

Jerry Luftman
Stevens Institute of
Technology

Ephraim R. McLean
Georgia State
University

Executive Summary

In the summer of 2003, the Society for Information Management (SIM) commissioned a formal survey to uncover the opinions of its members and the members of The Conference Board (an organization of IT executives) on three topics: key management concerns, application and technology developments, and enablers and inhibitors of IT and business alignment. The authors received 301 responses, which were analyzed in several categories: industry, years of experience in the IT field, and job title (CIOs versus Other IT Executives).

The top five management concerns were:

1. *IT and business alignment*
2. *IT strategic planning*
3. *Security and privacy*
4. *Attracting, developing, and retaining IT professionals*
5. *Measuring the value of IT investments*

The top five application and technology developments were: (1) business intelligence, (2) infrastructure developments, (3) enterprise application integration, (4) Web services, and (5) knowledge management.

The top five enablers of alignment were: (1) IT understands the firm's business environment, (2) close partnership between IT and business, (3) senior executive support for IT, (4) IT plans linked to business plans, and (5) IT demonstration of strong leadership.

Conversely, the top five inhibitors of alignment were: (1) lack of senior executive support for IT, (2) lack of influence of headquarters' leadership, (3) lack of business communication with IT, (4) lack of business commitment of budgets for IT investments, and (5) lack of clarity and predictability of corporate goals and directions. This article discusses these findings and their managerial implications.²

TAKING THE PULSE OF IT MANAGEMENT ISSUES OVER THE YEARS

Since 1980, the Society for Information Management (SIM) has sought to uncover and publish the key is-

ssues facing its member IT executives. Ball and Harris conducted the first survey and produced a list of 18 issues in 1982.³ The findings proved so popular that subsequent surveys were taken in association with the MIS Research Center at the University of Minnesota in 1983 (published by Dickerson and Nechis in 1984⁴), in 1986 (Brancheau and Wetherbe, 1987⁵), in

¹ Mary Lacity was the accepting Senior Editor for this article.

² The authors wish to thank SIM and The Conference Board for sponsoring their research on benchmarking IT-business alignment maturity. Stacie Petter, a doctoral student at Georgia State University, performed all of the statistical analyses.

³ Ball, L. and R. Harris, "SIM Members: A Membership Analysis," *MIS Quarterly*, (6:1), March 1982, pp. 19-38.

⁴ Dickson, G.W., R.L. Leitheiser, J.C. Wetherbe, and M. Nechis, "Key Information Systems Issues for the 1980's," *MIS Quarterly* (8:3), September 1984, pp.135-159.

1990 (Niederman, Brancheau, and Wetherbe, 1991⁶), and in 1994 (Brancheau, Janz, and Wetherbe, 1996⁷). Some informal surveys were also taken.

It has been nine years since the last formal survey, so the SIM Executive Board authorized a sixth formal survey, to find out the current concerns and compare them to the past. The Computer Information Systems Department at Georgia State University and Stevens Institute of Technology in New Jersey were commissioned to conduct the study in summer 2003.

Unlike the previous five surveys, which each contained just one list of issues (management concerns), this sixth one contained three: management concerns, application and technology developments, and enablers and inhibitors of IT and business alignment. Participants were asked to rate 25 managerial issues (see 1), 13 technical issues (see Table 8), and a list of “enablers” and “inhibitors” that affect the alignment of IT and business (see Tables 12 and 13). Before the survey, it was predicted that “IT and business alignment” would be highly ranked, as it had been in the past. The enablers-inhibitors list was aimed at exploring this issue further.

The following three sections recount the findings for the three sections of the 2003 survey. These findings are based on 253 responses from SIM and 48 from The Conference Board—301 responses in all. A more detailed description of the plan of the survey is found in the Appendix.

FINDINGS FOR SECTION 1: MANAGEMENT CONCERNS

The responses of the SIM and The Conference Board IT executives are shown in Table 1.

The Top Ten Management Concerns

While the rankings of the 20 management concerns in summer 2003 hold some surprises, the top ten are not too surprising. They have been perennial concerns.

“IT and business alignment” and “IT strategic planning.” As predicted, “IT and business alignment” is the top-ranked issue, followed by “IT strategic planning.” Alignment means applying IT in an appropriate

and timely way, in harmony with business strategies, goals, and needs. It is closely linked with IT strategic planning. Their 1-2 ranking points to the importance of IT and business executives working harmoniously to leverage their resources. Both issues are discussed in greater detail in a later section.

“Security and privacy,” not surprisingly, ranked third. The tragedy of 9/11 has reinforced the importance of information systems in the United States and their vulnerability to viruses, hackers, and terrorists. At the same time, the public has begun demanding greater protection from identity theft and other privacy threats. It is anticipated that security and privacy will remain important concerns of IT executives for some time to come.

For example, security and privacy have become such key issues for the InterContinental Hotel Company (Crown Plaza, Holiday Inn, Hampton Inn) that the Chief Information Security Officer has been promoted to report directly to Corporate Counsel, who reports to the CEO. The hotel chain’s privacy policy has become a model for the industry.⁸

“Attracting, developing, and retaining IT professionals” ranked fourth. Some predicted this issue would not be highly ranked because of the layoffs and job losses since 2000. With so many talented and experienced IT professionals “on the street,” finding needed skills was believed to be easier. In addition, turnover has decreased as employees have been reluctant to leave their jobs due to the dearth of more desirable jobs elsewhere.

However, this job situation was beginning to change in summer 2003. It is possible that companies that neglected their employees during the downturn may face large-scale defections as the economy further improves. This fourth issue is therefore encouraging. It shows that IT executives are apparently taking the longer-term view of investing in their professional staff.

