The Wharton School UNIVERSITY OF PENNSYLVANIA Expartment of Operations and Information Managemen

Department of Operations and Information Management

Syllabus for OIDD 201

Technology Management, Information, and the Digital Economy

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JMHH 572 // Ext. 8-7747

Spring 2018

Class Sessions: M, W TBD Office Hours: M, T, W TBD

This course serves as an introduction to online business models and online innovation. It provides an introduction to identifying business opportunities based on innovative use of information and technology. As importantly, it provides an introduction to formal analytical techniques for evaluating potential opportunities using historical patterns and computer models. The content of the course will be divided between identifying business opportunities for information-based strategies and constructing computer-based models for the evaluation of innovative businesses. The course is intended to provide a foundation for further study in information-based strategies, online innovation, strategic consulting, and private equity, and of course for further study in OIDD. This course fulfills 0.5 credit units in the new Wharton Flex Fundamentals / Technology Requirement.

Course Objectives

Students who complete the course will be prepared to find online business opportunities, evaluate new businesses as investment opportunities, and evaluate their own plans for online innovation.

Required Texts

The primary text for the course is a small number of chapters selected from *New Patterns of Power and Profit: A Guide to the Information Age*. The published text has not yet been released, so students will have access (without charge) to pre-publication material posted online. A single unit will also be required from *Oh, Yeah, Now I Get It: Learning to solve really complicated problems In business, in society, and in life.* This is a more mathematic treatment of the material introduced in *New Patterns of Power*, and it too will be available to students without charge. Students will also need to download the Goldsim User's Guide, available without charge online at www.goldsim.com/Web/Downloads/UserManuals. A few additional readings will be provided, primarily to augment students' understanding of the construction and use of computer simulation models. Finally, additional online readings, such as Op Eds by the instructor, may be assigned where they are relevant.

Required Software

Students will need access to a computer that will run Goldsim, a simulation program that will be made available to Wharton students without charge. Students will be able to download Goldsim onto their own Windows-compatible PC or to their Mac running a Windows emulator. Goldsim will also be available online on an OID server and in the computer labs. Details will be provided in the first class.

Course Pedagogy and Philosophy

Wherever possible, material will be introduced through readings rather than through lectures. Lectures will be used sparingly, to cover material that is complex enough to require interactive discussion. Class time will be used primarily to provide in-depth discussion of the implications of key concepts covered in the readings and to provide assistance in the design and development of computer models that have been assigned as homework.

Assignments and Grading

There will be two computer-based simulation assignments and several in-class discussions during the semester. Please note that all written assignments are shown in **RED** in the electronic version of the course syllabus. Dates when written assignments of any kind are 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. Classes that require additional preparation for discussion but do not have written assignments due are highlighted in **BLUE**, both in the session-by-session course outline and at the top of each day's page in the syllabus. Written assignments should all be done in groups of two or three students. These same groups may wish to work together to prepare for discussion sessions as well.

Written assignments must be submitted electronically to the course website at the start of the class sessions in which they are due; since assignments will usually 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 made.

Color Coding in the Syllabus

A **bold red session heading** indicates that something is due at the beginning of the day's class. A **bold blue session heading** indicates that this is a discussion session, although there may not be a written assignment due.

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 **201S18_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

Unit 1 — Strategy and Agility in the Face of Discontinuous Change

Session 1 W 10-Jan Introduction and Course Overview:

Information changes everything, role of patterns in problem solving, and the importance of new information-based patterns for analyzing new, information-based strategies. The importance of accurate, replicable analysis, for strategic planning, investment management, private equity, and strategic consulting.

Intent: This session is intended to provide an introduction to the course

and to the computing resources that it will require.1

Read: New Patterns of Power (Prolog)

Session – M 15-Jan No Class – Martin Luther King Jr. Birthday

Session 2 W 17-Jan Newly Vulnerable Markets

Our first new information-based pattern: Newly vulnerable markets, and the Capital One case discussion, plus extensions to other companies with significant differences in customer profitability and the possibility of screening mechanism to accurately identify and target most profitable customers.

