

ALIGNING INFORMATION SYSTEMS AND BUSINESS STRATEGY A CASE STUDY

EDWARD G. CALE, JR.
BABSON COLLEGE

JERRY KANTER
BABSON COLLEGE

ABSTRACT

A major concern of senior information technology executives is achieving alignment between the information technology function and the strategic interests of the overall organization. This paper examines the multi-year efforts of one large corporation in trying to achieve and maintain alignment. The paper examines the strategic business/IT planning process as one vehicle for achieving alignment, but also examines the intricate relationship between organizational structure, communications, shared visions, and strategic information technology planning. In pulling all of these elements together, the case presents a rich opportunity to observe the subtle and complex relationships that can make an organization succeed or fail. The paper concludes with a brief analysis of the case, drawing lessons for consideration.

INTRODUCTION

A 1996 survey of more than 500 IS executives conducted by CSC Consulting¹ indicated, for the second year in a row, that "aligning information systems and corporate goals" was their number one critical information technology issue. As information technology and the information systems function become increasingly embedded in the basic fabric of business activities, the need for alignment between IS and corporate goals has and will continue to increase^{2, 3}. This paper focuses on the strategic Business/IS plan as one means of achieving alignment. The basis of the paper is an in-depth study of a three year effort of GTE Government Systems Corporation (GSC), a subsidiary of GTE Corporation, to develop a comprehensive five year strategic information technology plan jointly with the business executives of GSC. This paper describes the odyssey of GSC's IS planning process, and includes such issues as:

- What was the driving force behind the plan?
- How and who initiated the plan?
- What was the planning process?
- How was linkage established between the IS portion of the plan and the company's high level business strategies?

- How was the continued commitment and involvement of business management assured?
- How were application priorities set?
- How did the process build in the flexibility to be responsive to future business changes?
- What were the key variables for success in this planning process?

GTE GOVERNMENT SYSTEMS CORPORATION (GSC)

An overview of the company is in order to set the environment for the planning process that was instituted. GSC is a totally owned subsidiary of the publicly owned communications giant GTE Corporation. With headquarters in Needham, Massachusetts, GSC's primary customer is the Federal Government, which represents 80% of GSC's revenues. GSC's product line includes data and voice communications hardware and software, earth-and space-based systems, telecommunications installation, operation, and maintenance, computer-based network systems, electronic warfare, and intelligence imaging systems. The product line is characterized by the use of leading edge communications, computing, and imaging technology.