This fourth issue also encompasses the globalization of the IT function. With IT work now performed all over the world, both by overseas employees as well as offshore consultants, new skills are needed to manage this global work network. These skills are extremely scarce. Thus “attracting, developing, and retaining IT professionals” has taken on new meaning—and new urgency. In essence, IT executives are seeing the need to prepare their staff with the new skill of “vendor/outsourcing management.” Again, the high rank-

⁵ Brancheau, J.C. and J.C. Wetherbe, “Key Issues in Information Systems Management,” *MIS Quarterly* (11:1), March 1987, pp. 23-45.

⁶ Niederman, F., J.C. Brancheau, and J.C. Wetherbe, “Information Systems Management Issues in the 1990’s,” *MIS Quarterly* (15:4), December 1991, pp.474-499.

⁷ Brancheau, J.C., B.D. Janz, and J.C. Wetherbe, “Key Issues in Information Systems Management: 1994-95 SIM Delphi Results,” *MIS Quarterly* (20:2), June 1996, pp. 225-242.

⁸ The privacy policy of the InterContinental Hotel Company can be found at <http://www.ichotelsgroup.com/h/d/hi/1/en/c/2/content/dec/hi/1/en/tc/pp.html>; accessed June 2004.

Table 1: Management Concerns - Ranking of Importance Based on All Respondents (Number of Respondents Shown in Parentheses)

Rank	<i>Respondents</i>		
	All N (301)	SIM Member (253)	TCB Member (48)
1. IT and business alignment	1	1	1
2. IT strategic planning	2	2	6
3. Security and privacy	3	3	2
4. Attracting, developing, and retaining IT professionals	4	4	4
5. Measuring the value of IT investments	5	5	3
6. Measuring the performance of the IT organization	6	6	7
7. Creating an information architecture	7	8	8
8. Complexity reduction	8	9	5
9. Speed and agility	9	7	11
10. IT governance	10	11	9
11. Business process reengineering	11	10	10
12. Introducing rapid business solutions	12	13	12
13. Evolving CIO leadership role	13	12	15
14. IT asset management	14	14	16
15. Managing outsourcing relationships	15	15	17
16. Leveraging the legacy investment	16	16	13
17. Sarbanes-Oxley Act of 2002	17	17	14
18. Globalization	18	18	18
19. Offshore outsourcing impacts on IT careers	19	19	19
20. Societal implications of IT	20	20	20

Note: Rankings based on means and, if necessary, on standard deviations.

ing of this issue indicates that IT executives recognize the need to prepare their IT organization for this evolving environment.

“Measuring the value of IT investments” and *“measuring the performance of the IT organization,”* ranked fifth and sixth, are closely linked. They have also been perennial issues. For over two decades, IT executives have faced the questions, “Is our IT organization providing business value in our IT undertakings?” “Are we delivering these applications in a cost-effective fashion?” “Are we doing a good job for the company?” and “Can we measure our contributions in a meaningful way?” The answers have not been easy to come by, and they vary by company and industry. Thus, it is not surprising to see these two issues still listed among the top ten.

As an example of how to address these two issues, one food manufacturer in the eastern United States pub-

lishes an IT Annual Report, similar in appearance and quality to its corporate annual report. The report lists the past year’s successful IT investments and applications, and gauges performance of the IT organization using metrics similar to the corporate performance measures. The report has been so well done that managers and executives in all parts of the business eagerly await its publication. It is published shortly after the corporate annual report and gives them a clear answer to the question, “How well is our IT organization doing?”

“Creating an information architecture” ranked seventh. An information architecture describes how the many pieces of a firm’s infrastructure—processors, networks, software, PCs, databases, applications, etc.—work together to support the business. As these components become more numerous and varied, creat-

ing an effective architecture becomes more difficult, yet more important.

We often hear about organizations with strengths in individual technologies. But integrating a myriad of technologies is difficult. As technologies evolve, the skills needed to create and migrate the architecture of these inter-related components grow more complex. Some believe that only the largest and most experienced systems integrators have the appropriate expertise. That belief raises the question, "Will the trend to outsource to a company offering an IT utility continue?"

"Complexity reduction," ranked eighth, can be linked to the architecture issue. Companies that have established common IT platforms and standardized configurations have reduced complexity and benefited from a streamlined information architecture.

The current importance of reducing complexity is reflected in the recently established SIM Working Group on this topic. This group is focusing on ways to not only reduce complexity in their own organizations but, more importantly, reduce the complexity of the products they buy. The continual changes and upgrades from vendors—some of which appear to be just for the sake of change and to increase vendor revenues—serve little business purpose. But they increase training and conversion costs. If vendors can be convinced to lengthen their product release cycles, buyers can realize substantial savings. Although this may be unlikely in the near term, the SIM working group is delving into this issue.

"Speed and agility," ranked ninth, reflects the heightened pace of business today. Activities that used to be measured in years are now measured in months or even weeks. IT organizations that can respond in cybertime may contribute to the difference between leading and following. As this high ranking of speed and agility attests, being able to "sense and respond" has become even more critical.

The example of ATMs, cited by the author (Luftman, 1996⁹), conveys this idea. Retail banks invested heavily in automatic teller machines in the 1980s, believing them to be an essential aspect of customer service and critical to maintaining market share. As a result, ATMs rapidly ceased to be a competitive advantage and instead became an added cost of doing business. Can the same be said of today's CRM systems?

"IT governance," ranked tenth, is a continuing concern. There is no single answer on how to organize

and govern IT. So IT executives are struggling with the numerous options.

An interesting approach to IT governance is being taken by a Midwest food manufacturer. For some time, the company's IT Executive Steering Committee provided IT policy and governance oversight. Eventually, however, management decided to disband the committee – but for an interesting reason: the governance was working so well that the company did not want IT matters to be treated differently or apart from regular company governance. So the steering committee's agenda was folded into the corporate executive committee's agenda. IT has become an integral part of the company's functioning.

