MGT/P 207
Management Information Systems MGT/P 207
Syllabus for Fall 2006

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How does information technology create business value? How can firms capture this value? This course introduces technologies that are critical to operations, marketing, decision making, and eBusiness activities. It examines the role of technology and its evolution over time, factors that govern the choice of IT applications, and how IT influences business strategy. The course also covers key challenges in managing IT resources, and factors that limit business' ability to exploit the latest technologies.

Text: Course pack, made available via study.net.

From Jackie Romo @ GSM: "Textpaks are available through study.net to students who are officially enrolled in the course. You will receive an email from the GSM textpak managers with password and login information and instructions on how to access materials. Please contact Study.net directly at 1888-462-0660 or email customerservice@study.net or textpaks@exchange.gsm.ucdavis.edu."

Note: Syllabus is tentative. Final design will depend on class size, availability of guest speakers, and scheduling flexibility. Number of cases discussed in class may vary in each section. Assignments will be handed out at least one week in advance.

Contents

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1 Course Structure

Information technology impacts the firm, industry and the economy. It can alter industry structure and competition; make markets more efficient; increase productivity; and redefine a firm's core activities and processes. Almost 50% of capital expenditures in developed economies today are on IT, totalling about $2 trillion worldwide. Given the pervasiveness and large scale of IT, it is critical for managers to understand the variety of technologies and applications relevant to modern business; know how IT can add value to the firm; and learn how to manage in an increasingly IT-intensive world.

types of information technologies covered in course:

- transaction processing technologies, including database and ERP systems,
- decision technologies, including data-oriented (such as online analytical processing and data mining) and model-based decision technologies,
- Internet and Web-based technologies, including inter-firm and business to consumer communication technologies.

learning objectives by the end of the course, you should understand

- how modern information technologies are relevant to managerial activities and decision making today, and how this has changed over time,
- the marketplace for IT - products, major vendors, factors affecting major IT-related decisions,
- technical and management challenges relevant to contemporary business computing, and
- the business strategies that IT enables, and environmental constraints that affect the use of IT.

Grading and evaluation

- Student project: 25%
- Case writeups, assignments and case presentation: 20%
- In-class quizzes: 25%
- In-class participation, including case discussions: 30%

2 Tentative Course Schedule

The course schedule is designed in terms of 10 3-hour sessions. For the Bay Area program, two sessions will be covered each weekend for 5 alternate weekends.

	Topics	Discussion	Exercises
1	Course Overview IT: Technical & Historical Overview	Matching IT capabilities and applications	
2	Business role of IT Value of information IT & Business transformation	Case: eChoupal	Value of information Process redesign Guest speaker: Luis Giminez
3	Internet technologies IT and business strategy Strategy alignment	Evolution of IT in airline industry	Quiz, Sessions 1-2 Guest speaker: Allegiant?
4	Process-enabling IT, ERP Business value of IT Implementing large IT projects	Case: Cisco ERP implementation	Guest speaker: D. J. Wu
5	Interorganizational IT IT-enabled supply chain mgmt	Case: Cisco Web-enablement	Quiz: Sessions 3-4
6	IT-enabled business intelligence, data management and decision support	Case: Syncra systems	Guest speaker ?
7	Data collection and mining IT-enabled marketing	Business intelligence at Continental Airlines	Quiz: Sessions 5-6
8	Information privacy and security	Case: Harrah's Entertainment	Privacy policy analysis Guest speaker: Stacy Martin
9	Managing IT resources Evaluating IT investments	IT decisions in business	Quiz: Sessions 7-8
10	Course wrap-up Emerging issues	(How) Does IT matter?	Student presentations.

2.1 Week 1.

- **Introductions, Course Overview.**
- **Technical and Historical Overview of Business IT**: Technical glossary. Evolution of IT in Business: enabling technologies and applications from 1960-2000 [1].
- **Required Readings**

[1] Richard L. Nolan. Information technology management from 1960-2000. *Harvard Business Review*, 2001.

2.2 Week 2.

- **IT and business transformation**: Reengineering business processes [1], Role of business transformation in realizing value from IT [2].
- **Case discussion**: ITC eChoupal [3].
- **Required Readings**

[1] Michael Hammer. Reengineering work: Don't automate, obliterate. *Harvard Business Review*, 1990.