Intent: This session is intended to provide an introduction to a complex problem in the vulnerability of established markets to certain forms of opportunistic pickoff of profitable customers, enabled specifically by information and information technology. It will be the basis of our first simulation assignment, in which students will model the impact of opportunistic pickoff of incumbents' most profitable customers, and the difficulty of devising effective responses and effective counter strategies. It will introduce the Capital One case study, but augment it with a discussion of similar strategies at other companies, like Uber.

Read: *New Patterns of Power* (Chapter 1 Section 6, Chapter 2 Section 3)

Discussion: Newly Vulnerable Markets at Capital One

¹ Note that the material marked "intent" is to facilitate review of the syllabus during the approval / evaluation process. Much of this will either be dropped or merged into the detailed description of individual sessions, as appropriate.

Session 3 M 22-Jan **But How Would You Know? The Role of Modeling in Assessing the Future Value of Innovation**

But how would you know? Statistical decision making under uncertainty. Introduction to simulation modeling. Simple valuation via Monte Carlo simulation in Goldsim.

Intent: This session is intended to provide a review of mechanisms for evaluating new businesses, especially truly innovative information-based online businesses, in the presence of insufficient information. The most common techniques will be reviewed in the context of assessing online businesses, including a review of statistical decision making and decision trees, real options based on strategy-enabling facilitating investments, and Monte Carlo simulation. The focus will be on using these techniques to value online businesses and information-based strategies when there are no directly comparable companies and no directly relevant financial histories to study.

Read: *Now I Get It,* (Read Unit 11: Chapters 1 and 2. Read Chapters 4 through 6 if you are not familiar with statistical decision making and decision trees. Read Chapters 7 and 9.)

Unit 2 — Modeling the Impact of Information-Based Innovation

Session 4 W 24-Jan Building a Simulation (1) - Thinking Like a Programmer

Programmers employ a structured mode of thinking to convert an incomplete or ambiguous problem statement into a complete and unambiguous sequence of well-defined, discrete, executable instructions. This structured description of the solution is generally called pseudocode, because it is largely independent of any choice of implementation language.

Intent: This session is intended to begin acquainting students with going from the statement of a simulation problem to the start of a simulation implementation. The first output of the programming process is the development of a structured statement of program control and decisions, even before determining what programming language will be employed. Students will be shown how to think of the critical decisions that must be implanted in discrete event simulations, such as how to add customers to a queue with arrival rates that vary over time, when they *balk* (refuse to join a queue that is too long), and when they *renege* (leave a queue after deciding that they have waited too long). Implementing service priority rules, implementing initial and final conditions in the context of discrete event simulations will also be addressed.

Read: Pseudo-code and Structured Programming (TBD/To Be Drafted)

Control Structures in Goldsim (TBD)

Session 5 M 29-Jan Building a Simulation (2) — Combining the Goldsim Control Structures and Data Structures to Create a Complete Simulation

High level simulation languages like Goldsim have predefined control structures that correspond to all of the actions needed to construct a simulation. They have predefined data structures that correspond to all of the entities that need to be modeled in a simulation. In graphical development languages like Goldsim, each is represented by a specific icon, which can be connected graphically to complete the simulation that has initially been designed in pseudocode their pseudocode into a Goldsim implantation.

Intent: This session is intended to teach students the control structures and data structures available in Goldsim. This class will enable students to begin working on their first simulation assignment, which will be distributed after this class.

Read: Control Structures in Goldsim (TBD)

HW1: First Simulation Homework Assignment Distributed

Session 6 W 31-Jan Building a Simulation (3) — Completing the Simulation, **Preparing Outputs, Testing the Findings**

Once a simulation has been completed its results must be output and examined. While it is not possible to prove that a simulation is correct there are numerous techniques that we can use to determine that a simulation is behaving as we expect and to increase our confidence that its results are correct.