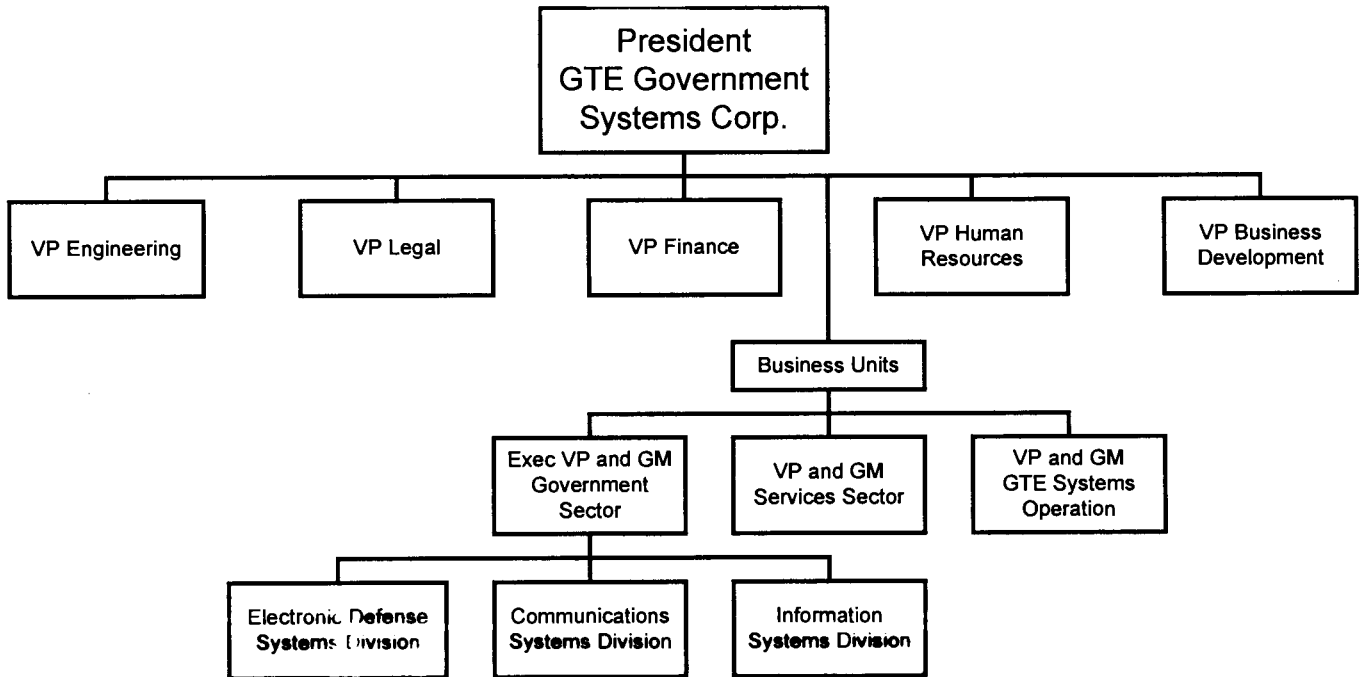


Figure 1. GTE Government Systems Corporation Simplified Organizational Chart

As can be seen in the organization chart (Figure 1), GSC is organized around five divisions or lines of products which are developed and marketed to customers:

Electronic Defense Systems, Communications Systems, Information Systems, Services Sector, and GTE Systems Operations. In addition, a corporate organization consisting of the vice presidents for engineering, business development, human resources, legal, and finance, as well as their respective staffs, also report to the president.

GSC is a technically driven company with a high percentage of management with engineering backgrounds. While GSC revenues were \$2.1 billion in 1991, the recent decrease in U.S. defense spending has lowered 1994 revenues to \$1.3 billion. Revenue was level at \$1.2 billion in both 1995 and 1996. With the decline in military spending, competitive pressures at GSC more closely resemble those of the non-government sector than they might have several years ago. As an outgrowth of the increasing competitive pressures, GSC embarked on a major campaign to reduce costs and assure that necessary spending was directed as effectively as possible. One of the targets of this cost campaign was the information systems function in GSC. This paper will describe the

information systems function prior to the cost control campaign, the decisions of senior executives regarding the IS function, the reorganization of the function, and the planning process which grew out of that reorganization.

INFORMATION SYSTEMS PRIOR TO THE COST-CUTTING CAMPAIGN

Prior to the cost squeeze, the information systems function was largely centralized, as illustrated in the partial organizational chart (Figure 2). Due to the high reliance of GSC's product line on engineering and technology, the information systems function had, for some time, reported to the vice president of engineering. While there were also information systems units located in each of the divisions, these reported directly to the corporate technology officer, maintaining only a dotted line reporting relationship to the divisional general managers. The central IT group was responsible for developing and operating all company IT applications whether they be used exclusively by a division or across the company. Thus, despite GSC's decentralized divisional business structure, authority in the information systems function was quite centralized.