[2] Erik Brynjolfsson and Lorin M. Hitt. Beyond computation: Information technology, organizational transformation and business performance. *The Journal of Economic Perspectives*, 14:23–48, Autumn 2000.

[3] David Upton and Virginia Fuller. The ITC eChoupal initiative. *Harvard Business School*, January 2004.

2.3 Week 3.

- **Technology overview:** Internet, WWW computing. [1].
- **IT and business strategy**: strategic alignment [2].
- **Discussion**: Functional and strategic use of IT in airlines/travel industry [3].
- **Required Readings**

[1] Robert D. Austin. The worldwide web and internet technology. Technical report, Harvard Business School, February 2003.

[2] Jerry Luftman and Tom Brier. Achieving and sustaining business IT alignment. *California Management Review*, 40:109–122, 1999.

[3] Duncan G. Copeland and James L. McKenney. Airline reservation systems: Lessons from history. *MIS Quarterly*, 12(3):353–370, September 1988.

2.4 Week 4.

- **Technology overview:** ERP [1].
- **Business value of IT** Review of historical evidence [2].
- **Case discussion**: Implementing large IT projects: Cisco ERP [3].
- **Guest Speaker**: Prof. D. J. Wu, Georgia Tech.
- **Required Readings**

[1] Robert D. Austin, Mark Cotteleer, and Cedric Escalle. Enterprise resource planning. Technical report, Harvard Business School 9-699-020, March 2003.

[2] Jason Dedrick, Vijay Gurbaxani, and Kenneth L. Kraemer. Information technology and economic performance: A critical review of the empirical evidence. *ACM Computing Surveys*, 35(1):1–28, 2003.

[3] Robert Austin, Richard Nolan, and Mark Cotteleer. Cisco Systems: Implementing ERP. *Harvard Business School*, May 2002.

2.5 Week 5

- **Case discussion**: Cisco Web enablement and IT strategy [1].
- **Technology overview:** interorganizational technologies for data exchange, collaborative workflow, messaging and electronic exchanges [2].
- **IT-enabled supply chains**: supply chain integration [3].
- **Required Readings**

[1] Richard Nolan, Kelley Porter, Christina Akers, and Christina Darwall. Cisco Systems: Web-enablement. *Harvard Business School*, April 2001.

[2] B. Medjahed, B. Benatallah, A. Bouguettaya, A. H. H. Ngu, and A. K. Elmagarmid. Business-to-business interactions: issues and enabling technologies. *The VLDB Journal*, pages 59–85, May 2003.

[3] Hau L. Lee and Seungjin Whang. E-business and supply chain integration. Technical report, Stanford University SGSCMF-W2-2001, 2001.

2.6 Week 6

- **Case discussion**: Syncra Systems - interorganizational information sharing [1].
- **Technology overview**: data warehousing, OLAP [2], decision analysis [3].
- **Required Readings**

[1] Andrew McAfee and Mona Ashiya. Syncra Systems: Information sharing. *Harvard Business School*, March 2003.

[2] Katherine Jones. An introduction to data warehousing: What are the implications for the network? *International Journal of Network Management*, 8(11):42–56, 1998.

[3] H. K. Bhargava, C. L. Herrick, and S. Sridhar. Beyond spreadsheets: Software for building decision support systems. *IEEE Computer*, 32(3):31–39, March 1999.

2.7 Week 7

- **Discussion**: Business intelligence at Continental Airlines [1].
- **Technology overview:** data mining [2].
- **IT-enabled Marketing**: Knowing your customer - learning without asking [3].
- **Guest Speaker**: Max Henrion, CEO of Lumina, or Sanjay Saigal, iLOG Inc. "Business process management: beyond predictive modeling."
- **Required Readings**

[1] Ron Anderson-Lehman, Hugh J. Watson, Barbara H. Wixom, and Jeffrey A. Hoffer. Continental airlines takes off with real-time business intelligence. Technical report, Teradata University Network, 2005. Available at http://www.teradata.com/t/page/133201/index.html.

[2] Bhavani Thuraisingham. A primer for understanding data mining. *IT Pro*, January-February 2000.

