

Strategic Plan and Roadmap for the IDSc Department

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Executive Summary

While Information Technology (IT) and Information Systems (IS) have become an integral part of every business process, since 2002 a nationwide trend has emerged with decline in the number business school students that are attracted to MIS program offerings. While part of the trend could be attributed to the popular press' focus on outsourcing and its impact on demand for IT/IS labor, some studies (Arun's work) attribute the decline in interest to the traditional curriculum in MIS programs.

Increasingly, however, recruiters are demanding to know: "where the students with sufficient IT backgrounds are?" The demand for MIS graduates at undergraduate level has jumped significantly with almost all local companies and several national recruiters coming to recruit at CSOM due to the IDSc department's strong reputation in the field of MIS. A consistent complaint of the recruiters is regarding the low volume of students we have been able to provide. However, several companies, including Microsoft, Deloitte, E&Y, KPMG, IBM, and Target have committed to recruit from CSOM in the future. These companies have also expressed interest in providing resources to educate students regarding the opportunities

At CSOM, faculty have worked diligently to develop and deliver new cutting edge courses that address the managerial challenges as well as the opportunities that current IT/IS technologies and systems provide. However, while the program has seen some stability in enrollments at undergraduate level, the demand for IDSc courses has not yet shown a rising trend. While a variety of reasons can be stated, our interaction with the students, recruiters, and national efforts in building MIS suggests that we can narrow the list to primary areas of focus. Addressing these areas can improve and provide sustainable growth of the MIS program by aligning it better with the business needs and skill sets that MIS and other business graduates need. These areas are:

- i) *Define a core value proposition for MIS graduates that has faculty support – IDSc faculty has not, at least in the recent past, agreed on a strategic direction.*

This has created a sense of disjointed course offerings with no clear coherent message. For students this creates uncertainty regarding their learning objectives and related job opportunities.

- ii) *Create alignment with other CSOM programs* – since IT/IS is embedded extensively in virtually every business process and new initiatives, the MIS program should create courses that address specific technology education requirements for these students.
- iii) *Based on the core value proposition create a marketing plan* – While the Department has been on the innovation path in overdrive, the impact of these innovations does not show. One of the primary reasons is the lack of access to students' attention. Casual conversations with the students have revealed that while they may have been interested in taking IDSc courses, they were not aware of many of the course offerings. Better ways to inform students of the course offerings need to be devised.
- iv) *Create stability in elective offerings* -- Instability in offerings has created a problem in attracting students as students are never sure whether a course will really be offered. For new courses, we need to provide a guarantee that courses could be taught even with small enrollments for a given period of time. A more fair and stable teaching environment needs to be provided for faculty to promote innovation and implement the core value proposition defined in this document.
- v) *Align courses with jobs* – The Department needs to create courses that provide a clear job path, especially for undergraduate students, since the enrollments often follow employment opportunities. The strategic focus in this document has been created by focusing on the skill sets that recruiters are looking for across the board for technologically aware students.
- vi) *Develop synergistic teaching initiatives* – With the new focus of EDC, there is an opportunity to extend the reach of Department's programs. For example, programs in Business Intelligence, where we already have a synergistic research relationship with DTC, can include an educational component through EDC. Similar programs could be envisioned for IT governance and

control. In addition, we need to reconsider our stand on allowing non-CSOM students to take our electives. We can build formal relationships with programs such as computer science for a minor in MIS, thereby increasing enrollment in our classes. IDSc department has strong research relationship with Digital Technology Center (DTC) and computer science departments and we are ready to start discussions regarding such initiatives.

In rest of the document, a plan for developing the essential core value proposition for the MIS program is discussed. This is based on research on curriculum development efforts at the national level, discussions with faculty members at other institutions, and discussions among IDSc faculty. IDSc faculty extensively discussed the ideas presented in the document on 9/29/06 and 10/13/06. The faculty were unanimous that the direction proposed in the document presents opportunity to ground the Departmental courses both at the organizational as well as individual decision making levels. Other elements of the focus need discussions with the deans regarding resources, with the programs regarding course offerings and cancellation policy as well as potential help in providing access to students, and potential partners.

MIS Core Value Proposition

“MIS program prepares students to design, control and manage digital assets of an organization.”