Analyses By Categories

To delve into the data, we analyzed the rankings by four categories: job title (CIOs vs. Other IT Executives), industry, tenure in the field, and over time.

Analysis by job title. To a large degree, the rankings by respondents with different job titles are fairly consistent; 97 of the respondents identified themselves as CIOs, and 173 as Other IT Executives. Respondents not indicating their job title were not included in this analysis. A comparison of their management concerns rankings is shown in Table 2. The main difference between the two is that the CIOs rank "business process reengineering" fifth, while it is number 11 on the overall list and number 13 for Other IT Executives (tied with "IT governance").

Analysis by industry. Responses also vary somewhat by industry. Table 3 shows the percentage of respondents by industry. The top three responding industries were financial, information technology, and manufacturing, comprising 57% of the responses. Their rankings for the top ten management issues are shown in Table 4. Although the order differs slightly, all three industries agree on the top five issues, with the exception of the financial industry, which surprisingly does not include "measuring the value of IT investments," (number five on the overall list) in its list of top ten. Maybe the financial services respondents feel that "measuring the performance of the IT organization" (number six on the overall list) covers measurement of both the IT organization and IT investments.

Analysis by tenure in the IT field. Another analysis is by the number of years the respondents have worked in IT. Table 5 shows the top five issues for those with: less than 10 years, 11 to 20 years, 21 to 30 years, and over 30 years in the field. The table shows two interesting trends. One, as managers mature in the field, "security and privacy" increases from fourth place to second place in going from "under 10 years" to "over

⁹ Luftman, J., *Competing in the Information Age: Strategic Alignment in Practice*, New York: Oxford University Press, 1996.

Table 2: Management Concerns - Ranking of Importance Based on Job Title (Number of Respondents Shown in Parentheses)

	<i>Job Title</i>	
	CIOs (97)	Other IT Executives (173)
IT and business alignment	1	1
Security and privacy	2	4
IT strategic planning	3	2
Attracting, developing, and retaining IT professionals	4	3
Business process reengineering	5	13*
Creating an information architecture	6	9
Speed and agility	7	8
Complexity reduction	8	10
Measuring the performance of the IT organization	9	6
Measuring the value of IT investments	10	5
		*IT governance

Note: Respondents not specifying a job title were not included in this analysis.

30.” Second, “IT strategic planning” and “attracting, developing, and retaining IT professionals” both decline in importance, by one place, as the managers mature.

Analysis over time. Table 6 shows how the importance of various issues in the six formal surveys has changed over time. The numbers in the table indicate where each issue ranked. For example, “IT and business alignment” ranked ninth in 1994, seventh in 1990, fifth in 1986, seventh in 1983, and unranked in 1980. The four top-ranked issues in the current survey have appeared in all of the previous surveys (with two exceptions: “IT and business alignment” in 1980 and “security and privacy” in 1994), which is a strong indication of their continuing importance to senior IT

executives.

SIM’s Informal Surveys

Between the 1994 and 2003 formal surveys, SIM conducted four informal surveys, which were generally shorter and without the detailed analyses. Nevertheless, they help solidify trends. Table 7 lists the top five concerns (a mixture of managerial and technical concerns) for the years 1999, 2000, 2001, and 2002. Comparing this table with Table 6 reinforces the consistency of the top concerns of IT executives over the recent years. The shaded items in the table represent “application and technology” developments, to be discussed later.

It is also informative to see which items have dropped

Table 3: Management Concerns – Percentage of Respondents by Industry

<i>Industry Classification</i>	<i>Survey Percentages</i>
Financial	21%
Information Technology	19%
Manufacturing	17%
Education	6%
Pharmaceutical	5%
Utilities	4%
Non-profit	4%
Retailing	3%
Government	3%
Others	18%

All Respondents	Financial (21%)	IT (19%)	Manufacturing (17%)
1. Alignment	Alignment	Alignment	Alignment
2. Planning	Planning	Planning	IT Value
3. Security	Staffing	Security	Planning
4. Staffing	IT Performance	Staffing	Staffing
5. IT Value	Security	IT Value	Security
6. IT Performance	Reengineering	IT Performance	Complexity
7. Architecture	Agility	Architecture	IT Performance
8. Complexity	Architecture	Complexity	Architecture
9. Agility	Asset Management	Agility	CIO Leadership
10. Governance	Complexity	Governance	Rapid Business Solutions

out over the years. Earlier surveys included such items as artificial intelligence, decision support systems, office automation, end-user computing, telecommunications and networks, software development and managing data resources—all missing from the 2003 top 25.

FINDINGS FOR SECTION 2: APPLICATION AND TECHNOLOGY DEVELOPMENTS

The second part of the survey looked at the technical side of IT. Table 8 shows the top 13 rankings.

The Top Three Application and Technology Developments

As noted earlier, the 2003 formal survey has the most

in-depth section on technology developments of all the surveys. Still, as will be noted, we can still make a few comparisons with the past.

“*Business intelligence*,” comes out on top, supplanting “infrastructure developments,” which was number one in 1994 and sixth in 1990. Not surprisingly, none of the other technologies appeared on previous lists because they have appeared since 1994. All bear watching.

“Business intelligence” combines technologies—such as customer relationship management (CRM), data warehousing and mining, and knowledge management—to help organizations leverage their information to make better and faster business decisions.

