

The Wharton School
UNIVERSITY OF PENNSYLVANIA
Department of Operations and Information Management
Syllabus for OPIM 613
Information and
Information Based Strategy:
Learning from History, Experience, and Economics

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Class Sessions: M, W 10:30-12:00

Office Hours: M, T, W 2:00-3:00

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The basic premise behind the design of this course is that technology changes information, and that information changes every aspect of strategy. Technology changes very quickly, and strategy has had to adapt. Technology has created a new set of strategic patterns, which must be learned to understand and deploy information assets. But information has been changing strategy for the past 30 years. We will rely heavily on history, and on theory and patterns drawn from history.

This course starts from six basic assumptions:

- Information technology has enabled a wide range of new business opportunities by reducing or eliminating barriers to entry, by changing the value of physical resources, and by creating virtual substitutes for those resources.
- And yet, there is very little that is entirely new in business. Basic objectives, such as differentiation, long-term competitive advantage, customer relationship management, and intelligent pricing strategies, are still essential. Even the apparently novel business model of Google is the model that was used by American and United Airlines to control search for and distribution of seats in the airline industry. Patterns repeat themselves.
- The set of relevant patterns has been changed by recent developments in the application of information and communications technologies, and by recent software strategies such as those followed by Capital One Bank, Facebook and MySpace, Google, and a range of companies that most of us have never followed.
- Strategic business problems often do not come nicely delineated, or clearly marked as problems in multi-echelon inventory management, or in pricing of a portfolio of product, or service offerings to multiple market segments, or indeed clearly labeled as requiring algorithmic problems in any single discipline.
- The skills needed to recognize business problems can be developed, based on a

changing set of frequently occurring patterns. This course seeks to teach students how to recognize patterns, act as talented diagnosticians of business strategy, and think about business strategy in ways appropriate to today's technology-enabled environment.

- It is possible to teach a course about information and strategy without teaching about technology. Thus, this course is not about technology. It is about information and information-based strategy; it will use patterns, history, and information economics to teach you how to think about new competitive environments.

We focus on problem identification and on the development of sound strategic responses. More precisely, we focus on problems caused by rapidly changing conditions in the competitive environment, most frequently caused by changes in information technologies, and on the rapid development of competitive strategies to respond to those changes. We will develop in some detail how to respond, how the organization may need to change structurally, and how systems may need to change to reflect changes in organizational structure.

The course is intended to provide students with a set of skills that will be useful in careers in consulting and in strategic management. It can be seen as an introduction to the strategic use of information technology, with a focus on changes, threats, and opportunities resulting from changes in information availability. It draws on the professor's professional experience in diverse settings, in industries ranging from securities trading to the retailing of fast moving consumer goods. It is based in part on solving problems for and with clients, in settings ranging from start-ups to senior officers at the Pentagon, and locations ranging from London to Beijing. The course attempts to integrate this experience and the experience of students and of guest speakers with relevant theory; experience and theory can be combined to develop an approach to information-based strategies that is more general than that which can be derived from any location or any competitive setting. The course provides a focused and modern complement to the strategy courses normally taken in the management department.

All aspects of the firm — production, service, sales, marketing, and strategy — will be affected by changes in information cost and information availability. Clearly, some firms will win and others will lose; nearly all will have to change. And yet, fundamental laws of economics have not been repealed. This course uses economic theory and previous experience with rapid technological change, to provide insights for the development of strategy in an increasingly digital age.

All of the materials used in the course have been rewritten for this semester. They are shorter, more like the previous year's lectures. They stress the lessons, and the theory, but without academic over tones. Class discussions will not be traditional Harvard case discussions, because we know a lot more theory than we did when the Harvard approach to teaching cases was developed. Homework assignments and class discussion will involve application of the theory covered in the readings to current companies and current business situations. I will not provide you with all of the corporate details often provided in published cases. Instead, the course will require you to do web research on modern companies, as you would on a consulting engagement.

