Champion	None

SCOPE & ARCHITECTURE

ATTRIBUTE	CHARACTERISTICS
• Traditional, Enabler/Driver, External	Traditional (e.g., accounting, email)
• Standards Articulation	None or ad-hoc
• Architectural Integration: - Functional Organization - Enterprise - Inter-enterprise	No formal integration
• Architectural Transparency, Flexibility	None

SKILLS

ATTRIBUTE	CHARACTERISTICS
• Innovation, Entrepreneurship	Discouraged
• Locus of Power	In the business
• Management Style	Command and control
• Change Readiness	Resistant to change
• Career crossover	None
• Education, Cross-Training	None
• Social, Political, Trusting Environment	Minimum

LEVEL 2 – COMMITTED PROCESS

Organizations that meet many of the characteristics of the attributes in the six Strategic Alignment Maturity criteria for Level 2 can be characterized as having committed to begin the process for Strategic Alignment Maturity. This level of Strategic Alignment Maturity tends to be directed at local situations or functional organizations (e.g., Marketing, Finance, Manufacturing, H/R) within the overall enterprise. However, due to limited awareness by the business and IT communities of the different functional organizations use of IT, alignment can be difficult to achieve. Any business-IT alignment at the local level is typically not

leveraged by the enterprise. However, the potential opportunities are beginning to be recognized.

COMMUNICATIONS

ATTRIBUTE	CHARACTERISTICS
• Understanding of Business by IT	Limited IT awareness
• Understanding of IT by Business	Limited Business awareness
• Inter/Intra-organizational learning	Informal
• Protocol Rigidity	Limited relaxed
• Knowledge Sharing	Semi structured
• Liaison(s) Breadth/Effectiveness	Limited tactical technology based

COMPETENCY/VALUE MEASUREMENTS

ATTRIBUTE	CHARACTERISTICS
• IT Metrics	Cost efficiency
• Business Metrics	At the functional organization
• Balanced Metrics	Business and IT metrics unlinked
• Service Level Agreements	Technical at the functional level
• Benchmarking	Informal
• Formal Assessments/Reviews	Some, typically for problems
• Continuous Improvement	Minimum

GOVERNANCE

ATTRIBUTE	CHARACTERISTICS
• Business Strategic Planning	Basic planning at the functional level
• IT Strategic Planning	Functional tactical planning
• Reporting/Organization Structure	Central/Decentral, some co-location; CIO reports to CFO
• Budgetary Control	Cost Center by functional organization
• IT Investment Management Cost based;	Operations & maintenance focus
• Steering Committee(s)	Periodic organized communication
• Prioritization Process	Occasional responsive

PARTNERSHIP

ATTRIBUTE	CHARACTERISTICS
• Business Perception of IT Value	IT emerging as an asset
• Role of IT in Strategic Business Planning	Business process enabler
• Shared Goals, Risk, Rewards/Penalties	IT takes most of the risk with little reward
• IT Program Management	Standards defined
• Relationship/Trust Style	Primarily transactional
• Business Sponsor/Champion	Limited at the functional organization

SCOPE & ARCHITECTURE

ATTRIBUTE	CHARACTERISTICS
• Traditional, Enabler/Driver, External	Transaction (e.g., ESS, DSS)
• Standards Articulation	Standards defined
• Architectural Integration:	
- Functional Organization	Early attempts at integration
- Enterprise	Early attempts at integration
- Inter-enterprise	Early concept testing
• Architectural Transparency, Flexibility	Limited

SKILLS

ATTRIBUTE	CHARACTERISTICS
• Innovation, Entrepreneurship	Dependent on functional organization
• Locus of Power	Functional organization
• Management Style	Consensus-based
• Change Readiness	Dependent on functional organization
• Career crossover	Minimum
• Education, Cross-Training	Minimum
• Social, Political, Trusting Environment	Primarily transactional

LEVEL 3 – ESTABLISHED FOCUSED PROCESS

Organizations that meet many of the characteristics of the attributes in the six Strategic Alignment Maturity criteria for Level 3 can be characterized as having established a focused Strategic Alignment Maturity. This level of Strategic Alignment Maturity concentrates governance, processes and communications towards specific business objectives. IT is becoming embedded in the business. Level 3 leverages IT assets on an enterprise-wide basis and applications systems demonstrate planned, managed direction away from traditional transaction processing to systems that use information to make business decisions. The IT extrastructure (leveraging the inter-organizational infrastructure) is evolving with key partners.