Intent: This session is intended to complete students understanding of going from the statement of a simulation problem to the completion of a tested and debugged simulation implementation. This will include designing the simulation to prepare the desired output and to accommodate intended use.

Notes on Preparing Output and Testing Simulation Results (TBD / To Be Drafted)

Session 7 M 5-Feb

Working on The Simulation Assignment — Guided Design in Class

We will discuss the assignment and will develop the overall structure for the simulation.

Intent: This session is intended to assist students in completing their simulation design and to answer questions and to address problems that are frequently encountered.

Discussion: The Design of the First Simulation

Session 8 W 7-Feb Newly Vulnerable Online Markets

Our second new information-based pattern: Newly vulnerable online markets, and the discussion of online grocery, online air travel, and online insurance. The importance of real, testable theory in OID, gremlins vs. surface anomalies in explaining friction, vulnerability vs. boldness in explaining eCommerce innovation. Many problems in business strategy involve the dynamic behavior of entire populations, and this is especially true in the competition between existing distribution channels and their emerging online competitors.

Intent: This session is intended to introduce students to simulating the dynamics of entire populations as they gain experience that changes their behavior.

Read: *New Patterns of Power* (Chapter 3, Section 3.6 — Pushing the Problem to its Limits: Developing the Theory of Newly Vulnerable eMarkets)

Discussion: Newly Vulnerable Online Markets — Comparing online distribution in travel and in grocery

Session 9 M 12-Feb Discussion of First Simulation Assignment — First Assignment Due Before Class

What has our model taught us about newly vulnerable markets and newly vulnerable online markets? What strategies, if any, would have allowed major banks have responded to the attack by Capital One? How could travel agencies have protected themselves against attack and disintermediation by major airlines?

Intent: This session is intended show students how simulations can be used to analyze different business strategies and to explore their economic impact on the firm and its competitors.

HW2: Second Simulation Homework Assignment Distributed

Session 10 W 14-Feb **Social Impact of Big Data, Widespread Information Availability, and Online Innovation**

Discussion of affordable care act and alternatives — the role of information, information asymmetry, and adverse selection, and the complexity of modeling workable solutions to social and strategic business problems.

Intent: This session is intended show students how simulations can be used to analyze social policies. It provides another example of modeling complex dynamic behavior of entire populations. It addresses a generalization of the model introduced by Rothschild and Stiglitz, in which the population includes more than two types of individuals, with more than two degrees of riskiness. We show how with most reasonable values for risk aversion markets will collapse if insurance companies are permitted to engage in fully individualized and fully informed pricing.

Read: Clemons, http://www.huffingtonpost.com/entry/why-is-health-care-so-complicated-an-information-economics us 58d43da2e4b0c0980ac0e44c

Session 11 M 19-Feb Platforms, Platform Strategies, and the Relationship Between Platform Strategy and Platform Structure

Discussion of Airbnb and Uber, the role of different platforms structures in support of different business strategies, and the social tradeoffs produced by externalities. Opportunities for further study, including OID 105 (Developing Tools for Data Analysis), OID 210 (Management Information / New Patterns of Power and Profit), OID 222 (Internet Law and Policy), OID 311 (Business Computer Languages), OID 314 (Enabling Technologies)

Intent: This session has three purposes. It provides a wrap up of much of the material covered. It uses this material in the context of assessing the need for informed public policy debate about the social impacts of new online business models. And it reviews the opportunities for additional courses in OID that are relevant to the material covered during the course.

Read: "Newly Vulnerable Markets and Digital Platforms:

Competition in the Sharing Economy" — Constantia et al.

Session 12 W 21-Feb Discussion of Second Simulation Assignment — Second Assignment Due Before Class

What have we learned about the economics of health care? Why are the individual mandate and subsidies both necessary if healthcare is to be affordable, even for the elderly and even for individuals with preexisting conditions? What business opportunities would be created if some companies could engage in full differential pricing while others followed the dictates of the affordable care act? How would this affect the ACA market offerings?

