

BUSA 580 Technology Strategy & Competitiveness

Fall 2001 Monday 6:00 to 9:30P PM

A219

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**Office Hours by appointment
or before & after class**

E-mail 7 days a week

I. Course Description

Concepts and methods for competitive strategy are covered for organizations with hyper-competitive environments, with short product life cycles and short time to market. Emphasis is upon strategic choices that create sustainable advantage under conditions of rapid technological, political, environmental and economic change. Issues including leveraging technology, planning, assessments, and integrating technology strategy with business strategy. An integrated approach to strategic management is presented along with a detailed coverage of the strategic management process. The course combines lectures, cases, exercises, and special project to bring out the unique issues related to strategic management of technology. The readings and cases cover the following topic areas:

Part I – Integrating Technology and Strategy

Part II – Design and Evolution of Technology Strategy

Part III – Enactment of Technology Strategy-Developing the Firm's Innovative Capabilities

Part IV – Enactment of Technology Strategy-Creating and Implementing a Development Strategy

Part V: Conclusion; Innovation Challenges in Establish Firms

II. Course Objective

The course general objective is the development of knowledge, skills, and awareness of the scope and complexity of the issues and problems related to the strategic management of technology and innovation. The course is designed to provide a perspective useful in the identification, analysis, and solution of problems encountered at the upper levels of management. New insights and greater awareness of the fundamental factors in organization and management will be sought through analysis of the effects of alternative strategy decisions for technology companies. The course is designed to develop leadership, critical thinking, analysis and problem solving, communication and team skills. The students will obtain experience in addressing complex business situations in technology companies and to apply knowledge gained from other courses. The students will have the opportunity to address real world technology management issues proposed by company managers.

III. Prerequisites

BUSA 503, 504, 505, 506, 507

IV. Text & Materials

Required

Custom readings and cases taken from "Strategic Management of Technology and Innovation" Third Edition, 2001 by Robert A. Burgelman, Modesto A. Maidique, and Steven C. Wheelwright.

Supporting References

Journals

Forbes
California Management Review
Harvard Business Review
Business Horizons
Academy of Management Executive
Journal of Business Ethics
Sloan Management Review
Journal of High Technology Management Research
Research Technology Management
Engineering Management Review
IEEE Transactions on Engineering Management

Books

Allen, Thomas J. (1993) Managing the Flow of Technology, MIT Press
Alic, John A. (1992) Beyond Spin Off: Military and Commercial Technology in a Changing World, Harvard Business School Press
Babcock, Daniel L. (1991) Managing Engineering and Technology, Printice Hall, Inc.
Badaracco Jr. J. L. (1991) The Knowledge Link: How Firms Compete Through Strategic Alliances, Boston: Harvard Business School Press
Badawy, Michael K. (1993) Management As A New Technology, McGraw Hill
Betz, Frederick L. (1987) Managing Technology, Prentice Hall. England Cliffs. NJ.
Betz, Frederick L. (1993) Strategic Technology Management McGraw Hill
Cleland David I. and Bursic Keren M. Strategic Technology Management Systems for Products and Products, AMACOM Press
Collens. James C. and Ponas Jerry 1. (1994) Built to Last-Successful Habits of Visionary Companies. Harvard Business Publishers
Dussauae, Hart. Stuart & Ramainantsoa (1992) Strategic Technology Management. John Wiley & Sons
Gaynor Gerald H. (1991) Achieving The Competitive Edge Through Integrated Technology Management. McGraw Hill.
Gaynor Gerald H. (1993) Exploiting Cycle Time In Technology Management, McGraw Hill, Inc.
Goodman R. A. Lawless M. W. (1994) Technology and Strategy: Conceptual Models and Diagnostics, Oxford University Press
Guile Bruce R. & Harvey Brooks Eds, (1988) Technology and Global Industry: Companies and Nations in the World Economy, Washington , National Academy Press
Harvey James, When Businesses Cross International Borders
Strategic Alliances in International Business, paperback
Monroe, Joseph G. (1993) Winning in High-Tech Markets:
Moore Geoffrey A. , Living on the Fault Line (2000) Harber Business
Muroyama Janet H. and Stever, Guyford Editors (1988) Globalization of Technology,

National Academy Press

Oster. Sharon M. (1994) Modern Competitive Analysis. New York: Oxford Press

Porter, Michael E. (1985) Competitive Advantage: Creating and Sustaining Superior Performance , Free Press, New York

Porter Michael E. (1990) The Competitive Advantage of Nations. New York: The Free Press

Primozic Kenneth, Primozic Edward, & Leben Joe (1991) Strategic Choices, McGraw Hill, Inc.