[3] Alan L. Montgomery and Kannan Srinivasan. Learning about customers without asking. In Arvind Rangaswamy and Nirmal Pal, editors, *The Power of One - Leverage Value from Personalizaton Technologies*. eBRC Press, 2002.

2.8 Week 8

- **Case discussion**: IT-enabled marketing – Harrah's entertainment [1].
- **Technology Overview**: Enterprise Privacy Management. [2].
- **IT and Privacy:** Managing data - tradeoff between applications and privacy [3].
- **Guest Speaker**: Stacy Martin, Hewlett-Packard. Managing customer information: Privacy issues, challenges and policies at HP.
- **Required Readings**

[1] Rajiv Lal and Patricia Carrolo. Harrah's entertainment, inc. *Harvard Business Review*, October 2001.

[2] Paul Ashley, Calvin Powers, and Matthias Schunter. From privacy promises to privacy management: a new approach for enforcing privacy throughout an enterprise. In *Proceedings of the 2002 workshop on New security paradigms*, pages 43–50. ACM Press, 2002.

[3] Alan L. Montgomery and Kannan Srinivasan. Learning about customers without asking. In Arvind Rangaswamy and Nirmal Pal, editors, *The Power of One - Leverage Value from Personalizaton Technologies*. eBRC Press, 2002.

2.9 Week 9

- **Managing IT resources**: Evaluating IT investments [1], IT governance [2].
- **Discussion**: IT decisions in business [3].
- **Required Readings**

[1] Robert Fichman, Mark Keil, and Amrit Tiwana. Beyond valuation: "options thinking" in IT project management. *California Management Review*, 47:74–96, 2005.

[2] Peter Weill. Don't just lead, govern: Implementing effective it governance. Technical report, MIT Sloan School of Management Working Paper 4237-02, March 28 2004.

[3] Jeanne Ross and Peter Weill. Six IT decisions your IT people shouldn't make. *Harvard Business Review*, November 2002.

2.10 Week 10

- **Course wrap-up**: (How) Does IT Matter? [1].
- **Student presentations**.
- **Required Readings**

[1] Nicholas Carr and various letter writers. IT doesn't matter (and rebuttals, response). *Harvard Business Review*, May 2003.

Complete Reading List

[1] Richard L. Nolan. Information technology management from 1960-2000. *Harvard Business Review*, 2001.

[2] Michael Hammer. Reengineering work: Don't automate, obliterate. *Harvard Business Review*, 1990.

[3] Erik Brynjolfsson and Lorin M. Hitt. Beyond computation: Information technology, organizational transformation and business performance. *The Journal of Economic Perspectives*, 14:23–48, Autumn 2000.

[4] David Upton and Virginia Fuller. The ITC eChoupal initiative. *Harvard Business School*, January 2004.

[5] Robert D. Austin. The worldwide web and internet technology. Technical report, Harvard Business School, February 2003.

[6] Jerry Luftman and Tom Brier. Achieving and sustaining business IT alignment. *California Management Review*, 40:109–122, 1999.

[7] Duncan G. Copeland and James L. McKenney. Airline reservation systems: Lessons from history. *MIS Quarterly*, 12(3):353–370, September 1988.

[8] Robert D. Austin, Mark Cotteleer, and Cedric Escalle. Enterprise resource planning. Technical report, Harvard Business School 9-699-020, March 2003.

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[10] Robert Austin, Richard Nolan, and Mark Cotteleer. Cisco Systems: Implementing ERP. *Harvard Business School*, May 2002.

[11] Richard Nolan, Kelley Porter, Christina Akers, and Christina Darwall. Cisco Systems: Web-enablement. *Harvard Business School*, April 2001.

[12] B. Medjahed, B. Benatallah, A. Bouguettaya, A. H. H. Ngu, and A. K. Elmagarmid. Business-to-business interactions: issues and enabling technologies. *The VLDB Journal*, pages 59–85, May 2003.

[13] Hau L. Lee and Seungjin Whang. E-business and supply chain integration. Technical report, Stanford University SGSCMF-W2-2001, 2001.

[14] Andrew McAfee and Mona Ashiya. Syncra Systems: Information sharing. *Harvard Business School*, March 2003.