Intent: This final simulation assignment will allow students to model the dynamic behavior of entire populations over time. It may involve the dynamics are market behavior under the ACA, channel conflict, or other examples of complex behavior of entire populations.

Curriculum Vitae of Eric K. Clemons

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Academic Employment

The Wharton School

University of Pennsylvania

1994 - Professor of Operations Information and Decisions

1994 - Professor of Management

1981 - 1994 Associate Professor of Operations and Information Management

1989 - 1994 Associate Professor of Management1976 - 1981 Assistant Professor of Decision Sciences

Current courses include Information: Strategy and Economics and Strategic MIS. Previous courses have included commercial data processing; systems analysis; simulation; software engineering; database systems; research perspectives in information systems; strategic business transformation, and telecommunications; and introduction to the computer as a tool.

University of Toronto Rotman School of Management

2017 Visiting Scholar

2014 Visiting Research Fellow

Peking University Law School

2013 - 2015 Visiting Research Fellow

Indian School of Business

2003 Visiting Professor of Information Systems

Hong Kong University of Science and Technology

2000, 2001 Visiting Professor of Information Systems

Cornell University

1993 Visiting Associate Professor of Information Systems

The Johnson School of Management, and Visiting Associate Professor of O.R. & I.E.

Research on strategic impacts of information technology on production and procurement, redesign and participation in teaching of core MIS course in MBA program.

Harvard University

1984 Visiting Associate Professor

Graduate School of Business Administration

Research on telecommunications and its relationship with corporate strategic objectives, research on telecommunications to gain strategic business advantage, case writing.

Cornell University

1978, 1979 Visiting Assistant Professor of Operations Research

1975 - 1976 Instructor of Operations Research

Courses taught include an introductory freshman seminar in operations research, computer applications in industrial engineering, and special investigations in database systems.

Research Interests

Research interests address all areas of IT and business strategy, with a focus on IT and Consumer Behavior, IT and Outsourcing, and IT and Competition. Most recent work addresses questions of online business models, competitive strategy, societal impacts, and public policy. This includes the study of consumers' preferences for privacy, the power of gatekeeper platforms like Google and Bing, externalities and potential harm from sharing economy platforms like Uber and Airbnb, and the regulatory needs for the evolving online business environment. Historically, he has studied strategies for profiting from internet applications, the changing role of internet advertising, the impact of technology on consumer choice and shopping behavior, managing the risks of strategic outsourcing, social networks, search, and the strategic implications of electronic markets for channel power and profitability. Current research addresses privacy policy, and policy for improving social welfare from innovative business models and online information-based strategies.

Teaching Interests

Information-based strategy, information economics, business judgment and problem solving, information technology and the future of law and regulation.

Education

Ph.D. 1976 Cornell University

Operations Research

Dissertation: Design of a User-Interface for a Relational Data Base

Major Field: Information Processing

Minor Field: Operations Research, Applied Mathematics

M.S. 1974 Cornell University

Operations Research

S.B. 1970 Massachusetts Institute of Technology

Physics

Professional Activities

Mini-Track Coordinator for Hawaii International Conference on System Sciences, Information Economics and Competitive Strategy, 1988-2017.

Conference Co-Chair, International Workshop on Information Systems Economics, London, 1995, Conference Co-Chair, International Workshop on Information Systems Economics, New York, 1998, Conference Co-Chair, International Workshop on Information Systems Economics, Washington D.C., 2004; Conference Co-Chair, International Workshop on Information Systems Economics, Milan, 2013.

Participant, Program on Information, Economics, Law, and Strategy, Peking University Law School, Summer 2013.

Co-Chair, Workshop on The Future of Internet Law and Regulation in China, Peking University Law School, Summer 2013.

Session Chair, Asia Forum on Cyber Security and Privacy, Cloud and Big Data: Challenges for Policy Making, Tokyo, Japan, May 2013.