COMMUNICATIONS

ATTRIBUTE	CHARACTERISTICS
• Understanding of Business by IT	Senior and mid-management
• Understanding of IT by Business	Emerging business awareness
• Inter/Intra-organizational learning	Regular, clear
• Protocol Rigidity	Emerging relaxed
• Knowledge Sharing	Structured around key processes
• Liaison(s) Breadth/Effectiveness	Formalized, regular meetings

COMPETENCY/VALUE MEASUREMENTS

ATTRIBUTE	CHARACTERISTICS
• IT Metrics	Traditional Financial
• Business Metrics	Traditional Financial
• Balanced Metrics	Emerging business and IT metrics linked
• Service Level Agreements	Emerging across the enterprise
• Benchmarking	Emerging
• Formal Assessments/Reviews	Emerging formality
• Continuous Improvement	Emerging

GOVERNANCE

ATTRIBUTE	CHARACTERISTICS
• Business Strategic Planning	Some inter-organizational planning
• IT Strategic Planning	Focused planning, some inter-organizational
• Reporting/Organization Structure	Central/ Decentral, some federation; CIO reports to COO
• Budgetary Control	Cost Center; some investments
• IT Investment Management	Traditional; Process enabler
• Steering Committee(s)	Regular clear communication
• Prioritization Process	Mostly responsive

PARTNERSHIP

ATTRIBUTE	CHARACTERISTICS
• Business Perception of IT Value	IT seen as an asset
• Role of IT in Strategic Business Planning	Business process enabler
• Shared Goals, Risk, Rewards/Penalties	Risk tolerant; IT some reward
• IT Program Management	Standards adhered
• Relationship/Trust Style	Emerging valued service provider
• Business Sponsor/Champion	At the functional organization

SCOPE & ARCHITECTURE

ATTRIBUTE	CHARACTERISTICS
• Traditional, Enabler/Driver, External	Expanded scope (e.g., business process enabler)
• Standards Articulation	Emerging enterprise standards
• Architectural Integration:	Integrated across the organization
- Functional Organization	Integrated for key processes
- Enterprise	Emerging enterprise architecture
- Inter-enterprise	Emerging with key partners
• Architectural Transparency, Flexibility	Focused on communications

SKILLS

ATTRIBUTE	CHARACTERISTICS
• Innovation, Entrepreneurship	Risk tolerant
• Locus of Power	Emerging across the organization
• Management Style	Results based
• Change Readiness	Recognized need for change
• Career crossover	Dependent on functional organization
• Education, Cross-Training	Dependent on functional organization
• Social, Political, Trusting Environment	Emerging valued service provider

LEVEL 4 – IMPROVED/MANAGED PROCESS

Organizations that meet many of the characteristics of the attributes in the six Strategic Alignment Maturity criteria for Level 4 can be characterized as having a managed Strategic Alignment Maturity. This level of Strategic Alignment Maturity demonstrates effective governance and services that reinforce the concept of IT as a value center. Organizations at Level 4 leverage IT assets on an enterprise-wide basis and the focus of applications systems is on driving business process enhancements to obtain sustainable competitive advantage. A Level 4 organization views IT as an innovative and imaginative strategic contributor to success.

COMMUNICATIONS

ATTRIBUTE	CHARACTERISTICS
• Understanding of Business by IT	Pushed down through organization
• Understanding of IT by Business	Business aware of potential
• Inter/Intra-organizational learning	Unified, bonded
• Protocol Rigidity	Relaxed, informal
• Knowledge Sharing	Institutionalized
• Liaison(s) Breadth/Effectiveness	Bonded, effective at all internal levels

COMPETENCY/VALUE MEASUREMENTS

ATTRIBUTE	CHARACTERISTICS
• IT Metrics	Cost effectiveness
• Business Metrics	Customer based
• Balanced Metrics	Business and IT metrics linked
• Service Level Agreements	Enterprise wide
• Benchmarking	Routinely performed
• Formal Assessments/Reviews	Formally performed
• Continuous Improvement	Frequently

GOVERNANCE

ATTRIBUTE	CHARACTERISTICS
• Business Strategic Planning	Managed across the enterprise
• IT Strategic Planning	Managed across the enterprise
• Organizational Reporting Structure	Federated; CIO reports to COO or CEO
• Budgetary Control	Investment Center
• IT Investment Management	Cost effectiveness; Process driver
• Steering Committee(s)	Formal, effective committees
• Prioritization Process	Value add, responsive

PARTNERSHIP

ATTRIBUTE	CHARACTERISTICS
• Business Perception of IT Value	IT is seen as a driver/enabler
• Role of IT in Strategic Business Planning	Business strategy enabler/driver
• Shared Goals, Risk, Rewards/Penalties	Risk acceptance & rewards shared
• IT Program Management	Standards evolve
• Relationship/Trust Style	Valued service provider
• Business Sponsor/Champion	At the HQ level

SCOPE & ARCHITECURE

ATTRIBUTE	CHARACTERISTICS
• Traditional, Enabler/Driver, External	Redefined scope (business process driver)
• Standards Articulation	Enterprise standards
• Architectural Integration:	Integrated with partners
- Functional Organization	Integrated
- Enterprise	Standard enterprise architecture
- Inter-enterprise	With key partners
• Architectural Transparency, Flexibility	Emerging across the organizations