As an example, one large European telecommunications company analyzes data from its 5.7 million customers. Key applications, which monitor network

Table 5: Management Concerns - Ranking of Importance Based on Years in the Information Technology Industry (Number of Respondents Shown in Parentheses)

	Years in IT			
	0-10 (32)	11-20 (106)	21-30 (117)	30+ (40)
IT and business alignment	1	1	1	1
Security and privacy	4*	3	2	2
IT strategic planning	2	2	3	3
Attracting, developing, and retaining IT professional	3	4	4	4*
Measuring the value of IT investments	4*	5	5	4*

*Ties

Notes:

- a. Rankings are based on means and, if necessary, standard deviations.
- b. The top ten issues are listed and sorted based on respondents with 21-30 years in IT (the largest subgroup).
- c. Respondents do not sum to 301 (total number of respondents). If the respondent did not specify the number of years in IT, the response was removed from the analysis.

Table 6: Management Concerns - Ranking of Importance Based on All Respondents (Number of Respondents Shown in Parentheses)

	(301) 2003	(108) 1994	(104) 1990	(68) 1986	(54) 1983	(417) 1980
IT and business alignment	1	9	7	5	7	-
IT strategic planning	2	10	3	1	1	1
Security and privacy	3	-	19	18	14	12
Attracting, developing, and retaining IT professionals	4	8	4	12	8	7
Measuring the value of IT investments	5	-	-	4	15	-
Measuring the performance of the IT organization	6	11	16	9	5	2
Creating an information architecture	7	4	1	8	-	-
Complexity reduction	8	-	-	-	-	-
Speed and agility	9	-	-	-	-	-
IT governance	10	-	-	-	-	-

a. Rankings are based on means and, if necessary, standard deviations.

utilization and sales force performance, analyze over six terabytes of data. Management is able to drill down in the data to find specific information about new customers, successful sales channels, or popular products, and receive that information in easy-to-read, one-page reports. This business intelligence helps management better assess performance and improve operational efficiencies.

“Infrastructure developments.” It is interesting to compare the rankings in Table 8 with the application and technology developments shown in Table 7 (the shaded areas). “Infrastructure developments,” ranked second in Table 8, is ranked third in both the 2000 and 2001 informal surveys (Table 7). “Web services,” ranked fourth in 2003, is similar to “electronic commerce,” ranked first in 1999. “Knowledge management,” ranked fifth in 2003, was also fifth in 1999.

“Enterprise application integration (EAI)” is in the top four, which is good to see, because it is an impor-

tant solution to the age-old problem of connecting dissimilar systems. In fact, EAI has gained growing acceptance as the pre-requisite for CRM, supply chain management, and other e-business initiatives. But integration is far more complex than just installing this technology. For example, if financial services companies cannot merge the different cultures found in banking, brokerage, and insurance, how can the IT organization successfully integrate their applications? The same is true in the pharmaceutical industry, which has similar difficulties getting their prescription drug and healthcare cultures to work together. Organizations that do not address their cultural challenges will have a difficult time leveraging IT.

Analyses By Categories

Again, we analyzed the data by categories: job title and tenure in the industry.

Tables 9 and 10 repeat the analyses of Tables 2 and 5,

Table 7: Recent SIM Informal Surveys

	1999	2000	2001	2002
1.	Electronic commerce	Handling rapid change	CIO leadership role	IT and business alignment
2.	Managing the IT investment portfolio	Security and privacy	Security and privacy	IT strategic planning
3.	Fundamental solutions to the IT workplace shortage	IT infrastructure management	IT infrastructure management	Security and privacy
4.	Managing the introduction of new technology	Customer relationship management	IT and business alignment	IT professional development
5.	Knowledge management	Application service providers	Speed and agility	Measuring the value of IT investments

Legend: Gray = Technology Issue, White = Management Issue

Table 8: Application and Technology Developments - Ranking of Importance Based on All Respondents (Number of Respondents Shown in Parentheses)

Rank	Issue	Respondent		
		All (301)	SIM Member (253)	TCB Member (48)
1	Business intelligence	1	1	1
2	Infrastructure developments	2	2	2
3	Enterprise application integration (EAI)	3	3	3
4	Web services	4	4	6
5	Knowledge management	5	5	11
6	E-Business strategies	6	6	8
7	Customer portals	7	7	7
8	Customer relationship management (CRM)	8	8	5
9	Enterprise resource planning (ERP)	9	9	4
10	Employee portals	10	10	10
11	Mobile and wireless applications	11	11	9
12	Supply chain management (SCM)	12	12	12
13	Supplier portals	13	13	13

a. Rankings based on means and, if necessary, standard deviations

but on technical issues. Table 9 compares rankings by CIOs and Other IT Executives. It shows, for instance, that both groups similarly rank the application and technology developments.

Table 10 compares rankings by number of years in the IT industry. It shows quite a discrepancy in the ranking of “business intelligence.” It is number one across the first three age groups, but drops to seventh for respondents with over 30 years in the industry. Instead, their number one technology priority is “customer relationship management.”

FINDINGS FOR SECTION 3: ENABLERS AND INHIBITORS OF IT AND BUSINESS ALIGNMENT

A major finding of the 2003 survey is that many of the top management concerns have remained the same over the years. “IT and business alignment” is still number one, followed closely by three other perennial concerns: “IT strategic planning;” “attracting, developing, and retaining IT professionals;” and “measuring the value of IT investments.”

Why are these management concerns still ranked so high? Is it because they have not been solved, or is it because the CIO’s role has matured and the emphasis in these areas has evolved? The answer appears to be a combination of both.

With alignment still the number one concern, it is worthwhile to ask, “How can companies achieve alignment?” There are obviously enablers and inhibitors of alignment.

As noted, alignment means applying IT in an appropriate and timely way, in harmony with business strategies, goals and needs. This definition addresses both how IT is aligned with the business and how the business should/could be aligned with IT. Terms like harmony, linked, and integrated are synonymous with alignment.