Keynote Speaker, Asia Forum on Cyber Security and Privacy, Seoul, Korea, October 2012.

Speaker, Beijing Forum, Beijing, China, 2011.

Speaker, World Economic Forum, Davos, Switzerland, 2009.

Member, London Stock Exchange Quality of Markets Steering Committee, 1993 - 1994.

Member, Advisory Board, Congressional Office of Technology Assessment Study of Securities Markets and Information Technology, 1988 - 1990.

Member of Association for Computing Machinery, Member of ACM National Council, 1986 - 1990.

Referee for ACM Communications, Transactions on Database Systems, Transactions on Office Information Systems, SIGMOD Proceedings, IBM Research Journal, Very Large Data Base Conference, National Computer Conference, Hawaii International Conference on System Sciences, International Conference on Information Systems, Sloan Management Review; Peer Review for National Science Foundation; Reviewer for ACM Computing Reviews.

Associate Editor, Management Information Systems Quarterly, 1986 - 1989; Editorial Board, Journal of Management Information Systems, 1988 - present; Editorial Board, Information & Management, 1989 - present; Area Editor, Communications of the ACM Computing Practices, 1989 - 1994.

Member of CODASYL Data Description Language Committee, 1980-1982.

Program Coordinator for Software Tutorials, Fifth International Conference on Very Large Data Bases, 1979

Program Committee for NCC 81 in area of Software Engineering

Program Committee for VLDB 1982

Program Committee Vice Chairman for NCC 82

Advisory Council for DSS 1982

Program Committee for the 8th International Conference on Information Systems, 1987

Participant, U.S.-U.S.S.R. Program of Cooperation in Science and Technology, Joint Working Group in the Field of Applications of Computers to Management, 1977-1979.

University Activities

Founder, Project Director, and Principal Investigator for research effort in Information, Strategy, and Economics, with the Reginald H. Jones Center at the Wharton School (1985 - present). Project is a collaborative effort with numerous industrial sponsors, to perform empirical and theoretical research. Area coordinator, Information, Strategy, and Economics, from its inception in 1997 to present. Associate Director, MBA eCommerce Program, 1999-present.

Wharton representative on the Provost's Faculty Council on Undergraduate Education, 1984-1986. Member of the University's Nassau Fund and Rose Foundation undergraduate research awards committees, 1986-1992. Wharton Coordinator MBA-MSE Dual Degree Program with Moore School of Engineering, 1983-1989.

Professional Experience

Consulting practice focuses on assessing the competitive implications of information technology, examining industrial restructuring enabled by technology, and managing the risk of large-scale implementation efforts. Recent work addresses implementation of effective information-based marketing strategies to exploit differences in customer profitability, managing the risk of outsourcing and alliances, implementing strategic business transformation during periods of strategic uncertainty, and development of long-term strategies for transition to eCommerce. Studies have been for both the public and private sectors, and have included work with major stock exchanges, consumer payment systems, consumer packaged goods manufacturers, and international consulting firms. Executive education experience has been with senior executives and senior systems officers, in systems and in competitive strategy, both domestically and abroad. Professional speaking engagements have included keynote addresses and opening and closing remarks at high level executive sessions in the U.S. and abroad.

Work /in Progress

1. Oh, Yeah, Now I Get It: Learning to solve really complicated problems in business, in society, and in life, (Eric K. Clemons) (text for teaching business analytics, executive judgment, and information-

- based strategy) (manuscript currently about 80% completed)
- 2. "Global Differences in Consumers' Trust in Online Merchants: Impact of Promises and Third Party Assurances" (Eric K. Clemons, Josh Wilson, Christian Matt) (Third round of revisions for Journal of Management Information Systems).
- 3. Academic program in Information, Innovation, Competition, and Regulation, for senior party members of the Communist Party of China. Topics covered focus on business strategy, competition, and rule of law, with a focus on the impacts of modern information technology. Program is taught at Peking University. Co-directed with Professor SHAO Jingchun, Chairman, International Economic Law Institute, and Director, WTO Law Study Center, Peking University Law School. Successfully taught the first four pilot modules. Program is currently on hold, because of the political climate in China.