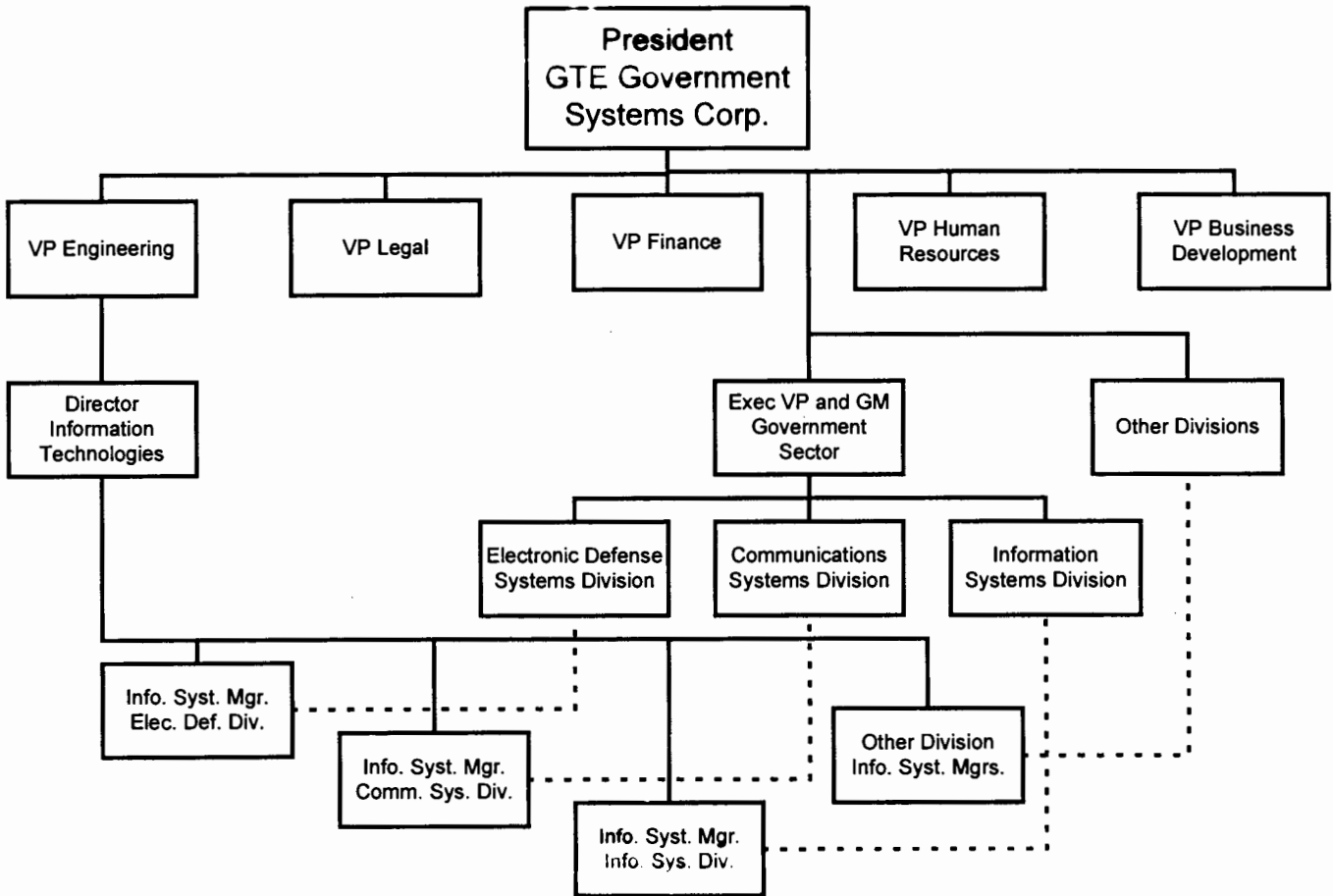


Figure 2. Partial Organization Chart Prior to Information Systems Reorganization

As cost-cutting pressures started to build at GSC, IT became a major target for reduction. The information systems function had operated on a fully burdened chargeout system, allocating its considerable budget to the five divisions. Facing severe cost constraints, the division general managers started to demand that the costs for IT services be reduced substantially. In addition to questioning the chargeouts, the division managers leveled other complaints against the centralized information systems organization. There was a general sense that IT was not sufficiently responsive to the needs and concerns of the divisions, that significant decisions were made without adequate divisional input, and that there was an inappropriate bias toward engineering projects to the neglect of important and necessary business information systems.

At the same time that the division vice presidents and general managers were beginning to express a growing dissatisfaction with the existing IT organization, two major organization events were taking place. First, a major restructuring occurred which transferred core

engineering responsibilities from the centralized corporate staff back to the divisions. With the reduction in corporate engineering, the information technology function was transferred from the GSC vice president of engineering to the GSC vice president of finance. The second event that occurred was the announcement of an early retirement package which a number of employees, including the director of information technologies, opted to take.

The departure of the Director of Information Technologies (DIT), as well as the change in its reporting structure, provided the opportunity to take a fresh view of how to approach the information systems function within Government Systems. The GSC vice president of finance took decisive action to shake up his "new" information systems organization. He first appointed a senior member of the information technology staff as the acting DIT. The newly appointed information technology director was then given the charge to find out what was wrong with the information management organization and put in place a plan to remedy the problems.

Before determining the process to be used for analyzing and planning for the information technology needs of GSC, the new DIT determined that his first order of business would be to have one-on-one discussions with each of the division general managers and other staff members. It became obvious through these interviews that the success of the new organization depended on establishing a linkage with the key business people within GSC to jointly establish a plan to cut costs, improve the credibility of IT, and to support the company's need for new business. In his conversations with division personnel, the DIT learned that opinions were widely and strongly held that the IT organization was no longer considered to be effective. The divisions felt that information systems costs were too high. Contributing to excess costs, the managers went on, was the sense that the IT organization often pursued new technology for its own sake. Beyond the fact that costs were too high, there was a clear feeling that the divisions had little to no control over costs or the technology decisions being made by the information systems group. Perhaps most damning, the general managers believed that there was a significant lack of alignment between the projects of the information systems group and the business needs and directions of the divisions. The organization was considered to be reactive rather than proactive and not strategic to the success of the GSC business units.