Course Objectives

Students completing the course will have a sound theoretic framework for pursuing further studies in the area of information-based strategies, including eCommerce. They will understand how information technology affects the basic strategic options available, and will understand how firms and industries are likely to be affected. They will understand the often poorly structured process of evaluating potential systems innovations. They will be able to participate in strategic planning and systems planning because they will understand the relationships among them. The course is particularly recommended for students in strategic management and marketing, and for those interested in careers in consulting or who expect to manage portfolios of new technology companies. No background in technology or in technology management is required. Students completing this course will have mastered an understanding of the competitive implications of information technology and the fundamentals of the use of information in business.

Required Text

Readings for most classes will be posted on the course website, in a set of folders with the date of each class. Each folder has the readings for that day. Readings will be selected from pre-publication of a new text, *Oh, Yeah, Now I Get It: Learning to solve really complicated problems in business, in society, and in life*.

Assignments and Grading

There will be several in-class case discussions in the course. Please note that all written assignments are shown in **RED** in the electronic version of the course syllabus. Dates when there are written assignments of any kind due are noted in **RED**, both in the session-by-session course outline and at the top of each day's page in the syllabus. Written assignments can all be done either *individually* or in *groups of two or three* students. Written assignments must be submitted online via the course website *at the start of the class sessions in which they are due*. Since assignments will be discussed in class on the date that they are due, it will *not be possible to accept late assignments unless prior arrangements have been confirmed by the instructor via email*. Please note that students will have to submit five of the six assignments if they do not wish to take the *optional* final examination.

The written assignments will determine 75% of your final grade, and the remaining 25% will be determined by class participation. Class participation grades will be based on the frequency and the quality of students' interactions in the classroom. Students who chose not to display a name card will be assumed to be unprepared and will not be required to participate; they will also receive no class participation credit for days in which they do not display a name card. Not surprisingly, a high grade in class participation will require class attendance. More importantly, a high grade in participation will require active engagement in classroom discussions, high quality responses to cold calls, and high quality interactions when the student volunteers rather than waiting to be called.

The class assignments and class participation provide sufficient information for evaluation, and there will not be a final examination for this course. If students submit all six homework assignments I will use only the highest five to calculate their grades; the lowest grade will automatically be dropped. Students who are not satisfied with their grades on their written assignments will be able to take the **OPTIONAL** Final

Exam, which will effectively replace their two lowest homework assignment grades out of their top five grades. Students who do fewer than five assignments receive grades of zero in place of missing grades. No students will be required to take the final examination, but students who submit fewer than five assignments may wish to do so to ensure a passing grade.

Color Coding in the Syllabus

A **bold red session heading** indicates that something is due at the beginning of the day's class.

Student Bios

Please send a word file containing a short biographical sketch, not a full resume, via email, to **clemons@wharton.upenn.edu**. Please title your attached file **613S15_I_NAME.doc**, where **I** is your first initial, and **NAME** is your last name. Please provide the following information:

- your expected concentration at Wharton
- your experiences relevant to the topics of this course
- your reasons for taking this course and what you hope to get out of it

Course Outline and Readings

- Session 1 M 16-Mar **Course Introduction and Mechanics**
Information Changes Everything. Grading and course mechanics.
Read: **Now I Get It:** (On Patterns, On Case-Based Education, on the Role of Information) (To be determined)
- Session 2 W 18-Mar **Learning from the Experience of Others — The Power of Pattern Recognition and of Framing**
Review of the science of business and the science of strategy formulation in the presence of discontinuous change, based on patterns observed over the past twenty years. Our first introduction to channel disruption.
Read: **Now I Get It:** (On Newly Vulnerable Markets, on Framing) (To be determined)
Read: Clemons, **Financial Times**, Strategic Uncertainty (**Optional**)
Read: Clemons, The Power of Patterns and Pattern Recognition When Developing Information-Based Strategy (**Optional**)
- Session 3 M 23-Mar **Versioning and the Power of Information**
Signaling, screening, masquerading, data mining, and regulatory complexity. Profit maximizing prices, with and without information.
Read: **Now I Get It:** (On Information, on Newly Vulnerable Markets) (To be determined)
Read: Shapiro and Varian, **Information Rules**, Chapter 3, Versioning Information (**Optional**)
Read: Friedman, **Hidden Order**, Chapter 10 Monopoly for Fun and Profit (**Optional**)
- Session 4 W 25-Mar **Dealing with Information Asymmetry — Screening Mechanisms in Newly Vulnerable Markets**
Gaining competitive advantage through systems for market micro-segmentation and differential pricing; attempting to sustain advantage.
Visit: **Visit Websites, To Be Determined, to prepare for discussion of Newly Vulnerable Markets**
Read: Clemons and Thatcher, Capital One Case (**Optional**)
HW1: Case Discussion and Written Analysis of Newly Vulnerable Markets
- Session 5 M 30-Mar **Hustle at a Discontinuity, followed by Platform Envelopment: Platform Envelopment and Resource-Based Sustainable Competitive Advantage**
Was the success of Rosenbluth International a fluke? What do we know about newly vulnerable markets and converting initial success into sustainable advantage? What do we know about channel disruption and channel stability over time? What do we know about platform extensions and resource-based competitive advantage? What does this tell us about Microsoft? What does this tell us about Google?
Read: **Now I Get It:** (Material on Newly Vulnerable eMarkets) (To be determined)
Read: Teece, Profiting from Technological Innovation (**Optional**)
HW2: Travel Industry Discussion and Written Analysis