Journal Publications

- 1. "Efficiently Monitoring a Relational Data Base" (O. P. Buneman and E. K. Clemons), *ACM Transactions on Data Base Systems*, Vol. 4, No. 3, 1979, pp. 368-382.
- 2. "Rational Data Base Standards: An Examination of the CODASYL DDLC 1978 Report", *Information Systems*, Vol. 4, No. 3, 1979, pp. 235-239.
- 3. "Design of An External Schema Facility to Define and Process Recursive Structures", *ACM Transactions on Data Base Systems*, Vol. 6, No. 2, 1981, pp. 295-311.
- 4. "The SAGE System Architecture: A System for the Rapid Development of Graphics Interfaces for Decision Support" (E. K. Clemons and A. J. Greenfield), *IEEE Computer Graphics*, November 1985, pp. 38-50.
- pp. 38-50.
 "Telecom: Hook Up or Lose Out" (E. K. Clemons and F. W. McFarlan), *Harvard Business Review*, July-August 1986, pp. 91-97.
- 6. "Information Systems for Sustainable Competitive Advantage", *Information & Management*, Vol. 11, November 1986, pp. 131-136.
- "McKesson Drug Company: A Case Study of Economost -- A Strategic Information System" (E. K. Clemons and M. Row), *Journal of Management Information Systems*, Summer 1988, pp. 36-50; this a revision of the earlier conference paper published in *Proceedings*, 21st Hawaii International Conference on System Sciences, January 1988, pp. 141-149.
- 8. "Competition and Cooperation in Information Systems Innovation" (E. K. Clemons and M. Knez), *Information & Management*, Vol. 15, 1988, pp. 25-35.
- 9. "International Opportunities for the Use of Information Systems in Securities Trading" (E. K. Clemons and J. T. Adams), *Office: Technology and People*, 4.4, 1989, pp. 271-284; this is a revision of the earlier conference paper published in *Proceedings*, 9th International Conference on Information Systems, December 1988, pp. 25-32.
- 10. "The Bell Canada CRISP Project: A Case Study of Migration of Information Systems Infrastructure for Strategic Positioning" (E. K. Clemons, M. C. Row and R. Venkateswaran), Office: Technology and People, 5.4, 1989, pp. 299-315; this is a revision of the earlier conference paper published in Proceedings, 22nd Hawaii International Conference on System Sciences, January 1989, pp. 223-232.
- 11. "London's Big Bang: A Case Study of Information Technology, Competitive Impact, and Organizational Change" (E. K. Clemons and B. Weber), *Journal of Management Information Systems*, Vol. 6, No. 4, Spring 1990, pp. 41-60; this is a revision of the earlier conference paper published in *Proceedings*, 22nd Hawaii International Conference on System Sciences, January 1989, pp. 233-242.
- 12. "MAC -- Philadelphia National Bank's Strategic Venture in Shared ATM Networks", *Journal of Management Information Systems*, Vol. 7, No. 1, Summer 1990, pp. 5-25; this is a revision of the earlier conference paper published in *Proceedings*, 22nd Hawaii International Conference on System Sciences, January 1989, pp. 214-222.
- 13. "Strategic Information Technology Investments: Guidelines for Decision Making" (E. K. Clemons and B. W. Weber), *Journal of Management Information Systems*, Vol. 7, No. 2, Fall 1990, pp. 9-28; this is a revision of the earlier conference paper, "Making the Technology Investment Decision: A Principled Approach", published in *Proceedings*, 23rd Hawaii International Conference on System Sciences, January 1990, pp. 147-156.

14. "Evaluation of Strategic Investments in Information Technology", *Communications of the ACM*, Vol. 34, No. 1, January 1991, pp. 22-36.

