

# Strategic Information Technology Management

## MIS 375 (03795) Spring 2011

### M W 12:30 – 2:00 p.m., GSB 5.153

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#### Course Objectives

Information technology (IT) has the potential to change the landscape of global competition, increase productivity, change industry structure, make markets more efficient, and alter a firm's boundary and competitive position. While IT can provide competitive advantage, it has, in many cases, become a strategic necessity. It is no wonder that more than \$2 trillion is invested in IT each year on a worldwide basis, which is over 50% of all capital expenditures. Given the level of investments and the importance of IT, it is imperative that forward-thinking managers understand the process of using information and evaluating, assimilating, and managing IT within products, services and all value activities of a firm for operational efficiency, and business partner and strategic values. Managers need to be able to articulate the impact of IT products and services at the firm, industry and economy levels, so that investments are meaningful and productive.

However, the bursting of stock market bubble, decline in IT investments, increase in well-publicized bankruptcies, and the significant gap between the promise and the perceived benefits of IT have led skeptics to question the economic contribution of IT. The skepticism is not bad in itself, since it raises numerous questions involving how IT can provide cost leadership, differentiation and/or strategic benefits. The true benefits of IT can be realized only when organizations exploit certain characteristics of IT, and align business processes, incentives and partner (e.g., customers and suppliers) readiness with IT capabilities.

This course is designed to provide students frameworks and analytical tools to understand the economic and strategic implications of IT, transformation dynamics, and risks and pitfalls of IT decisions. The course will address many issues that are of interest to all managers including (a) identifying the characteristics of IT innovation and their implications on firm IT adoption; (b) understanding IT and the Internet contributions to economic growth; (c) evaluating the strategic implications of IT; (d) developing a framework for electronic business transformation; (e) exploring emerging IT-driven business practices (e.g., supply chain

management, customer relationship management, and enterprise resource planning); and (c) developing frameworks for IT investment justification.

## Course Themes

**Theme I:** Firm and industry transformation enabled by IT

**Theme II:** Economics of IT investments -- efficiency, productivity, business value, ROI, risk assessment

**Theme III:** Strategy & economics of IT -- IT as a driver of strategies, the fit between technology and business strategies, IT-induced changes in firm boundaries, leveraging IT for cost and value leadership, IT and switching costs, integrating into business partners' value networks, IT enabled new business models, etc.

**Theme IV:** Leveraging customer knowledge in a digital world

## Required Course Material

1. Textbook: "Data Mining for Business Intelligence: Concepts, Techniques, and Applications in Microsoft Office Excel with XLMiner" by Galit Shmueli, Nitin R. Patel and Peter C. Bruce, Wiley-Interscience (December 11, 2006), ISBN-10: 0470084855, ISBN-13: 978-0470084854.
2. Readings packet available at **IT Copy & Printing** (512 West Martin Luther King, Austin. Tel: 512-476-6662)

## Grading

Your course grade will be based on the following point distribution:

ITEM	Date (month/day)	Weight
3 Individual Case Write-ups	2/14, 4/4, 4/27	35% (12+12+11)
Midterm (take home)	Handed out 3/9	25%
Final exam (take home)	Handed out 5/04	30%
Course/class participation		10%

A grade of X (incomplete) is very uncommon and will be given only for unusual circumstances (e.g., documented medical emergencies for you or your immediate family members). You are required to provide sufficient evidence of the problem and notify me as soon as it occurs. **NOTE:** A student receiving an incomplete grade in the course is required to complete such work by the end of the next academic session.

## **Class Participation**

In this class much of the learning is dependent on the accessing the combined knowledge and experience of the group. It is everyone's job to keep the discussion productive and moving forward. In evaluating your class participation grade, I take the following into consideration:

- useful arguments expressed coherently and succinctly
- good analysis supported by case facts or your own experience
- relevance to previous contributions, i.e. ability to listen and build on what others say
- constructive disagreement
- regard, respect and acknowledgment of others' contributions
- readiness to contribute to class discussions

## **Case Reports**

Several cases will be discussed during the semester. You are individually responsible for 3 case study write-ups, about 4 pages, 12 font size, single spaced, due on the Blackboard at the beginning of class on the day of the case discussion. Late submissions will not be accepted. The objective of these assignments is to help you prepare for the case discussion, and to maximize the value of the case discussion for the entire class. A set of questions for each case will be handed out in class two weeks in advance. Your write-up should address the questions based on the facts discussed in the case, and your own research through other sources. Case write-ups will be evaluated on the accuracy and details of facts, analysis and clarity of arguments. The three cases are:

1. Feb 14 : "Cemex: Global Growth Through Superior Information Capabilities"
2. April 4 : "RFID at the Metro group"
3. April 27: "Air France"

## Course Agenda

Date	Topic	Readings
Jan 19	Introduction to ITM: Strategic and economic perspectives	.
Jan 24	How IT influences business strategies	<ul style="list-style-type: none"> <li>• Read the first half of A. Barua and P. Konana, "IT-Enabled Transformation" in the readings packet.</li> </ul>
Jan 26	IT & operational efficiency	<ul style="list-style-type: none"> <li>• Read the second half of A. Barua and P. Konana, "IT-Enabled Transformation" in the readings packet.</li> </ul>
Jan 31	Assessment of financial impacts of IT	<ul style="list-style-type: none"> <li>• Read the second half of A. Barua and P. Konana, "IT-Enabled Transformation" in the readings packet.</li> </ul>
Feb 2	IT ROI	<ul style="list-style-type: none"> <li>• "B&amp;K Distributors" (case study section of Readings packet)</li> </ul>
Feb 7	IT ROI	<ul style="list-style-type: none"> <li>• "B&amp;K Distributors"</li> </ul>
Feb 9	IT ROI	<ul style="list-style-type: none"> <li>• "San Diego City Schools"</li> </ul>
<b>Feb 14</b>	<b>"Cemex " case study</b>	<ul style="list-style-type: none"> <li>• <b>Case analysis due on the Blackboard by the beginning of class</b></li> </ul>
Feb 16	IT options	<ul style="list-style-type: none"> <li>• R.G. Fichman, M. Keil and A. Tiwana, "Beyond Valuation: Options Thinking in IT Project Management," California Management Review, February 2005.</li> </ul>
Feb 21	IT options	<ul style="list-style-type: none"> <li>• Dixit and Pindyck, "The Options Approach to Capital Investment," HBS Product #</li> </ul>

		95303.
Feb 23	IT options	<ul style="list-style-type: none"> <li>• Dixit and Pindyck, “The Options Approach to Capital Investment,” HBS Product # 95303.</li> </ul>
Feb 28	Competitive advantage through IT	<ul style="list-style-type: none"> <li>• Porter and Millar, “How Information Gives You Competitive Advantage” (in the readings packet)</li> </ul>
March 2	Competitive advantage through IT	<ul style="list-style-type: none"> <li>• M. Porter, “Strategy and the Internet”</li> <li>• “FedEx Corp”</li> </ul>
March 7	Midterm review	Sample questions and answers to be handed out in class
<b>March 9</b>	<b>Take home midterm handed out electronically</b>	<ul style="list-style-type: none"> <li>• <b>Midterm answers due on the Blackboard by 11:59 p.m. on March 21.</b></li> </ul>
March 21	Network effects and switching cost (continued)	“Recognizing Lock-In: How to Leverage Switching Costs”
March 23	Network effects and switching cost (continued)	<ul style="list-style-type: none"> <li>• “Recognizing Lock-In: How to Leverage Switching Costs”</li> </ul>

March 28	Network effects (continued)	<ul style="list-style-type: none"> <li>• “Recognizing Lock-In: How to Leverage Switching Costs”</li> </ul>
March 30	Innovation in business functions: The case of paid search	<ul style="list-style-type: none"> <li>• “Google Inc.”</li> <li>• Discussion of “Air France Internet Marketing” case questions</li> </ul>
<b>April 4</b>	<b>RFID at the Metro Group: Case study</b>	<ul style="list-style-type: none"> <li>• <b>Case study report due on the BB by the beginning of class</b></li> </ul>
April 6	Online prediction markets	<ul style="list-style-type: none"> <li>• “Prediction Markets at Google”</li> </ul>
April 11	Business intelligence and analytics : Introduction & XLMiner setup	<ul style="list-style-type: none"> <li>• G. Loveman, “Diamonds in the Data Mine,” Harvard Business Review</li> <li>• Shmueli, Patel and Bruce, “Data Mining for Business Intelligence,” Chapters 1 and 2</li> </ul>
April 13	Business intelligence and data mining: Evaluating classification methods	<ul style="list-style-type: none"> <li>• Shmueli, Patel and Bruce, “Data Mining for Business Intelligence,” Chapters 4</li> </ul>
April 18	Business intelligence and data mining: Classification methods	<ul style="list-style-type: none"> <li>• Shmueli, Patel and Bruce, “Data Mining for Business Intelligence,” Chapter 7</li> </ul>