Digital assets of a modern business environment involve not only technology but the digital processes governing business activities and associated knowledge acquisition, synthesis and transfer processes. MIS coursework prepares students to make better decisions, innovate and manage business processes in different functional business areas through the best use of the technological infrastructure of an organization. The collective impact of the coursework is to enable students to understand the role of technology in creating business opportunities as well as the functional management of the tasks needed to secure those opportunities. The knowledge gained through these

courses also enables students to, what IBM refers to as, *transform enterprise operations*.

Collectively, the design, control and management of digital assets is often referred to as IT governance. The main goal of IT governance is to create alignment between an organization's business goals and its IT/IS infrastructure and operations. IT governance is also important from the perspective of compliance with regulations such as HIPPA or Sarbanes Oxley. Therefore, IT governance issues should be of particular interest to individuals interested in accounting, finance and human resource management. Furthermore, courses developed in alignment with IT governance frameworks allow mapping of business processes to IT artifacts and processes, thereby providing guidance in design and innovation of technology supported business processes. IS/IT courses should also be of interest to students in operations and marketing due to integral nature of technology in these functions such as in the areas of eSourcing and Exchanges, ERP systems driven supply chain management, Online Mercantile Systems and CRM. Finally, at the broadest level, the governance frameworks allow an enterprise level view of technology and the required supporting processes which are useful tools to measure and convey the value of IT investment and strategic investment decisions.

We believe that since IT/IS capabilities support virtually every aspect of the business of an organization, the next generation of change leaders must understand how to manage their digital assets and create value from their usage of technology.

However, the complexity of computer and networking technology and enterprise systems makes it challenging for business students to grasp what they need to learn and, furthermore, how they can use their knowledge in their job functions. While MIS education has, in the past, focused on systems development and applications, there has been a lack of linkage to business functions. Part of the complexity lies in providing general enough frameworks that can be adapted to a variety of different specific instantiations within different organizations. Fortunately, in the last decade, industry and the academic community have developed broad frameworks and their

mapping to business functions to enable such generalizations. We are proposing to make IT governance the core element of MIS education so that the relevance of business needs and priorities are at the forefront. The appendix describes how one of the most widely accepted IT governance frameworks (COBIT) maps business objectives to the objectives of the IT function and in turn how the IT goals map to specific processes that need to be developed, maintained and controlled to achieve the goals. However, while COBIT is a comprehensive framework, the breadth of college level course material associated with it is limited. It would require a substantial effort on part of IDSc faculty to not only include elements of the framework in their courses but also to develop the new courses and teaching material.

Create Alignment with other CSOM programs

Since the governance framework allows the mapping of business objectives to the IT processes, the framework provides a good communication mechanism to create and deliver courses that should be of interest to a number of programs at CSOM. Since the recruiters often want an understanding of technology and an ability to manage technology initiatives from their functional managers, the courses based on functional business areas can be developed in a top down manner for a wide array of audiences.

Ideally, the department should offer courses at two levels:

- i) A systematic view of business from a technology support and process design perspective for technology focused students; and
- ii) An understanding of the control structure and business process translation for students interested in functional areas such as Accounting, Finance, HR, Marketing, and Supply Chain.

Many of our courses already build this bridge; however, we have not been able to systematically convey the value of understanding IT in the context of business goals. The governance process hierarchy can provide this missing link.

Marketing Plan

In the current environment of CSOM where students have little incentive to explore cross disciplinary courses and where most courses are taken based on word of mouth, it is difficult to access the students and inform them about the value of new courses. The IDSc department has created several courses that have been received reasonably well when they are offered. However, a sustained following for the course could not be developed due to a lack of sustained word of mouth reputation that builds for courses that are offered on a sustained basis.

The traditional mechanisms for reaching students such as information sessions and poster sessions have not been very successful since a small percent of students attend these. The department needs to develop a marketing plan in concert with the programs (MBA and Undergraduate) to find a way to directly reach students and provide them with details of new courses.

As a first step, the department should introduce the concepts and topics from its new courses in IT menu courses (IDSc 6040 and 6050) through guest lectures from other faculty members in the department. The undergraduate office has realized the need to promote MIS major based on the feedback from recruiters and a strategy session is scheduled for November 15, 2006.