A Brief History: Previous Findings on Alignment

Luftman’s research since the early 1990s has identified alignment trends and established an alignment benchmark, the strategic alignment maturity assessment.¹⁰ The survey data for that work evolved from executives who attended classes at IBM’s Advanced Business Institute from 1993-1997. They represented over 500 firms in 15 industries. Analysis of that survey data showed the five most important enablers and inhibitors of alignment—shown in Table 11 in rank order.

The rankings of the enablers and inhibitors remained relatively consistent from 1993 through 1997. Other

¹⁰ Luftman, J. and T. Brier, “Achieving and Sustaining Business-IT Alignment,” *California Management Review*, (24:1), 1999.

Table 9: Application and Technology Developments- Ranking of Importance Based on Job Title (Number of Respondents Shown in Parentheses)

Rank	Job Title	
	CIOs (97)	Other IT Executives (173)
1. Infrastructure developments	1	2
2. Business intelligence	2	1
3. Enterprise application integration (EAI)	3	3
4. Customer portals	4	8
5. Web services	5	4
6. Knowledge management	6	5
7. E-Business strategies	7	6
8. Customer relationship management (CRM)	8	7
9. Employee portals	9	11
10. Enterprise resource planning (ERP)	10	9

Notes:

- Rankings are based on means and, if necessary, standard deviations.
- Issues are sorted based on those with a job title of CIO.
- Respondents do not sum to 301 (total number of respondents). If the respondent did not specify the number of years in IT, the response was not included in this analysis.

works present the detailed findings of the enablers-inhibitors study.¹¹

The Overall 2003 Enabler-Inhibitor Survey Findings

The questions for the 2003 SIM-TCB survey are based on the questions used since 1993, to see whether the enablers and inhibitors changed since then. The 2003 survey asks respondents to indicate the extent to which each item either enables or inhibits business-IT alignment in their organization. The response choices range from “greatly enables” to “greatly inhibits” alignment. Respondents could also indicate “not applicable” or add choices not included.

The complete list of enablers and inhibitors from the analysis of the 2003 SIM survey are shown in Tables 12 and 13. A high ranking in Table 12 (enablers) means the factor “greatly enables” (fosters) alignment. A high ranking in Table 13 (inhibitors) means that “lack of” the factor “greatly inhibits” (is a roadblock to) alignment.

¹¹ Luftman, J., R. Papp, and T. Brier, “Enablers and Inhibitors of Business IT Alignment,” *CAIS*, (1:11), March 1999; and Luftman, J., *Competing in the Information Age: Align in the Sand*, New York: Oxford University Press, 2003.

The following sections discuss the five top-ranked enablers and inhibitors and compare them with the 1993-1997 results. Most remain the same. One explanation is that IT executives, consultants, and academics tend to be looking for a silver bullet answer to this pervasive problem. But there is no silver bullet. Attaining mature IT-business alignment requires addressing a combination of factors.¹²

The Top Five Alignment Enablers

Table 14 shows the 2003 and 1993-1997 enablers. Once again, what is striking is that the same factors—communications, value measurements, governance, partnership, technology scope, and skills—show up in both. The rankings differ, but the top five are relatively consistent. The sixth-ranked factor in the earlier study—“IT demonstrating strong leadership”—is included here because of its similarity. The consistency of the top five reinforces their importance.

“IT understands the firm’s business environment” – that is, its customers, partners, and competitors – is a top-five enabler in both studies. It is ranked number one in the 2003 study, and it means:

- IT is familiar with the business,

¹² Ibid.

Table 10: Application and Technology Developments - Ranking of Importance Based on Years in the Information Technology Industry (Number of Respondents Shown in Parentheses)

	<i>Years in IT</i>			
	0-10 (32)	11-20 (106)	21-30 (117)	30+ (40)
Business intelligence	1	2	1	7
Infrastructure developments	3	1	2	3
Web services	6	5	3	11
E-Business strategies	9	7	4	6
Enterprise application integration (EAI)	5	3	5	2
Customer portals	7	8	6	4
Knowledge management	2	6	7	5
Customer relationship management (CRM)	4	10	8	1
Mobile and wireless applications	10	11	9	10
Employee portals	11	9	10	8

Notes:

- a. Rankings based on means and, if necessary, standard deviations.
- b. Top ten issues are listed and sorted based on those with 21-30 years in IT (largest subgroup).
- c. Respondents do not sum to 301 (total number of respondents). If the respondent did not specify the number of years in IT, the response was removed from the analysis.

- Business is familiar with IT,
- IT communicates in business terms, and
- IT focuses on using its technical knowledge to identify business opportunities appreciated by business partners.

Frequently, IT executives have pointed out that they are not included in business strategy planning sessions. The previous VP of IS at a Fortune 10 petroleum company solved this problem by inviting key business leaders to “his party.” He convinced his CEO that all the general managers should attend an IT strategy class. To ensure participation, the CEO wrote and signed the invitation himself. During the class, the VP of IS saw his job to be convincing the reticent participants of the strategic potential of IT. His plan worked. Over the course of his tenure, he was invited to serve on the corporate operating committee and the corporate research committee, and eventually his role was

elevated to CIO, reporting directly to the CEO.

“A close partnership between IT and business,” ranked second, is also again ranked as a top-five enabler for alignment. Factors that contribute to such a partnership include shared:

- Risks and rewards
- Social, political environment
- Degrees of trust
- Management style
- Entrepreneurial, innovative culture.