Roberts. Edward B. (1991) Entrepreneurs in High Technology:

Lessons from M. T. and Beyond, Oxford University Press, 1991

Roussel, P. A & Saad K. L. et. al.. (1991) Third Generation R& D, Harvard Business School Press.

Steele, Lowell . (1989) Managing_Technology, The Strategic View. McGraw Hill. Inc.

Teece. David J. editor (1987) The Competitive Challenge, Strategies For Industrial Innovation and Renewal. Ballinger Pub, Cambridge MA.

Thambain. Hans J. (1992) Engineering Management.

Managing Effectively in Technology Based Organizations. Wiley and Sons

Twiss, Brian C. (1989) Managing Technology for a Competitive Advantage: Integrating Technological and Organization Development from Strategy to Action. Pitman Press.

V. Course Requirements

Special project

Student teams or individual will be required to prepare and present a special project presentation (20 minutes maximum) consisting of one of the following

1. A solution to a problem proposed by a business/ organization requiring application or extension of concepts learned in the TIM program and related to strategic management. Students can have representatives from their companies or other companies proposed strategic problems to the class to be considered.
2. A strategic audit of a technology or related company of their choice. The emphasis on the presentation is on recommendations and implementation of strategies to improve the competitive position of the company.
3. A in depth review of a selected topic in the area of strategic management of technology

The teams should clearly identify the area of responsibility for each individual and the briefing should be consistent with that responsibility. Criteria used for grading the special project is as follows:

Originality in ideas, method of analysis, and recommendations

Application to outside readings and/or other courses and extension of course concepts

Depth and comprehensiveness of analysis and approach

Understanding and demonstration of strategic management concepts

Clarity and delivery of presentation

Strategy and implementation consistent for company

The last day is reserved for special projects presentations. However, they can be given any time during the course if the team/individual is ready.

Cases(One page write-ups and presentation)

All students should be prepared to verbally discuss all case questions given in the syllabus. In addition, they should be able to identify key issues, problems, and opportunities, evaluation of alternative approaches to deal with the identified problems, selection of a preferred strategy, and the formulation of a concrete action plan to implement the strategy.

Each student will address one question identified in the syllabus in **writing** for each of the cases (Not required for the case presentation). One page with twelve point font should be adequate. Criteria used for grading the case write-up is as follows:

Course of action consistent with data contained in the case.

Justification and rationale in course of action

Originality and depth of recommendations

Clarity and conciseness of writing

Writing style (grammar, spelling, punctuation, syntax)

A team of two or more students will perform a general case analysis of one of the cases. The general case analysis will be presented verbally to the class. The emphasis on the presentation should be on evaluation of alternatives, recommendation and implementation. The presentation should be no more than 20 minutes. Hand in a hard copy of your presentation charts for this case (six charts to a page is fine).

Exercises and class participation

A major emphasis in this course is open in-depth discussion and presentation of assigned cases and readings, exercises, and a special project. It is expected that each individual student can best broaden his or her knowledge if all students share their concerns, questions, ideas, interpretations, and rationale. For this reason active participation and regular attendance is crucial. Students should be prepared to discuss the major points of all the readings and how they could be applied to a business situation.

VI. Evaluation and Grading

Grades in the course will be determined as follows:

Special Project (team or individual)	40%
Case write-ups (individual)	40%
Case presentation (team)	20%

In accordance with the School of Business Administration standards, letter grades have the following meaning:

A - Outstanding performance, the student should display a mastery of the basic materials of the course and perceive most of the subtleties inherent in the materials.

B - Good performance, the student should display a good knowledge of the basic materials of the course and perceive some of the subtleties inherent in the materials.

C - Acceptable performance, the student should display a working knowledge of the basic materials.

D - poor performance, the student is lacking knowledge of some of the basic material in the course.

E - Unacceptable performance, the student has displayed gross deficiencies in knowledge of the basic materials in the course.

VII. Competencies

Key competencies which BUSA 580 seeks to develop in students:

Problem Solving/Critical Thinking: The capacity to analyze a situation from multiple perspectives and synthesize an acceptable course of action.

Related assignments. Students will have the opportunity to demonstrate their critical thinking ability by recommending courses of action and rationale for a number of complex cases and special project and by addressing questions in various exercises.