[15] Katherine Jones. An introduction to data warehousing: What are the implications for the network? *International Journal of Network Management*, 8(11):42–56, 1998.

[16] H. K. Bhargava, C. L. Herrick, and S. Sridhar. Beyond spreadsheets: Software for building decision support systems. *IEEE Computer*, 32(3):31–39, March 1999.

[17] Ron Anderson-Lehman, Hugh J. Watson, Barbara H. Wixom, and Jeffrey A. Hoffer. Continental airlines takes off with real-time business intelligence. Technical report, Teradata University Network, 2005. Available at http://www.teradata.com/t/page/133201/index.html.

[18] Bhavani Thuraisingham. A primer for understanding data mining. *IT Pro*, January-February 2000.

[19] Alan L. Montgomery and Kannan Srinivasan. Learning about customers without asking. In Arvind Rangaswamy and Nirmal Pal, editors, *The Power of One - Leverage Value from Personalizaton Technologies*. eBRC Press, 2002.

[20] Rajiv Lal and Patricia Carrolo. Harrah's entertainment, inc. *Harvard Business Review*, October 2001.

[21] Paul Ashley, Calvin Powers, and Matthias Schunter. From privacy promises to privacy management: a new approach for enforcing privacy throughout an enterprise. In *Proceedings of the 2002 workshop on New security paradigms*, pages 43–50. ACM Press, 2002.

[22] Robert Fichman, Mark Keil, and Amrit Tiwana. Beyond valuation: "options thinking" in IT project management. *California Management Review*, 47:74–96, 2005.

[23] Peter Weill. Don't just lead, govern: Implementing effective it governance. Technical report, MIT Sloan School of Management Working Paper 4237-02, March 28 2004.

[24] Jeanne Ross and Peter Weill. Six IT decisions your IT people shouldn't make. *Harvard Business Review*, November 2002.

[25] Nicholas Carr and various letter writers. IT doesn't matter (and rebuttals, response). *Harvard Business Review*, May 2003.

3 Administrative Details

3.1 Session Format

- Typical sessions will be 3 hours long, with one 10-15 minute break. Student participation is encouraged and required.
- Most sessions will include multiple formats - lecture, discussion, and case analysis.
- In the event that a class lists a guest speaker who can speak only in one section, we will need to combine day and evening sections into one class, most likely in the evening time slot.
- Suggestions are welcome.

3.2 Grading and Evaluation

The grading plan listed below is tentative and subject to minor changes.

- Student project (see below for details): 25%
- Case writeups, assignments and presentation: 20%

  Choose any 3 assignments in the course, including at least one case write-up and at least one non-case assignment. There is usually a 2-page limit (exceptions for additional graphics and other necessary attachments), longer submissions will lose points.
- In-class quizzes: 25%
- In-class participation, including case discussions: 30%

  Each class is an opportunity to earn 3 points for participation. Especially valued is an effort to contribute towards the discussion by providing examples (or counterexamples) based on your reading and experience. Typically, presence in class will earn 1 point, outstanding performance earns 3, and moderate participation earns 2 points. Absence without notification earns -1.

Historically, the typical grading pattern is an A-/A grade for a score of 85% or above, B+ for 75-85, and B for 65%–75.

3.3 Team formation

Please form your project groups early and communicate this information to me via email. Group size will be between 2-3 students, and will depend on overall class enrollment, and will be decided first day of class. The ideal number of groups in each section is 5-6.

3.4 Class Policies and Rules

- Please attend class, read material in advance, and contribute to discussion. Class will begin on time. Please try to arrive before start and remain through the session. One absence is permissible under certain circumstances. More than two absences are not.
- All reports and written assignments should be delivered on time in **hard copy** form (please retain a copy) – at the *beginning* of the corresponding session (20% penalty for each level of delay). Reports should be easy to read (clearly legible, if handwritten; good layout and organization into subsections) and as concise as possible. Please separate essential points and details, by moving details into an Appendix. Excessive use of color or other attempts to beautify the report are unnecessary.
- Please avoid distractions - cell phones, talking among yourselves, food, music, etc. If you have something relevant to discuss, please share with the class.
- Please report any exigencies and constraints to me as early as possible.