Business organizations often consider IT staff as technical nerds with little understanding of the business. One Fortune 50 financial services firm believed this viewpoint got in the way of establishing a trusting IT-business partnership. The IT HR VP proposed to change the education of new IT affiliates. Formerly,

Table 11: IT and Business Alignment and Inhibitors (From 1993-1997 Surveys)

<i>Enablers</i>	<i>Inhibitors</i>
Senior executives support for IT	IT/business lack close relationship
IT involved in strategy development	IT does not prioritize well
IT understands the business	IT fails to meet its commitments
Business - IT partnership	IT does not understand the business
Well-prioritized IT projects	Senior executives do not support IT

Table 12: IT and Business Alignment Enablers - Ranking of Importance Based on All Respondents (Number of Respondents Shown in Parentheses)

	<i>Respondent</i>		
	All (301)	SIM Member (253)	TCB Member (48)
IT understanding of the firm's business environment	1	1	1
Close partnership between IT and business	2	2	4
Senior executive support for IT	3	3	2
Linking IT & business plans	4	4	3
IT demonstrating strong leadership	5	5	5
IT and the business have close relationship	6	7	6
IT meeting commitments	7	6	8
Good IT/business communications	8	8	7
IT involvement in business strategy development	9	9	9
Well prioritized IT efforts	10	10	11

new IT staff could take only technical training. With the change, they are now required to take courses with entering business affiliates. Not only do they learn about the financial services business but they also take courses to improve their communication skills (marketing, presenting, business writing, negotiating). The firm has also instituted a program for career cross-overs (IT to business and business to IT) which has proven valuable in building relationships.

“Support from senior non-IT executives,” ranking third in 2003, was ranked number one by both IT and non-IT executives in 1993-7. This finding highlights the need for business executives to be aware of, and

supportive of, technology innovations. Support means that business executives:

- Recognize the value of information technology,
- Define and communicate the vision and strategies that include a role for IT, and
- Serve as active sponsors and champions for IT projects (e.g., provide leadership, funding).

IT needs to search out such support. Business executives recognize that they need to be more engaged in IT projects, so it is up to IT professionals to leverage

Table 13: IT and Business Alignment Inhibitors - Ranking of Importance Based on All Respondents (Number of Respondents Shown in Parentheses)

<i>Lack of:</i>	<i>Respondent</i>		
	All (301)	SIM Member (253)	TCB Member (48)
Senior executives support for IT	1	1	1
Influence of headquarters' leadership	2	3	2
Business communication with IT	3	2	4
Business commitment of budgets to IT investments	4	4	6
Clarity and predictability of corporate goals/direction	5	5	5
Linkage of individual business unit plans to strategy	6	7	3
IT and the business governance	7	6	9
Business commitment of staff to support IT investments	8	9	7
Business unit's prioritization of IT needs	9	8	8
Business unit's support for corporate-wide IT initiatives	10	10	10
a. Rankings based on means and, if necessary, standard deviations			

Table 14: IT and Business Alignment Enablers (2003 SIM Survey Versus 1993-1997 Surveys)

2003 SIM Enablers	1993-1997 Enablers
IT understanding of the firm's business environment	Senior executives support for IT
Close partnership between IT and business	IT involvement in strategy development
Senior executives support for IT	IT understanding of the business
Linking IT & business plans	Business-IT partnership
IT demonstrating strong leadership	Well-prioritized IT projects
	IT demonstrating strong leadership

that support. A recent graduate from an IS Master's Program developed a strategy to leverage knowledge-sharing in a Fortune 30 pharmaceutical company. She understood that without an executive sponsor and champions from the business, her proposal would not be accepted. So she showed a proof-of-concept demonstration to the Senior VP of Research as part of her proposal. In addition to approving her project, he committed to becoming a vocal advocate for its deployment.

"IT plans linked to business plans," ranked fourth, demands that IT participate in creating business strategies and that the business participate in creating IT strategies. Both IT and non-IT executives need to see the benefits of mutual cooperation and of a close working relationship in the strategy formulation process. They should know that it is easier to achieve alignment when cross-functional teams, which include IT, create enterprise strategies. But the participation needs to be frequent and both IT and the business need to listen to each other, communicate clearly, and learn to leverage IT resources to build competitive advantage. Having linked plans includes:

- Defining and supporting an effective IT governance process,
- Establishing binding IT-business partnership, relationship, and trust,
- Effective marketing of the value of IT,
- Sharing of knowledge to get the job done,

- Having access to appropriate people, and
- Effective use of IT business liaisons.

Many organizations dissuade IT and business partners from getting together. In a Fortune 100 pharmaceutical company, the IT liaisons were not being leveraged effectively. Their role was to be the intermediary, to communicate or translate between IT and business partners. IT could not speak directly with the business partners. The CIO recognized the shortcoming of this approach and changed the focus of the IT liaisons to facilitation in order to foster getting IT and business partners together. Their new role is to ensure that IT-business discussions take place frequently and that problems and opportunities are reconciled appropriately.

"IT demonstrates strong leadership," ranked as the fifth enabler, is frequently only recognized as important *after* a competitor has applied IT innovatively. IT innovation is occurring at an increasing pace across all industries. One example is customer relationship management systems that leverage data mining of point-of-sale information. Factors that contribute to IT's ability to demonstrate its leadership include:

- Defining and supporting an effective IT governance process,
- Enumerating the value of IT,
- Effectively communicating across organizations,

Table 15: IT and Business Alignment Inhibitors (2003 SIM Survey Versus 1993-1997 Surveys)

2003 SIM Inhibitors	1993-1997 Inhibitors
Lack of senior executives support for IT	IT/business lack close relationships
Lack of influence of headquarters' leadership	IT does not prioritize well
Lack of business communication with IT	IT fails to meet its commitments
Lack of business commitment of budgets for IT investments	IT does not understand business

- Exhibiting strong partnering, and
- Playing a role in strategic business decisions.