- Session 6 W 1-Apr **2-Sided Markets, Platform Envelopment, and Third Party Payer Business Models**
Third Party Payer business models appear to be a special case of what are now commonly called two sided markets. When are they dangerous? When are they ideal for consumers but dangerous? When are they ideal for all parties?
Read: **Now I Get It:** (To be determined)
HW3: Computational exercise on manipulation of search
- Session 7 M 6-Apr **The Power of Certainty — Resonance Marketing**
The role of increased information in the changing balance between cost-based strategies and value-based strategies, the changing advantage of incumbents, and the changing nature of competition.
Read: **Now I Get It:** (To be determined)
Read: Clemons and Gao, Consumer Informedness and Diverse Consumer Purchasing Behaviors (Optional)
HW4: Written Analysis — The Logic of Resonance Marketing
- Session 8 W 8-Apr **Information Goods as a Strategy — Monetizing the Net beyond Advertising**
Current acquisitions of social network websites and user content websites have generated considerable interest and huge bids from media companies. Is this the big play in the next round of internet-based companies or simply the next round of dotcom silliness? How can the net be used to generate revenues and profits? Surely there must be something other than advertising!
Read: **Now I Get It:** (Material on Gateway Systems, Online Business Models) (To be determined)
- Session 9 M 13-Apr **The Why of Outsourcing — Understanding the Changing Risk Profile of Outsourcing**
Information Systems and the structure of manufacturing operations — the changing balance between internal production and outside procurement.
Read: **Now I Get It:** (Material on Outsourcing) (To be determined)
- Session 10 W 15-Apr **Computational Valuation of Investments in Online Businesses**
In some ways information technology investments are similar to other large capital investments with long lead times and resulting uncertainty; in other ways they have unique problems all their own. How do we manage risks through options valuation? How does outsourcing affect risk? How does resonance marketing create value?
Read: **Now I Get It:** (On Evaluation and Risk Management) (To be determined)
Read: Clemons, Evaluation of Strategic Investments in Information Technology (Optional)
HW5: Computational exercise on business valuation

Session 11 M 20-Apr **Case Study on Disruptive Technologies — The Future of Consumption in China**

What is the future of consumer behavior in China? What is the future of Chinese consumer goods? What companies are positioned to succeed and which companies are not? Where are the opportunities for Western companies?

Read: **Now I Get It:** (On Scenarios and Uncertainty) (To be determined)
Clemons, Information Technology Investments: Dealing Effectively with Strategic Uncertainty Through Scenario Analysis (Optional)

HW6: Scenario Analysis on Chinese Consumption

Session 12 W 22-Apr **Course Summary and Integration**

How do emerging technologies and emerging business models affect competition? Can new technologies create new business models that are inherently harmful? That is, can new business models create market conditions that are not self-regulating, that are not competitive, and that harm consumers? What interventions would be fair both to existing shareholders and to consumers?

Read: **Now I Get It:** (On Competition Law and Privacy Law) (To be determined)