Recognizing that the information systems problems at GSC included not only organizational and technical issues, but also a pervasive lack of credibility in the eyes of the user community, the acting DIT sought to immediately establish a cross-functional steering committee to help shape the new vision and begin the process of developing a strategic IT plan that aligned with business needs. He requested that each division general manager appoint one high level business manager from within their division to be a member of the cross-functional team. These people, and the committee to which they belonged, were charged with overseeing the information systems planning process, both as to content and to methodology. The positions of the people appointed to the committee varied widely - in some divisions, the controller was appointed; in other divisions, a business development manager was appointed. However, in all cases, the appointees were high level managers, and the committee was viewed as very connected to the business.

REORGANIZATION OF THE INFORMATION SYSTEMS FUNCTION

Through his interviews with divisional personnel, it became apparent to the DIT that a

centralized information technology organization could not succeed in the future. The divisions were demanding and required more control over information technology directions, particularly those technologies that would have impact on the unique aspects of their business. However, the DIT also had to balance the need for more division control with the corporate objectives of utilizing common mission critical applications (manufacturing, engineering, finance, etc.), implementing a GSC information architecture, supporting hardware and software standards, building and running a centralized data center, and designing and managing a corporate Wide Area Network (WAN).

With these requirements in mind, the DIT recommended several critical organizational changes, which were approved and implemented. Within his own organization, he created a new unit, IT Planning and Architecture, to establish a focus on planning and aligning IT initiatives to the needs of the business. Also reporting directly to the GSC IT director's office were the manager of the common GSC applications group and the manager of the data center/wide area network services. Perhaps more importantly, the divisional IT managers, who previously reported to corporate IT, were now given a direct reporting responsibility to the division controllers, with only a dotted line to the corporate DIT. The division IT manager would thus have direct responsibility for division specific application support, end user computing, local area network, and the internal division library. This hybrid centralized/decentralized approach, illustrated in Figure 3, gave the divisions direct responsibility for about 50% of the annual Government Systems IT budget, and also provided the divisions with the control that was important to their long term success.

DEVELOPMENT OF THE NEW INFORMATION SYSTEMS PLAN

While there are a plethora of planning methodologies, the IT director felt that the specific methodology employed was not particularly important. Furthermore, there was little time for lengthy analysis. With assistance from a local college IT research center, an outline of the essential components was established. As a base point, the IT director's approach was to start with an inventory of current, in-process applications and current on-order and installed equipment. However, the relative priority of current projects, and the consideration of new projects, would have to be driven by the fundamental business strategy of the divisions and GSC as a whole. The key issue was to develop a consensus of what those priorities should be.

In February of 1994, the newly appointed GSC IT director convened the first planning meeting. Present were all members of the cross-functional steering committee, divisional IT managers, the DIT, the manager of planning, and several technical support staff from corporate IT. The invitation and charge for the meeting is

attached as Appendix 1. The first day of the meeting dealt only with the divisions and their business plans. In turn, each cross-functional team member presented their short and long term business strategy to the whole group, dealing with products, customers, trends, and competition.