Evaluation criteria. Evaluation criteria will be based on their ability to

1. identify the solution that best synthesizes the different perspectives
2. identify the limits or constraints on what is an acceptable solution
3. provide rationale that is consistent with their solution
4. to identify perspectives of various stakeholders

Communicating: Effectively communicates ideas, observations, analyses, conclusions and recommendations to others in a variety of professional contexts.

Related assignments. Students will have the opportunity to demonstrate their communication ability both in writing case analysis, giving formal briefings and discussions in class.

Evaluation criteria. Evaluation criteria will be based on the ability to provide

1. appearance, mechanics, organization & structure of their writing
2. evidence for support and persuasiveness of position
3. clarity and conciseness in class discussions
4. proper vocabulary and pronunciation
5. clarity of presentation and effectiveness of delivery

Interacting (Teaming): Demonstrate the ability to interact effectively with others in-group situations involving teamwork and in other kinds of interpersonal situations.

Related assignments. Students will have the opportunity to demonstrate their team effectiveness thru various team exercises throughout the course, case presentation and special project team activities.

Evaluation criteria. Evaluation criteria will be based on the ability to

1. contribute ideas to facilitate team effectiveness
2. lead discussions to provide multiple alternatives from which to choose for solution
3. create team processes to enable members to work together effectively
4. encourage expression of ideas openly and honestly

Master of Technology: Demonstrate the ability to access information and to interpret, summarize, synthesize and convey this information to others using state of the art information retrieval, analysis, and presentation software and equipment.

Related assignments. The course focuses on strategic management of technology and innovation in established firms. The students are required to use the Internet and various software applications throughout the course.

Evaluation criteria. Evaluation criteria will be based on the ability to

1. understand and apply technology as a strategic tool
2. search for and apply information on the Internet
3. identify and provide solution of management issues associated with technology
4. use appropriate software for analysis and communication

Leading: Demonstrate the ability to articulate a vision, inspires and enables others to create a shared vision of the future and motivated others to commit to effective courses of action.

Related assignments. The students have the opportunity to act as leader in various team exercises, special project and case presentation

Evaluation criteria. Evaluation criteria will be based on the ability to

1. formulate a vision for a company
2. determine an effective course of action for the vision
3. persuade others to accept course of action

To a lesser degree than the above competencies BUSA 580 will help students to develop:

- **Ethical Understanding:** Effectively identifies goals and principles for ethical practice.
- **Values for Service:** Effectively identifies goals and principles for providing quality service to various organizational constituents.
- **Professionalism:** Adhere to principles of professional conduct and high standards of quality in all undertakings.
- **Global Awareness:** Demonstrate awareness of different beliefs, values and perspectives help in other cultures, ability to gather information relevant for dealings with other cultures, and ability to make informed judgments and take actions based on this awareness and information.
- **Discipline-Based Knowledge:** Demonstrate theoretical and practical understanding of concepts, models and techniques associated with different business disciplines.

The specific discipline-based abilities BUSA 580 seeks to develop as outcomes of students are:

- a. Ability to understand and apply the components of the strategic management process for technology companies.
- b. Ability to understand and apply the forces that shape competition in a company's external environment.
- b. Ability to understand and apply how resources, capabilities and competencies contribute to competitive advantage.
- c. Ability to develop a conceptual framework for assessing and auditing the innovative capabilities of a business organization.
- d. Ability to offer some practice in defining and working out strategic management problems related to technological innovation and corporate entrepreneurship
- e. Ability to understand and apply concepts to global competition and global competitors.

- f. Ability to understand and apply how to build, design, and restructure a corporation and to link strategy to structure.
- g. Ability to leverage technology, perform technology assessment, and integrate technology strategy with business strategy.

The learning outcomes for BUSA 580 relate to the mission and objectives of the school of business in the following ways:

1. The course develops competences that directly support the themes of integration and technology and to a lesser extend the themes of globalization and service.
2. They learn to integrate business strategy and technology strategy
3. They learn to integrate the various business functions to formulate business and corporate strategies
4. The students learn how technological capabilities can be used to shape and accomplish strategic and operational objectives of an organization.
5. They directly apply software tools in solving their cases and course exercises.
6. Global issues are considered in discussion of course material.

VIII. Special Needs

If you need course adaptation or accommodations or if you have emergency medical information to share with me, or if you need other special arrangements, please make an appointment with me as soon as possible. If you have questions concerning the services available for special needs at PLU, please call Chris Connorly-Benton at extension 7520.