SKILLS

ATTRIBUTE	CHARACTERISTICS
• Innovation, Entrepreneurship	Enterprise, partners, and IT managers
• Locus of Power	Across the organization
• Management Style	Profit/value based
• Change Readiness	High, focused
• Career crossover	Across the functional organization
• Education, Cross-Training	At the functional organization
• Social, Political, Trusting Environment	Valued service provider

LEVEL 5 – OPTIMIZED PROCESS

Organizations that meet the characteristics of the attributes in the six Strategic Alignment Maturity criteria for Level 5 can be characterized as having an optimally aligned Strategic Alignment Maturity. A sustained governance processes integrates the IT strategic planning process with the strategic business process. Organizations at Level 5 leverage IT assets on an enterprise-wide basis

to extend the reach (the IT extrastructure) of the organization into the supply chains of customers and suppliers.

COMMUNICATIONS

ATTRIBUTE	CHARACTERISTICS
• Understanding of Business by IT	Pervasive
• Understanding of IT by Business	Pervasive
• Inter/Intra-organizational learning	Strong and structured
• Protocol Rigidity	Informal
• Knowledge Sharing	Extra-enterprise
• Liaison(s) Breadth/Effectiveness	Extra-enterprise

COMPETENCY/VALUE MEASUREMENTS

ATTRIBUTE	CHARACTERISTICS
• IT Metrics	Extended to external partners
• Business Metrics	Extended to external partners
• Balanced Metrics	Business, partner, & IT metrics
• Service Level Agreements	Extended to external partners
• Benchmarking	Routinely performed with partners
• Formal Assessments/Reviews	Routinely performed
• Continuous Improvement	Routinely performed

GOVERNANCE

ATTRIBUTE	CHARACTERISTICS
• Business Strategic Planning	Integrated across & outside the enterprise
• IT Strategic Planning	Integrated across & outside the enterprise
• Organizational Reporting Structure	Federated; CIO reports to CEO
• Budgetary Control	Investment Center; Profit Center
• IT Investment Management	Business value; Extended to business partners
• Steering Committee(s)	Partnership
• Prioritization Process	Value added partner

PARTNERSHIP

ATTRIBUTE	CHARACTERISTICS
• Business Perception of IT Value	IT co-adapts with the business
• Role of IT in Strategic Business Planning	Co-adaptive with the business
• Shared Goals, Risk, Rewards/Penalties	Risk & rewards shared
• IT Program Management	Continuous improvement
• Relationship/Trust Style	Valued Partnership
• Business Sponsor/Champion	At the CEO level

SCOPE & ARCHITECTURE

ATTRIBUTE	CHARACTERISTICS
• Traditional, Enabler/Driver, External	External scope; Business strategy driver/enabler
• Standards Articulation	Inter-Enterprise standards
• Architectural Integration:	Evolve with partners
- Functional Organization	Integrated
- Enterprise	Standard enterprise architecture
- Inter-enterprise	With all partners
• Architectural Transparency, Flexibility	Across the infrastructure

SKILLS

ATTRIBUTE	CHARACTERISTICS
• Innovation, Entrepreneurship	The norm
• Locus of Power	All executives, including CIO & partners
• Management Style	Relationship based
• Change Readiness	High, focused
• Career crossover	Across the enterprise
• Education, Cross-Training	Across the enterprise
• Social, Political, Trusting Environment	Valued Partnership

ABOUT THE AUTHOR

Jerry Luftman is the Executive Director and Distinguished Service Professor for the graduate information systems programs at Stevens Institute of Technology. His twenty-two year career with IBM prior to his appointment at Stevens included strategic positions in management (IT and consulting), management consulting, Information Systems, marketing, and executive education. He played a leading role in defining and introducing IBM's Consulting Group. As a practitioner he held several positions in IT, including a CIO.

Dr. Luftman's research papers have appeared in leading professional journals and he has presented at many executive and professional conferences. His book, "Competing in the Information Age", published by Oxford University Press, is one of the bases for the current paper. His PhD in Information Management is from Stevens Institute of Technology.

LETTER TO THE EDITOR

October 2001

EXPANDING THE FINDINGS OF "ASSESSING BUSINESS-IT ALIGNMENT MATURITY"

Jerry Luftman
School of Management
Stevens Institute of Technology
jluftman@stevens-tech.edu

Since "Assessing Business-IT Alignment Maturity" was published in December 2000, the total number of firms that used the business-IT alignment methodology has approached 50. The results proved useful to each of the firms that completed the survey described in the article. The range of results is consistent with the firms that were described in the original article. From a research point of view, the over-all results obtained are encouraging. To obtain a statistically significant sample to report results, we will need additional firms in our sample. AIS members who have access to firms appropriate for implementing this survey are encouraged to contact me at: jluftman@stevens-tech.edu.

I urge subscribers with interest in the issue who know potential firms to reread the article to determine whether the firms they know about are appropriate for this study.

Communications of the Association for Information Systems

ISSN: 1529-3181