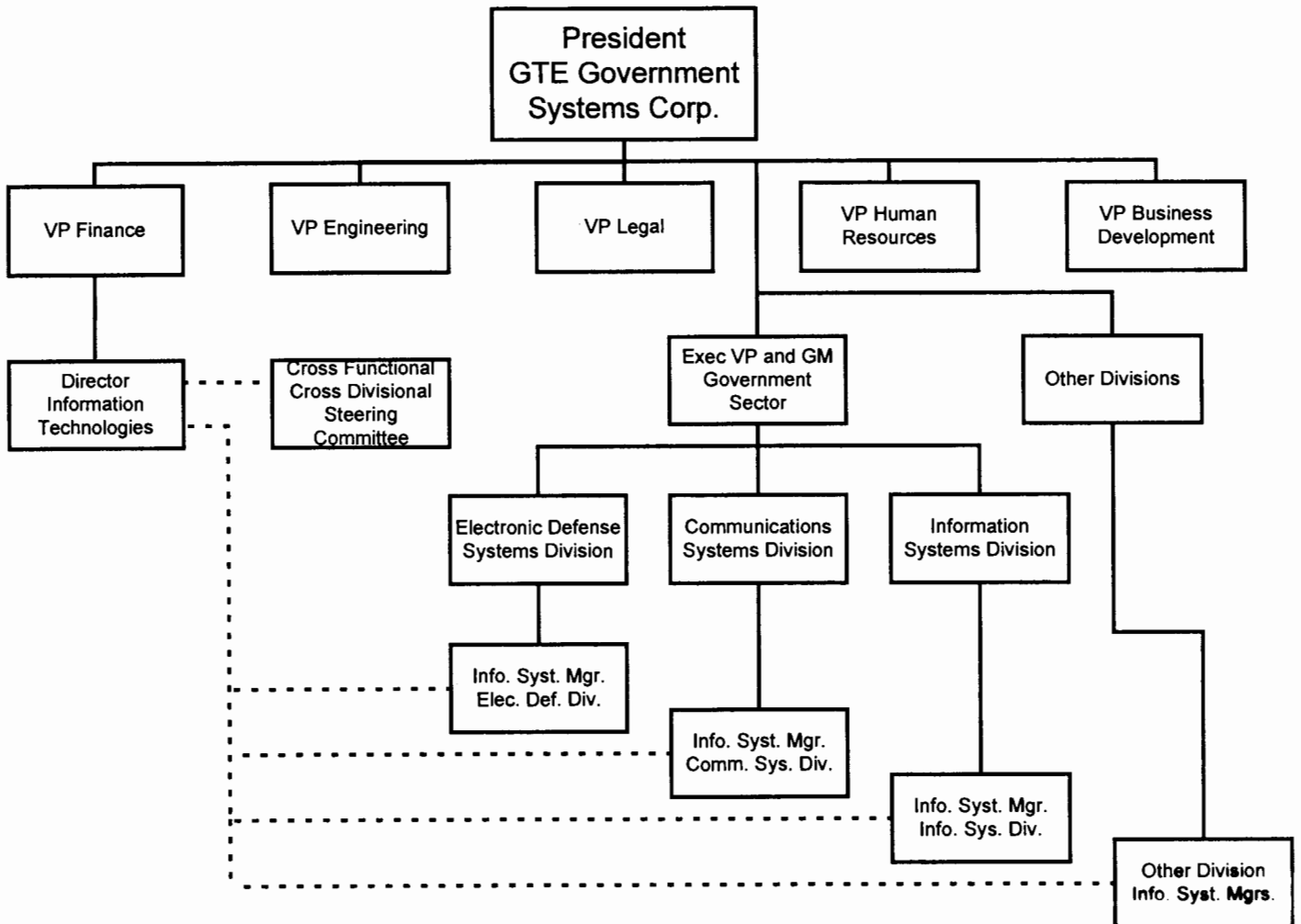


Figure 3. Hybrid Centralized/Decentralized Approach

During the second and third days of the meeting, the corporate and divisional information technology managers made presentations. Their task was to first identify, and then to prioritize information technology projects that would make the most sense in light of what had been presented in day one of the meeting.

After the meeting concluded, primary responsibility for actual assembly and publication of the plan fell to the IT director's manager of IT planning. Keeping in constant touch with the divisional information technology managers, the IT planning manager worked to develop the written explanation, timetable, and other documentation that would support the priorities set at the three-day planning meeting. To assure buy-in and ownership from the divisions, each project was assigned a leadership team consisting of a project manager from division management and an IT technical manager from either the corporate or divisional IT group.

After two months of work, the plan was ready for review. Copies were sent to all of the divisions with requests for review and comments. In a sense, the plan would never be final - it would be constantly under review and revision. Every four months the divisional and corporate IT managers meet for three days to discuss progress, changes in priorities, and new initiatives. At the end of these trimester meetings, the cross-functional team members are briefed by their respective divisional IT managers, with further changes being made.

At present, more than three years after the plan was first developed, it would appear that the plan and, more importantly, the planning process continue to evolve and remain significant components in the decision making and management at GSC. In discussions with corporate and divisional personnel, both from technical and managerial ranks, all parties indicated that the plan was a key component in GSC's restructuring and cost-containment initiatives, and that the planning process had greatly increased linkage between management and IT initiatives.

Additionally, the communication and teamwork which were a part of the planning process have gone a long way in increasing the credibility of the information systems organization at GSC. Increased credibility is also a result of the information systems organization effort to significantly reduce its own budget, and thereby reduce the high level of chargeouts that were, in part, a driving force behind the IT reorganization and planning effort. The IT director credits the planning process as a major enabler of those decreasing costs.

PLAN DETAILS

While it was agreed that the plan had unique and effective components, the methodology and actual contents of the plan were secondary to the process itself, the support and backing of operating management, and the participation of business as well as IT management in the process. Business goals were discussed and an agreement was made on the six most important business objectives. Then, specific IT initiatives were listed and rated on a one-to-ten scale against these six business goals (Appendix 2). Thus, a priority was established for IT initiatives based on the impact of each technology on the business. Application initiatives were also ranked based on their importance in achieving the stated business goals. This represented an important base point for establishing priorities in major applications. This was done both for corporate-wide applications and business unit specific applications (Appendix 3).

After thorough discussion including costs, budgets, and timeframe as well as business and IT capability to respond, applications were selected for implementation. The matrix rating, project manager, technical and functional heads, and timeframe with phase completion dates were listed in the original plan and updated with each revision. Finally, for each planned application or IT initiative, a comprehensive project plan was issued with detailed project description, cost and schedules, statement of projected benefits, and project milestones.