Having an effective IT governance process with the appropriate IT and business participants is one of the more important vehicles for creating a mature IT-business environment. One IT executive director from a Fortune 500 financial services firm recognized that an important part of the governance process is the discussions that take place *while* IT projects are being prioritized and *while* resources (people and financial) are being allocated to the projects. Along with his business partners, he developed a portfolio management approach that has not only proven effective in prioritizing projects but, perhaps more importantly, has fostered discussions among the executive team in identifying opportunities to leverage IT across the entire business.

The Top Five Alignment Inhibitors

Here again, the 2003 factors—communications value measurements, governance, partnership, technology scope, and skills—show up in the 1993-1997 studies as well. However, several choices received higher rankings in 2003 and several new areas appeared, as discussed below. As with the enablers, though, the similarities reinforce the importance of the top inhibitors.

“Lack of senior executive support for IT” is, not surprisingly, the number one inhibitor in 2003 and the number five inhibitor in 1993-1997. Its reverse is the number one enabler cited by both IT and non-IT executives in 1993-7 and the number three enabler in 2003. This high ranking as enabler and inhibitor reinforces the importance of ensuring that business executives are active sponsors and champions of IT projects. Without such business support, alignment is inhibited.

IT initiatives need direction from business executives because the policies for acquiring, using, and retiring company information assets need to be based on business value. Only business executives (as sponsors or champions) can assess that value and then cause it to be realized. IT unto itself cannot create business value. Therefore, business policies must translate into IT priorities and projects. With such a partnership, the correct IT priorities can be set. Steering committees, IT-business liaisons, budget and human resource allocation processes, and value assessments are all means to foster executive support.

“Lack of influence of headquarters’ leadership” is the second-ranked inhibitor. Means to overcome this inhibitor include:

- Having an effective governance process,
- Defining the role of headquarters with the respective business units in selecting and supporting standards and integration,
- Agreeing on how infrastructure decisions are made and paid for,
- Defining how vendors are selected and managed, including outsourcing, and
- Having an effective prioritization process.

An effective governance process, as described earlier, is a key means for achieving mature IT-business alignment.

“Lack of effective business communication with IT” is ranked as the third-highest inhibitor. Business not understanding information technology and IT not understanding the business have negative effects for both. Many organizations provide training and career assignments to improve these cross-communications. Organizations should recognize that:

- IT and business must understand each other and use the same language,
- Effective knowledge sharing and learning facilitate success,
- Timely access to the right stakeholders is necessary, and
- Liaisons should facilitate interpersonal relationships.

Once again, liaisons are one means for facilitating effective communications, which are fundamental to mature alignment.

“Lack of business commitment of budgets for IT investments” is ranked fourth. Without appropriate competency and value measurements it is unlikely business managers will commit to IT investments because they have no way to measure the efforts nor the outcomes. Means to overcome this shortcoming include:

- Having effective and balanced IT and business metrics,
- Applying service level agreements, and
- Performing formal assessments and benchmarks to continually focus on process improvements.

Many organizations require each proposed IT project to have a business case in order to get the project approved. However, once a project is deployed, how

frequently do these same companies assess whether that project has delivered on its business case objectives? And for the few that do post-project reviews, do they identify the reasons why the project made or missed its value objectives (and share this knowledge) so that the problems are not duplicated and the success can be replicated? Unfortunately, we have not found any company that does an effective job of following through this entire process.

“Lack of clarity and predictability of corporate goals and objectives” is the fifth-ranked inhibitor. Without corporate clarity, IT executives do not know where to concentrate their efforts. Poorly defined corporate goals or frequently shifting priorities make IT planning difficult, if not impossible. It is actually surprising to see how few senior executives have a well-defined and communicated corporate strategy. Their CIOs are the fortunate ones.

These inhibitors are not independent; they interweave. For example, if IT does not prioritize well in the eyes of business executives, the two likely lack a close relationship. The implication, once again, is that addressing both enablers and inhibitors is not a simplistic, one-answer solution; it is complex and ongoing. Organizations have constantly looked for the silver bullet to answer all their needs. Unfortunately, it takes many silver bullets to succeed, but only one to kill. The IT business alignment maturity assessment study, sponsored by SIM and The Conference Board, has provided an effective vehicle for identifying alignment problems and opportunities, and direction for improving alignment.¹³

IT and business alignment remains a major issue. In the studies cited here, over one thousand executives from numerous industries have identified similar alignment enablers and inhibitors. Executives need to work toward minimizing those activities that inhibit alignment and maximizing those that bolster it. Over the past decade, the major areas of focus have not changed. The results show that executives should:

- Concentrate on improving the partnership between business and IT,
- Continually improve the IT governance process,
- Effectively communicate using words that business and IT partners understand and appreciate,
- Maintain the appropriate technology scope in delivering IT services,

- Regularly demonstrate IT’s value to the business, and
- Ensure that suitable skills are developed to support these efforts.

SUMMARY

Plus ça change, plus c’est la même chose – the more things change, the more they remain the same. Nowhere is this statement truer than in the rapidly changing world of information technology. In the years since SIM commissioned its first member survey in 1980, there have been a host of changes and new technological developments. Indeed, in examining the list of application and technology developments in the 2003 survey (Table 8), every one of the 13 items, except for the second one, “infrastructure developments,” was not on anyone’s “radar screen” when the previous SIM survey was conducted in 1994. Portals, e-business strategies, SCM, CRM, EAI, Web services, and other developments are all new, and, as such, represent new challenges, and opportunities, for IT executives.

On the other hand, the IT managerial challenges have remained fairly constant over these years. Four items—“IT and business alignment,” “IT strategic planning,” “security and privacy,” and “attracting, developing, and retaining IT professionals”—have been on the lists of IT management concerns (save one or two years) since the first SIM survey in 1980. In particular, “IT and business alignment” and “IT strategic planning,” which number one and two in the 2003 survey, have been in the top ten during that entire period. This consistency reinforces the importance for IT executives to (1) understand the businesses of which they are a part and (2) work toward planning for, and achieving, an alignment between the IT activities they head and the businesses they serve.