- 15. "Sustaining IT Advantage: The Role of Structural Differences" (E. K. Clemons and M. Row), Special Issue of *MIS Quarterly*, Vol. 15, No. 3, September 1991, pp. 274-292.
- 16. "Corporate Strategies for Information Technology: A Resource-Based Approach", *IEEE Computer*, Vol. 24, No. 11, November 1991, pp. 23-32.
- 17. "Information Technology at Rosenbluth Travel: Competitive Advantage in a Rapidly Growing Global Service Company" (E. K. Clemons and M. C. Row), *Journal of Management Information Systems*, Vol. 8, No. 2, 1991, pp. 53-79; this is a revision of "Ahead of the Pack through Vision and Hustle -- A Case Study of Information Technology at Rosenbluth Travel", (E. K. Clemons and M. C. Row), published in *Proceedings*, *24th Hawaii International Conference on System Sciences*, January 1991, pp. 287-296.
- 18. "An Economic Analysis of Interorganizational Information Technology" (E. K. Clemons and P. R. Kleindorfer), *Decision Support Systems* 8, 1992, pp. 431-447.
- "Information Technology and Industrial Cooperation: The Changing Economics of Coordination and Ownership" (E. K. Clemons and M. C. Row), *Journal of Management Information Systems*, Vol. 9, No. 2, Fall 1992, pp. 9-28; this is a revision of "Information Technology and Industrial Cooperation", published in *Proceedings*, 25th Hawaii International Conference on System Sciences, January 1992, pp. 644-653.
- 20. "Limits to Inter-firm Coordination: Results of a Field Study in Consumer Packaged Goods Distribution" (E. K. Clemons and M. C. Row), *Journal of Management Information Systems*, Vol. 10, No. 1, Summer 1993, pp. 73-95.
- 21. "The Impact of Information Technology on the Organization of Economic Activity: The 'Move to the Middle' Hypothesis" (E. K. Clemons, M. C. Row and S. P. Reddi), *Journal of Management Information Systems*, Vol. 10, No. 2, Fall 1993, pp. 9-35.
- 22. "Segmentation, Differentiation, and Flexible Pricing Experiences with Information Technology and Segment-Tailored Strategies" (E. K. Clemons and B. W. Weber), *Journal of Management Information Systems*, Vol. 11, No. 2, Fall 1994, pp. 9-36.
- 23. "Using Scenario Analysis to Manage the Strategic Risks of Reengineering", *Sloan Management Review*, Vol. 3, No. 4, Summer 1995, pp. 61-71.
- 24. "Identifying Sources of Reengineering Failures: A Study of the Behavioral Factors Contributing to Reengineering Risks" (E. K. Clemons, M. C. Row and M. E. Thatcher), *Journal of Management Information Systems*, Vol. 12, No. 2, Fall 1995, pp. 9-36; this is a revision of "An Integrative Framework for Identifying and Managing Risks Associated with Large Scale Reengineering Efforts", published in *Proceedings*, 28th Hawaii International Conference on System Sciences, January 1995, pp. 960-969.
- 25. "Alternative Securities Trading Systems: Tests and Regulatory Implications of the Adoption of Technology" (E. K. Clemons and B. W. Weber), *Information Systems Research*, Vol. 7, No. 2, June 1996, pp. 163-188.
- 26. "Market Dominance as a Precursor of a Firm's Failure: Emerging Technologies and the Competitive Advantage of New Entrants" (E. K. Clemons, D. C. Croson and B. W. Weber), Journal of Management Information Systems, Vol. 13, No. 2, Fall 1996 pp. 59-75; this is a revision of a paper published in Proceedings, 29th Hawaii International Conference on System Sciences, January 1996.
- 27. "Reengineering Money: The Mondex Stored Value Card and Beyond" (E. K. Clemons, D. C. Croson and B. W. Weber); *International Journal of Electronic Commerce*, Vol. 1, No. 2, Winter 1996-97, pp. 5-31; this is a revision of a paper published in *Proceedings*, 29th Hawaii International Conference on System Sciences, January 1996.
- 28. "Information Technology and Screen-Based Securities Trading: Pricing the Stock and Pricing the Trade" (E. K. Clemons and B. W. Weber), *Management Science*, Vol. 43, No. 12, December 1997, pp. 1693-1708.
- 29. "Evaluating Alternative Information Regimes in the Private Health Insurance Industry: Managing the Social Cost of Private Information" (E. K. Clemons and M. E. Thatcher), *Journal of Management Information Systems*, Vol. 14, No. 2, Fall 1997, pp. 9-31. This is a revision of "Information Technology and Information Asymmetry: The Future of Private Individual Health Insurance" (E. K.