April 20	Business intelligence and data mining: Association Rules	<ul style="list-style-type: none"> <li>Shmueli, Patel and Bruce, "Data Mining for Business Intelligence," Chapter 11</li> </ul>
April 25	Business intelligence and data mining: Mini cases	<ul style="list-style-type: none"> <li>Shmueli, Patel and Bruce, "Data Mining for Business Intelligence," Chapter 13</li> </ul>
April 27	<b>Case study: "Air France Internet Marketing"</b>	<ul style="list-style-type: none"> <li><b>Case study report due at the beginning of class</b></li> </ul>
May 2	Discussion of online prediction market strategies and results	
May 4	<b>Review of final exam, course summary + take home final</b>	<ul style="list-style-type: none"> <li><b>Take home final distributed electronically by 11:59 p.m. on May 4, due on BB by 11:59 p.m. on May 11.</b></li> </ul>

### **“Cemex: Global Growth Through Superior Information Capabilities”**

1. Refer to the 2x2 framework in the article “How Information Gives You Competitive Advantage” by Michael Porter and Victor Millar (in the readings packet). In which quadrant would you place Cemex? Why?
2. How has Cemex built its information capabilities (including its e-business initiatives) at each stage of its growth in the last 20 years?
3. If Lafarge could operate with the same efficiency as Cemex in inventory and receivables management, what would be the financial benefits? How does IT contribute toward better inventory and receivables management at Cemex? Use 2005 financial data from [www.morningstar.com](http://www.morningstar.com) to answer the first part of this question.
4. As a consultant to Cemex In 2003, what would you recommend regarding CxNetworks – Integrate CxNetworks back into the core business, use CxNetworks to explore growth opportunities, or sell CxNetworks and focus on core business? Justify your response.

#### **Cemex Case Study Guidelines**

CxNetworks was an initiative from Cemex to explore e-business opportunities. Perhaps the most important outcome was Neoris, the IT consulting arm that was spun off. Here is some info on Neoris:

"Neoris' origination as the IT outsourcing arm of CEMEX enabled the building of expertise and credibility in production and logistics-oriented industry environments, which it has successfully leveraged and expanded upon to extend into other vertical markets and geographies, including the U.S. market."(IDC Research)

Here is the link to Neoris: <http://neoris.com/>

Do remember that the question on CxNetworks requires you to provide a recommendation based on the data that was available when the case was written.

To answer the questions involving how IT has helped Cemex, the following two articles are a good complement to the information in the case. Here are the links:

[http://findarticles.com/p/articles/mi\\_m0HWW/is\\_33\\_3/ai\\_66682402/](http://findarticles.com/p/articles/mi_m0HWW/is_33_3/ai_66682402/)

[http://www.cio.com/article/30445/Business\\_Process\\_Improvement\\_at\\_Concrete\\_Co.\\_Cemex](http://www.cio.com/article/30445/Business_Process_Improvement_at_Concrete_Co._Cemex)

Here are some general guidelines for writing the report:

A. Your report should be between 3 and 4 pages (single spaced, 12 font size). Any additional material can be put in an Appendix with no page limit. The report is due electronically (BB

submission) at the beginning of class on the day of the case discussion. Late submissions will be rejected.

B. Please answer the questions separately instead of providing an integrated analysis. In doing so, there may be a slight overlap between answers to some questions, but that is O.K.

C. I am looking for key points in your analysis. So there is no need to spend a lot of time framing sentences and paragraphs (even bullet points with enough explanation will do). However, your responses should be structured well, so that there is a logical flow of ideas and rationale.

D. Avoid repeating facts and figures mentioned in the case – I am looking for your *analysis* and *conclusions*, and not just the replications of facts/figures from the case. Of course you need to use these facts and figures to support your conclusions. Here is an example. A company has spent a lot of money to develop a CRM system to capture customer data which would then be used for pricing its products. This is a *fact*. The corresponding *analysis* would be that the company decided to tap into customer knowledge and incorporate such knowledge into its operations (e.g., pricing decisions) to increase its financial performance (e.g., revenues and profitability).

E. Most of the questions require you to collect additional information above and beyond what is already in the case (the two articles plus other links I have provided are an excellent starting point, and may even be sufficient for this case). This activity helps you develop one of the critical skills for managers, which is the ability to search, collect, and synthesize information that is available in the public domain and to make meaningful inferences.

F. Please cite the web addresses or any magazine articles that you use in your write-up. Please don't include the actual articles.