Create stability in Elective Offerings

In our discussions with the students, nothing hurts enrollment in a class more than the uncertainty about its offering. It is our proposal that in order for faculty to have incentive to develop new classes and take risks, the dean's office should think about stability in course offerings. A minimalist proposal is:

- i) A new course be allowed to be taught at least for two years. If at the end of two years, enrollments are not satisfactory, the course may not be offered again.

- ii) Beyond the two years, a course that is listed should not be cancelled even with low enrollment. However, once the enrollment is below the minimum, the department needs to assess its viability and should reconsider whether it should be offered in the future and if so at what intervals.

The second option can be provided by giving the department a small number of discretionary credits where department can offer “risky” courses and try to build its long-term viability.

Align Courses with Jobs

The jobs in IT/IS area are coming back from their nadir in 2002-03. Money magazine rates an MIS degree as leading to one of the top 10 jobs. The MIS graduates are the employees who often develop an enterprise view of the organization and are taking a lead role in what IBM terms Business Transformation. It is our belief that with the department’s focus on IT governance we will be able to produce students that will be able to play a stronger role in transforming, managing, and innovating business processes through the use of information systems and technology.

Summary

The IDSc department has identified that IT governance should be at the core of our program offering. While the department will need to develop some new content and courses, many existing courses (such as Knowledge Management, Business Process Excellence, Business Intelligence, and IT Security) already provide a basis for expanding the reach and growth of the program. By providing systematic frameworks to students to make complex technology related decisions in a variety of functional areas, the MIS program will help educate future generations of business leaders that both understand technology’s role in achieving business objectives and are capable in managing and driving IT-based business transformation.

The department will need substantial resources to achieve the ultimate mission since the full time faculty is at a critical level and new program development requires

tenure track faculty. However, the department is committed to maintain its international reputation as the leader in MIS education.

Appendix: Mapping IT Governance to Effective IT Management and to the Creation of Business Value

In this section, a more concrete description of IT governance concepts is provided using a relatively new but widely supported framework called COBIT. Figure 1 provides a broad overview of COBIT. The figure illustrates the lifecycle of MIS processes in business environments with dependency (in terms of informational requirements) among sub processes labeled in the textboxes.

The goals set for an IT organizations can then be mapped to certain processes as depicted in figure 2. This conceptual mapping allows a manager to focus on building, acquiring, and assessing organizational capabilities to manage and use required resources. An assessment can also lead to an outsourcing decision if required capabilities are too expensive to build in-house. For example, for creating IT Agility, the framework suggests that processes that need to be maintained/designed should be around P02 (Define Information architecture), P04 (Define IT process, organization, and relationships), P07 (Manage Human Resources), and A13 (Acquire and Maintain Technology Infrastructure). Each of these processes can then be designed so that appropriate metrics are in place to meet desired objectives by controlling variance in performance. A course covering the topic of Creating IT Agility can then focus on some of these key elements as well as provide insights through cases and articles on why these processes are important in creating and maintaining agility.

Taking one step further, business objectives can be mapped to IT objectives as listed in figure 3. For example, on the topic of IT agility, one can identify the impact of agility on organizational competitiveness in the market, the ability to respond to changes in business requirements (process reengineering), and on the potential for product innovations. Similarly, courses could be mapped at the business requirement level and then one can drill down to IT goals and underlying processes to provide a cohesive and integrated view of the technology's role in facilitating business needs.