ANALYSIS OF THE PLANNING PROCESS

Given the vigorous continuing development of the plan and the ongoing involvement of individuals throughout GSC, there can be little doubt that the planning process was both necessary and successful. Probably the most powerful proof of the success of the planning process has been the re-establishment of IT credibility. The Information Technologies organization projected a major reduction in the cost of running their operation, took the challenge seriously, and is delivering on their commitment. Beyond successful cost reduction, IT made time and cost commitments to new projects, and has been able to deliver on those commitments. An analysis of the motivation behind the planning, the planning process itself, and the outcome for stakeholders reveals strong reasons for the plan's success.

Motivation Behind the Plan: Certainly, one of the factors behind the success of the plan was the strong and coherent motivation that brought all parties to the planning process. GSC's declining revenues created a serious environment in which all parties acknowledged the existence of a problem and the need to resolve it. Information systems costs were unacceptably high and appeared out of line with benefits received. Additionally, the IT director's decision to have divisional business needs drive the process certainly appealed to and assured the participation of divisional management personnel. Finally, as a technologically oriented company, GSC's management personnel accepted from the beginning the importance of information technology, both as a part of their product line and as a part of management support. The relatively high level of technical sophistication of all GSC personnel certainly made it easier for those participating in the planning process.

Planning Success Factors: Several aspects of the planning process worked to assure its success. Given the lack of credibility of the previous IT organization at GSC, it was vital that the DIT get active involvement and buy-in from divisional management. There can be no doubt that his early meetings with division general managers and his establishment of the cross-functional team prior to actually beginning the planning process did much to break down the barriers that had previously existed between corporate information systems and divisional management. In addition, three important organizational changes were made which encouraged divisional involvement. By moving IT's reporting responsibility from Engineering to Finance, a business rather than technical focus was ensured. In creating the Cross Functional Steering Committee, the DIT showed his commitment to forming a partnership, and gave the divisions the means to become involved. Finally, in shifting the reporting relationship of divisional IT from corporate to divisional control, the IT director further ensured that divisional managers would feel and exercise ownership of IT decision making.

Equally clear, the decision of the DIT to have the first three-day planning session start with divisional management's presentation of business plans and initiatives sent a loud message: this plan would be business driven and relevant. Additionally, the planning process was closely aligned with, and made good use of, the new decentralized IT organization. The holistic, interactive nature of the three-day planning meeting served to get all participants in sync with each other, breaking down barriers not only between divisional management and corporate IT, but also between divisions themselves. It was this sense of all participants seeing "the big picture"

that allowed for priorities to be set from the perspective of GSC as a whole.

The planning process functioned smoothly and quickly because it was not procedural or bound to ponderous methodology. Most of the hard decisions were made during the three-day planning meeting, and participants had a comprehensive plan in hand two months after the meeting. No doubt, the speed with which the plan was completed helped maintain the interest and commitment of all involved. Frequent follow up and the flexibility to adapt to the constantly changing business environment has been vital in maintaining the on-going viability of the plan.

Meeting Stakeholder Needs: In large part the plan is viewed as successful because it satisfied, to a great extent, the needs of all major participants. From the perspective of divisional management, the plan provided the means for making the information systems function more responsive to their business needs. It clearly helped reduce the high costs about which they complained, and it provided an on-going vehicle for coordinating and prioritizing inter-divisional needs. From the perspective of the vice president of finance (to whom corporate IT reports), the plan was vital in meeting cost-cutting goals. Equally important, the plan provided the means for rationally separating responsibilities between corporate and the divisions. From the perspective of the vice president of finance, the plan provided a medium for dealing with the evolving technology and changing business needs of the organization. Finally, from the IT director's perspective, the plan was quite successful in meeting his needs. At the highest level, the plan allowed him to meet his aggressive cost-cutting goals and to greatly increase alignment between IT and business management. This alone has done much to increase the credibility of the information technology group within GSC and its divisions.

Additionally, the planning process provided the DIT with the vehicle for opening and keeping communication channels between his IT department and the user community throughout GSC. By assuring that all participants are reading from the same script, the planning process supports divisional buy-in on tough decisions and the means for dealing with future changes. Finally, the plan itself, with time and dollar commitments, provided the IT director with an instrument for measuring the performance of his own organization.

A key success factor in GSC's planning process was that while the IT director may have been the project champion, the process itself, both content and form, was business driven. One of the business interviewees made the statement that he was willing to attend the IT planning

meetings because he knew they would be business, not IT, oriented and in his mind that separated the effort from other IT planning initiatives in which he had participated.