APPENDIX: THE PLAN OF THE STUDY

The 2003 survey differed from the previous studies in several ways. And the previous studies differed from each other as well. In studying the previous surveys, the SIM Board made three decisions about the 2003 survey.

Determine the participants and survey process. In the first SIM survey in 1980, all SIM members were surveyed. In the subsequent four formal studies, only the corporate members were surveyed. The result was a much smaller number of respondents: 54 in 1983, 68 in 1986, 104 in 1990, and 108 in 1994. Their reason-

¹³ Ibid.

ing was as follows: "Institutional members represent organizational memberships within SIM. These memberships are usually represented by the highest ranking IT office within the organization. Utilizing institutional members as a research sample offers the advantage of having one highly placed individual within each organization respond on behalf of the organization and eliminates biases from having multiple people respond from a single organization."¹⁴

These previous studies used a Delphi study to capture the key issues of the institutional members. A Delphi study requires several rounds of inputs from the participants in order to identify and rank the variables. The SIM-Minnesota studies used three rounds—the first to generate the issues and the second and third to refine them. A Delphi study has the advantage of each successive round forming a stronger and stronger consensus among the participants. The disadvantage, though, is that the process is time-consuming and requires careful attention from the busy executives, resulting in potentially low levels of participation. Also, experience has shown that, although agreement and consensus become stronger (i.e., the standard deviation or spread of opinion narrows), the overall rankings of the top items rarely change.

Thus, for the 2003 study, the SIM Board decided to survey a broad audience in a single round, similar to the original 1980 study, believing that (1) members would resist a multi-round Delphi study, and (2) the rankings from one survey would be virtually identical to the rankings from a three-round Delphi study.

Based on this first decision, the research team from Georgia State and Stevens constructed the survey based up (1) the previous SIM studies, (2) similar lists from trade publications, (3) inputs from SIM Board members, and (4) their own extensive professional experience.

Add a technology list. The Board's second decision was also a break from the past. In most of the earlier surveys, the issues were largely managerial. However, with the 1994 survey, more technical issues were commingled with the management ones. In fact, the number one concern in 1994 was "building a responsive IT infrastructure."

Therefore, the Board decided to ask participants about two issues—"Management Concerns" and "Application and Technology Developments"—to uncover both managerial and technical concerns of IT executives without requiring them to trade one off against the other. Participants were asked to rate 25 manage-

rial issues (see Table 1) and 13 technical issues (see Table 8).

Explore the alignment issue. Third, the 2003 survey added a list of IT and business alignment "enablers" and "inhibitors" because it was predicted that "IT and business alignment" would again be a highly ranked management concern. It had been in the top ten in every list since 1983, and it was of personal research interest to one of the researchers, Luftman.¹⁵ Based on that past research, 13 business enablers and 14 business inhibitors were included in the survey.

The survey process. The survey was sent both electronically and in hard copy to all SIM members (not just corporate members) in the summer of 2003. By September, 253 responses had been received and a preliminary presentation of the results was made at the SIM annual conference (the "SIMposium") in New York City on October 13th. That brief presentation generated considerable interest; it was cited in a number of trade publications.¹⁶

Although 253 responses were satisfying, a larger sample could be obtained by including The Conference Board, who are IT executives. Once contacted, the Board's Research Director agreed to send the survey to The Conference Board members. Forty-eight additional responses were obtained, leading to a SIM-The Conference Board total of 301 responses. Perhaps not surprisingly, the responses of The Conference Board members were similar to those of the SIM members (see Table 1).

ABOUT THE AUTHORS

Dr. Jerry Luftman (jluftman@stevens.edu) is the Executive Director and Distinguished Professor for the graduate information systems programs at Stevens Institute of Technology. His 22-year career with IBM included strategic positions in IT management, management consulting, information systems, marketing, and executive education. Dr. Luftman played a leading role in defining and introducing IBM's Consulting Group. As a practitioner, he has held several positions in IT, including CIO.

Dr. Luftman's research papers have appeared in several professional journals and he has presented at many executive and professional conferences. His

¹⁵ Op.cit, Luftman, 1999, 1999. 2003.

¹⁶ In 2003, the survey results appeared in: *Computerworld*, October 16th; *SearchCIO Portal*, October 17th; *Supply & Demand Chain Executive*, October 20; *IT Business Edge*, October 14th; *SupportIndustry*, October 20th; *eWeek*, October 27th; *Network Magazine*, December Issue; *Optimize*, December Issue; *TechRepublic*, December 29th; *Business Finance*, March Issue; *CFO IT*, Spring Issue.

¹⁴ Op.cit, Brancheau et al., 1996, p. 226.

book, *Competing in the Information Age: Align in the Sand*, recently published by Oxford University Press, has been well received by industry and academia. His doctoral degree in information management was earned at Stevens Institute of Technology.

Dr. Ephraim R. McLean (emclean@gsu.edu) is a Regents' Professor and holder of the George E. Smith Scholar's Chair in the Department of Computer Information Systems in the Robinson College of Business at Georgia State University. After seven years as a manufacturing manager and computer systems analysis at Procter & Gamble, he earned his master's and Ph.D. degree at the Sloan School of Management at M.I.T. He was a faculty member and department head in the Anderson School of Management at UCLA for 18 years prior to joining Georgia State University in 1987.

Dr. McLean has published nine books and over 125 papers in such publications as the *Harvard Business Review*, *Sloan Management Review*, *California Management Review*, *MIS Quarterly*, *Information Systems Research*, *Journal of MIS*, and others. His research interests include IS strategic planning, management of information services, career progressions of IS professionals, and leadership roles of CIOs.