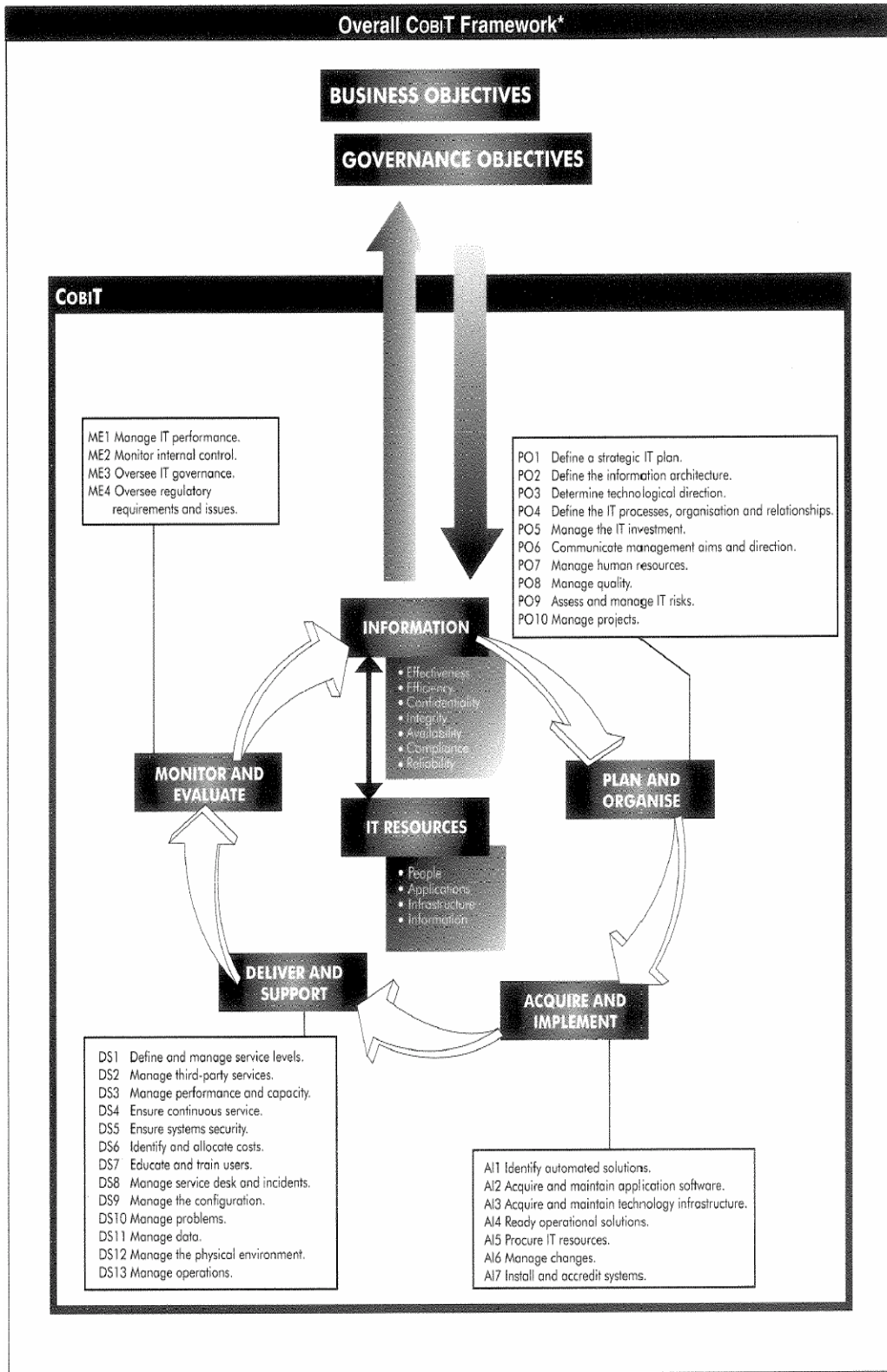


Figure 1 – Overview of IT Governance Framework¹

¹ Source COBIT 4.0 specification from ISACA -- <http://www.isaca.org/cobit/>

LINKING IT GOALS TO IT PROCESSES*

IT Goals	Processes										COBIT Information Criteria								
	P01	P02	P04	P010	A11	A15	A16	A17	DS1	DS3	ME1	Effectiveness	Efficiency	Confidentiality	Integrity	Availability	Compliance	Reliability	
1 Respond to business requirements in alignment with the business strategy.																			
2 Respond to governance requirements in line with board direction.																			
3 Ensure the satisfaction of end users with service offerings and service levels.																			
4 Optimise the use of information.																			
5 Create IT agility.																			
6 Define new business functional and control requirements are translated in effective and efficient automated solutions.																			
7 Acquire and maintain integrated and standardised application systems.																			
8 Acquire and maintain an integrated and standardised IT infrastructure.																			
9 Acquire and maintain IT skills that respond to the IT strategy.																			
10 Ensure mutual satisfaction of third-party relationships.																			
11 Seamlessly integrate applications and technology solutions into business processes.																			
12 Ensure transparency and understanding of IT cost, benefits, strategy, policies and service levels.																			
13 Ensure proper use and performance of the applications and technology solutions.																			
14 Account for and protect all IT assets.																			
15 Optimise the IT infrastructure, resources and capabilities.																			
16 Produce solution and service delivery defects and rework.																			
17 Protect the achievement of IT objectives.																			
18 Establish clarity of business impact of risks to IT objectives and resources.																			
19 Ensure critical and confidential information is withheld from those who should not have access to it.																			
20 Ensure automated business transactions and information exchanges can be trusted.																			
21 Ensure IT services and infrastructure can properly resist and recover from failures due to error, deliberate attack or disaster.																			
22 Ensure minimum business impact in the event of an IT service disruption or change.																			
23 Make sure that IT services are available as required.																			
24 Improve IT's cost-efficiency and its contribution to business profitability.																			
25 Deliver projects on time and on budget meeting quality standards.																			
26 Maintain the integrity of information and processing infrastructure.																			
27 Ensure IT compliance with laws and regulations.																			
28 Ensure that IT demonstrates cost-efficient service quality, continuous improvement and readiness for future change.																			

Figure 2 – IT Goals and Related Processes²

² Source COBIT 4.0 specification from ISACA -- <http://www.isaca.org/cobit/>

LINKING BUSINESS GOALS AND IT GOALS*

		IT Goals										CobIT Information Criteria							
		1	2	3	4	5	6	7	8	9	10	Efficiency	Effectiveness	Conformity	Integrity	Availability	Compliance	Flexibility	
Business Goals		25	28																
1 Expand market share.																			
2 Increase revenue.																			