In addition to these, you are expected to conduct yourself according to the University of California's standards of ethical conduct for students, in particular, the sections on academic conduct and integrity. Details may be obtained from the GSM Associate Dean or the Office of Judicial Affairs.

4 Case discussion and presentations

Cases are an important aspect of this class, but to be successful it relies on active and meaningful participation of class members. Everyone should read and be prepared to discuss the assigned case. I will email a list of relevant questions a week before the case. If you chose this case writeup as one of your 3 assignments, then your writeup should specifically respond to these questions. If you did not choose it, then these questions would still be a useful guide as you prepare for case discussion. During the discussion, you should be prepared to participate and present your analysis of these issues. Many of these issues raised in the case are only semi-structured and sometimes without a definitive answer. What is important is a logical analysis leading to some clear insight and recommendation, where appropriate.

For each case, one student group will be responsible for presenting an in-class 15 minute overview to kick-off the case discussion. This summary should be based on the case document as well as your indepdendent research (e.g., you might search for relevant facts and events in the period before or after what is discussed in the article). It should include company and competitor background, facts, relevant technology, strategic considerations, and should end by motivating and raising the key issues for discussion.

5 Team Project

Your team can choose one of the following 3 types of projects, and feel free to consult me once you have one or more candidate topics in mind. The project work should adhere to the following timeline and deliverables, counting from weeks after start-of-class.

Week 3 Project proposal - list the topic and describe the intended final output. Half to 1 page.

Week 5 Progress report and remaining work plan. 2 pages.

Week 8 Draft report and description of work-to-date.

Week 10 Project presentation, structured as "presentation to the board". Written report is an executive summary (approximately 3-5 pages) supported by additional materials from your presentation.

5.1 Consulting Report on IT Strategy

Identify an organizational unit of manageable size (e.g., a small business, or a division in a larger corporation), apply your knowledge about IT and business to analyze the role of IT for this unit, and develop an IT Plan for it. The plan would specify (at a high level) the key IT applications that the unit should focus on, the underlying infrastructure technologies necessary to support these applications, how to go about achieving this (e.g., sequencing the introduction of major applications), whether services should be delivered via in-house resources or outsources, etc. Explain how the IT plan is consistent with (and whether it suggests changes to) the units strategy, financial resources, competitive position etc.

A useful way to structure your research and project results is the following.

1. Introduce the context: the organizational unit of analysis, its products, markets, mission.
2. Discuss the problems with its current information processing abilities – analyze whether it is inadequate in satisfying computing requirements, misaligned with firm strategy, not cost effective etc.
3. Develop and justify your proposed IT strategy. What new technologies should be introduced? What applications would they support, and who would use them to do what differently?
4. Summary.

5.2 Emerging Technology

Select an emerging information technology topic (e.g., RF id, VOIP, wide-area wireless technologies, biocomputing) for in-depth research and business analysis choose a technology that has the potential to become a significant aspect of business computing in coming years. Develop an understanding of the underlying technology - whats new or neat about it, what existing technologies does it replace and

how it differs, how does it work, and what set of supporting technologies would comprise the technology ecosystem? What is the business potential and likely applications of this new technology? How will it change business practice - and in what industries? Who are the vendors (of the core and related sub-technologies) and what will the industry structure look like?

Your report and presentation should cover (a) a description of the technology and the technology ecosystem that should grow around it, (b) a discussion of what the supply side would look like, and (c) on the user side: its business potential, likely applications, and important ways in which it will cause changes in business practices; this part of the report should employ a concrete context and offer at least a couple of specific illustrations that make precise the general points in your analysis.

5.3 IT-enabled process redesign

Identify a business process of significant scope and importance in a particular firm or industry, which might be impacted by changes in information technologies - perhaps because the process currently employs outdated methods and technologies for information processing. Analyze the potential introduction of new information technologies and discuss how the process and organizational responsibilities should be redesigned in order to best extract the advantages of the new technology. Your report should (a) describe the context of the research a detailed description of the process and its objectives, and the information technologies presently in use for managing the information flow and computation, (b) propose and justify process redesign in light of new technology, and (c) explain how these changes should lead to a positive payoff from the new technology.