SUMMARY RESULTS OF THE PROCESS

The initial planning kick-off meeting was held in February, 1994. It is interesting to note that since that time, two and a half to three day follow-up sessions have been held in June and October of 1994, in February, June and October of 1995 and 1996, and in February of 1997. Major plan updates emanated from these meetings. The plan is an ever changing, living document.

As of the end of 1996, the applications initiatives listed in Appendix 3 have been completed with the exception of Re-Use, Skills/Resume and Integrated Program Management. Subsequent meetings and resultant discussion altered the priority of these applications placing them lower on the scale. Prototypes do exist, however, for the applications. All of the Architectural Transition and Other Initiatives have been implemented.

The principal reasons for initiating a cross functional planning group were to develop a strong link to the business and its primary objectives, to decentralize IT, and in the process reduce IT costs. This was a real challenge because the plan developed the need for the expansion of existing applications as well as the design and implementation of completely new applications and, in addition, the reengineering of the IT infrastructure. The latter resulted in a 1996 total operating cost savings of 27% which more than offset the added cost of the major new applications. A major event was the decommissioning of the mainframe in June, 1996. In addition, an estimated \$2.5 million was avoided by solving a majority of the millennium 2000 problems. In 1996, approximately 50% of total company IT costs were under the control of the divisions. GTE management is pleased with these outcomes.

CONCLUSION

In summary, the planning effort at GSC provides valuable lessons to those initiating such an undertaking or attempting to understand the benefits in so doing. A complete picture of the process was obtained from interviews with both IT and business management as well as an in-depth review of the planning documents and company publications covering actions taken as a result of decisions emanating from the plan. The effort has been impressive as the plan definitely has been used as a vehicle for integrating IT with the business. The effort

was initiated at a crucial time during GSC's business development. There was no assurance that the plan and the process leading to it would be the catalyst for embedding IT more strategically in the business units, but indeed it did just that.

The GSC planning effort followed some of the traditional thinking on planning, such as bringing business executives and IT executives together by selecting strong business unit champions who had the respect of the corporation. As has been mentioned, the plan is a living document with updates and follow-on meetings held throughout the three-year period since the plan's initiation. Also, there were unique elements such as the method of prioritizing applications and the introduction of new technology based on a point score of how each new endeavor satisfied GSC's six vital business objectives. The entire planning process was consistent with the prevailing company culture and mode of operations, yet had the built-in flexibility to adapt to changing conditions. The key factor now is to continue to deliver on the plan's objectives as measured by the satisfaction level of the principal users. Based on results to date, the future looks promising.

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- [3] Reengineering MIS: Aligning Information Technology and Business Operations, Coleman, Ettwein, Johnson, Pigman, and Pulak, *Idea Group Publishing*, Harrisburg, PA, 1996.

AUTHORS' BIOGRAPHIES

Dr. Edward G. Cale, Jr. is a professor of information systems at Babson College, where he also serves as the Faculty Director of the One-Year MBA program. His research interests center on the planning for and management of information systems. He has published widely, both in academic as well as professional journals. He holds a B.S. in Electrical Engineering from Stanford University and an MBA and DBA from Harvard University. He is a member of SIM, DSI, ORSA, and TIMS.

Mr. Jerry Kanter is the Director of the Center for Information Management Studies (CIMS) at Babson College, a cooperative effort of business and academia to improve the use of information systems. Mr. Kanter is also a senior lecturer at Babson College and remains active as a consultant to several companies. Mr. Kanter has authored seven books and has written over 50 articles and papers for professional journals. Mr. Kanter holds a B.A. and MBA from Harvard University.

Appendix 1

Inter-Office Memo



Command, Control, and Communications Systems GTE Government Systems Corporation

Subject: Information Technology – Preliminary Planning Session

Date: December 6, 1993

From: A. Leonardi

To: List

Now that the Information Technology re-structuring has been completed, it is important that we move forward with the Information Technology planning process. As we discussed during my staff meeting of November 22nd, the Information Technology planning session has been set for February 7th, 8th, and 9th in Needham. There are several objectives of this meeting:

1. Understand the business objectives and technology needs of each Government Systems Business unit. Where is the business going over the next 5 years? What are the critical success factors? Who are our customers, what are our future products/services, etc.? As you know, an IT cross functional steering committee has been formed to ensure GSC/business unit short and long term IT strategies do in fact directly support the business. The steering committee members will participate during the first day of the planning session providing insight into each of their respective GSC business units. To make certain that we stay on course once the IT plan has been finalized, we have talked about quarterly meetings with the steering committee and IT management staff to review progress on major initiatives, to validate priorities and to discuss changes in future directions.
2. As a response to these business requirements and overall directions, develop a list of action items, and IT initiatives that align to the business needs.
3. Establish and agree on priorities.
4. Gather the information that will allow us to develop a five-year planning document for distribution by April 1st, 1994. This five year plan should clearly define the GSC/Sector and Division IT architectural framework, standards, and strategies that will lead to a cost effective integrated environment. The plan should answer the question from an Information Technology standpoint: where do we want to be at the end of five years, and how do we propose to get there?