3 Return on investment		24																	
4 Optimize asset utilisation.		14																	
5 Manage business risks.		2	14	17	18	19	20	21	22										
6 Improve customer orientation and service.		3	23																
7 Offer competitive products and services.		5	24																
8 Service availability		10	16	22	23														
9 Agility in responding to changing business requirements, (time to market)		1	5	25															
10 Cost optimisation of service delivery		7	8	10	24														
11 Automate and integrate the enterprise value chain.		6	7	8	11														
12 Improve and maintain business process functionality.		6	7	11															
13 Lower process costs.		7	8	13	15	24													
14 Compliance with external laws and regulations		2	19	20	21	22	26	27											
15 Transparency		2	18																
16 Compliance with internal policies		2	13																
17 Improve and maintain operational and staff productivity.		7	8	11	13														
18 Product/business innovation		5	25	28															
19 Obtain reliable and useful information for strategic decision making.		2	4	12	20	26													
20 Acquire and maintain skilled and motivated personnel.		9																	

Figure 3 – Business Goals and Related IT Goals³

³ Source COBIT 4.0 specification from ISACA -- <http://www.isaca.org/cobit/>

We believe that providing students with a comprehensive view of IT/IS role and responsibilities in an organization with an explicit focus on processes that need to be designed, monitored, and controlled will enhance their ability to make technology related decisions. For example, an analysis of a certain business goals will lead to the assessment of available capabilities and required resources. This may lead to a decision to build in-house, buy a package, or outsource certain capabilities. If an outsourcing decision is made, managers will be able to “package” a process with organization-specific knowledge (data, policies etc.) and unbundle it, say offshore. An understanding of the business processes and sub-processes at the level of technology and controls allows businesses to create portability in processes and make modular decisions without negatively affecting the organizational goals and delivering potential benefits.

An ability to look at business processes and associated technology also allows managers to make elusive IT value arguments since concrete activities, processes, and technologies are involved. The focus on governance answers the question whether the IT initiatives are consistent with business objectives, whether all aspects of business processes are considered and whether appropriate IT processes are being focused on and monitored. However, there is also a question of whether the correct IT initiatives are undertaken and whether these initiatives are yielding intended benefits. Valuation frameworks can be built on IT governance by developing systematic Investment Management goals that map into a portfolio of investments that an organization might consider. A strategic framework for a portfolio management approach driven by business objectives is depicted in figure 4. IT curriculum that addresses these elements should be of interest to a wide array of students since the approach highlights topics that can provide students with an understanding of skills required to effectively manage IT investment and demonstrate their value to the top line.

Figure 4 – IT Value Framework