Clemons, M. E. Thatcher, B. Blecherman and D. C. Croson), *Proceedings*, 30th Hawaii International Conference on System Sciences, January 1997.

- 30. "Adverse Self-Selection and the Changing Competitive Balance between Stock Exchanges and Off-Exchange Trading Venues" (E. K. Clemons and B. W. Weber), *International Journal of Electronic Commerce*, Vol. 1, No. 3, Spring 1997, pp. 21-41.
- 31 "Restructuring Institutional Block Trading: An Overview of the OptiMark Case (E. K. Clemons and B. W. Weber). *Journal of Management Information Systems*, Vol. 15, No. 2, Fall 1998, pp. 41-60.
- "Rosenbluth International: Strategic Managing of technology-Driven Discontinuous Change at a Successful Global Enterprise" (E. K. Clemons and Il-Horn Hann) *Journal of Management Systems*, Fall 1999. This is a revision of "Rosenbluth International: Strategic Transformation of a Successful Enterprise," *Proceedings*, 32nd Hawaii International Conference on System Sciences, January 1999.
- 33. "Managing the Costs of Informational Privacy: Pure Bundling as a Strategy in the Individual Health Insurance Market" (E. K. Clemons and M. E. Thatcher), *Journal of Management Information Systems* 17 (2): pp. 29-57, Fall 2000, This is a revision of "The Impact of Genetic Testing on Informational Privacy: Bundling As a Strategy in the Individual Health Insurance Market" (E. K. Clemons, M. E. Thatcher), *Proceedings*, 33rd Hawaii International Conference on System Sciences, *January* 1997.
- 34. "Impacts of the Internet on Financial Services: A Quantitative Analysis of Transparency, Differential Pricing and Disintermediation", (Eric K. Clemons, Lorin M. Hitt, Bin Gu, Matt E. Thatcher, Bruce W. Weber), *Journal of Financial Services Research*, 22(1): pp. 73-90; Aug 2002.
- 35. "Achieving the Optimal Balance between Investment In Quality and Investment in Self-Promotion", (Ravi Aron and Eric K. Clemons), *Journal of Management Information Systems* 18 (2): pp. 65-88 Fall 2001.
- 36. "Price dispersion and differentiation in online travel: An empirical investigation" (E. K. Clemons, Il-Horn Hann, L. M. Hitt), *Management Science* 48 (4): 534-549 April 2002.
- 37. "Maneuver Warfare and Competitive Strategy in Rapidly Evolving Markets", (E. K. Clemons and J. A. Santamaria) *Harvard Business Review* April 2002.
- 38. "Newly Vulnerable Markets in an Age of Pure Information Products: An Analysis of Online Music and Online News", (Eric K. Clemons, Bin Gu, and Karl Reiner Lang), *Journal of Management Information Systems*, Vol. 19 No. 3, Winter 2003 pp. 17 42.
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- 32. 食品造假与"经济叛国罪" 谈构建中国新经济伦理的必要性 (Food Tampering, Fraud and "Economic Treason" The Need for a New Economic Morality in China), (Eric K. Clemons, SHAO Jingchun), China Long March to Quality, March 15, 2012.
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