I'm in the process of developing an agenda over the next couple of days for your review. Jane Ryan will also be contacting you to gather input in preparation for the meeting.

Appendix 2

IT Ratings to Goal		IT Planning Matrix							Total Rating
Business Goals		Reduce Cost Doing Business	Customer Service/Responsiveness	Program Management	Competitive Edge	Acquisition Of New Business	Intra GSC/GTE	Total Rating	
IT Initiatives									
9 = High									
5 = Medium									
1 = Low									
Client/Server		9	9	5	5	5	1	34 **	
Amdahl/Vax Transition		9	1	1	1	1	1	14 **	
Network/Upgrade/Integration		5	9	1	5	9	9	38	
Data Warehouse		5	9	9	5	5	1	34	
Video Conferencing		5	9	5	5	1	9	34	
Integrated Program Management		5	5	9	5	5	5	34	
Midas/MacPacD Replacement		9	5	5	5	5	1	30	
Electronic Mail		5	9	1	1	5	9	30	
Re-Use		5	5	1	1	9	9	30	
Bid Proposal Consolidation		5	5	1	1	9	5	26	
Skills/Resume		1	1	5	5	9	5	26	
EDI		5	5	1	5	5	5	26	
Electronic Forms		9	1	1	5	5	5	26	
Accounting Segment Replacement		9	5	5	1	1	1	22	
Internet Access		1	5	1	5	5	5	22	
Labor Distribution		5	5	5	1	1	5	22	
Desktop Standards		5	1	1	1	5	9	22	
CACS Migration		9	1	1	1	1	1	14	

* Client Server Initiative is a prerequisite to these initiatives

** Combined ratings of these two initiatives is 48 (highest priority). This is reflected in the Planning Initiatives document (Appendix 3).

Appendix 3

IT Planning Matrix												Total Rating
Business Goals	Reduce Cost of Business		Customer Service		Strong Program Performance		Enhance New Business Acquisition		Intra/Inter Customer Communication			
	Ratings To Goal	Weighted Score	Ratings To Goal	Weighted Score	Ratings To Goal	Weighted Score	Ratings To Goal	Weighted Score	Ratings To Goal	Weighted Score		
Business Goals Weight 5 = Most Critical, 1 = Least Critical		5		2		3		4		2		
IT Initiatives												
IT Ratings to Goal 9= High, 5= Medium, 1= Low												
Application Initiatives												
Re-Use Skills/Resume	9	45	1	2	1	3	9	36	9	18	104	
PDM	9	45	1	10	5	15	9	36	9	18	104	
JIT	9	45	5	10	5	15	5	20	5	10	100	
Integrated Program Management.	5	25	5	10	9	27	5	20	5	10	92	
Accounting Segmt. Replacement.	9	45	5	10	5	15	5	20	5	10	84	
Bid Proposal Consolidation	5	25	5	10	1	3	1	4	5	10	84	
Labor Distribution	9	45	1	2	1	3	9	36	5	10	68	
CACS Migration	9	45	1	2	5	15	1	4	1	2	56	
Scheduling	9	45	1	2	1	3	1	4	1	2	40	
ISLIP	1	5	1	2	1	3	1	4	5	10	24	
CSD VAX (Oracle)	1	5	5	10	1	3	5	20	1	2	16	
FSD VAX (Oracle)	1	5	1	2	1	3	1	4	1	2	16	
Architectural Transition												
Data Warehouse	9	45	9	18	9	27	5	20	5	10	120	
Client/Server	9	45	9	18	5	15	5	20	1	2	100	
Electronic Mail	5	25	9	18	1	3	5	20	9	18	84	
Amdahl/Vax Transition	9	45	1	2	1	3	1	4	1	2	56	
Internet Access	1	5	5	10	1	3	5	20	5	10	48	
Other Initiatives												
Network/Upgrade/Integration	5	25	9	18	1	3	9	36	9	18	100	
EDI	5	25	9	18	1	3	9	36	5	10	92	
Electronic Forms	9	45	1	2	5	15	5	20	5	10	80	
Video Conferencing	5	25	9	18	5	15	1	4	9	18	68	
Desktop Standards	5	25	1	2	1	3	5	20	9	18		