VIX. Honesty Policy

Both the value and the success of any academic activity, as well as the entire academic enterprise, have depended for centuries on the fundamental principle of absolute honesty. The university expects all its faculty and students to honor this principle scrupulously.

Since academic dishonesty is a serious breach of the universally recognized code of academic ethics, it is every faculty member’s obligation to impose appropriate sanctions for any demonstrable instance of such misconduct on the part of a student.

The university’s policy on academic integrity and its procedures for dealing with academic misconduct are detailed in the *Student Handbook*.

X. Assignment Summary

I. INTRODUCTION: INTEGRATING TECHNOLOGY AND STRATEGY

Session 1, Sept 10

Readings Technology and Strategy: A General Management Perspective
 The Art of High-Technology Management
 Strategic Intent

Topics Course Requirements

Strategic Management Process
Technology as a resource

Exercise Establishing strategy

II. DESIGN AND EVOLUTION OF TECHNOLOGY STRATEGY

Session 2, Sept 17

Readings Design and Implementation of Technology Strategy: An Evolutionary Perspective
How to Put Technology Into Corporate Planning

Topics External Environment

Exercise Hyper-competitive environments

Session 3 Sept 24

Readings The Core Competence of the Corporation

Topics Internal Environment
Technology Strategy

Exercise Core competencies

Session 4, Oct. 1

Readings Management Criteria for Effective Innovation

Case Electronic Arts in 1999

Case Questions 1. What is the basic business model of an Internet portal? What is the basic business model of an online gaming site? How does each make money? How do they become profitable?
2. What are the risks associated with competing against established portals? What risks will EA face if it partners with a portal? How can EA mitigate or control these risks?
3. What skills will EA need for success in Internet-related gaming (e.g., online gaming sites)? How do these compare with EA's traditional strengths in platform selection and game development? Can EA establish a separate company to compete in the Internet? Why or why not?
4.* Is the Internet a platform change for EA or is it a strategic inflection point? Why? How should EA respond in either case?
*Answer in writing.

Topics Business Level Strategy
Competitive dynamics
Customer Focused Technology Planning

Exercise Reducing Competitive Risk
First Mover, second mover, late mover

Session 5, Oct 8

Readings Profiting from Technological innovation: Implications for Integration, Collaboration, Licensing, and Public Policy

Case Charles Schwab & Co. inc. in 1999

Case Questions

1. Up until the mid- 1990's, how did Schwab position itself in the brokerage industry? How did Schwab impact the industry?
2. What were the key factors underlying Schwab's competitive advantage up until the mid- 1990's? How have these factors reinforced each other?
3. How has the Internet affected the brokerage industry? Who is winning? Why?
- 4.* In 1999, what should Schwab do to protect the leverage its strategic position in the brokerage industry? Please prepare an action plan.

*Answer in writing.

Topics Corporate Level Strategy
Leveraging Technology

Exercise Diversification

Session 6, Oct. 14

Readings Crossing the Chasm-and Beyond

Case The PC-Based Desktop Videoconferencing Systems Industry in 1998

Case Questions

1. Why did Intel enter the DTS market? What were its objectives? How do you evaluate this initiative from strategic point of view?
2. Identify and evaluate key elements of Intel's approach to develop its business in the DTS market. How successful has Intel been?
3. Evaluate PictureTel's strategy in the DTS market. How does it relate to overall corporate strategy? How successful has PictureTel been in the DTS market?

4. Evaluate the future prospect of the DTS industry. Reconsider your answers to the question 1.

5.* What should Intel do next?

*Answer in writing.

Topic Acquisition Strategy
Exercise Inside the tornado

Session 7, Oct. 22

Readings Predators and Prey: A new Ecology of Competition

Case SAP America

Case Questions

1. Why has SAP America grown so rapidly? What challenges have been created by the company's explosive growth?
2. What are the critical feature's of the company's approaches to partnering? What role has partnering played in the company's success?
3. What is your evaluation of the new organization? What problems was it designed to solve?
- 4.* What is Basho trying to accomplish with the professional services (consulting) organization? What challenges does she face? What is your evaluation of her chosen approach

*Answer in writing.

Topic International strategy

Exercise Options for international strategy

Session 8, Oct. 29

Readings Customer Power, Strategic Investment and the Failure of Leadings Firms

Case Hewlett Packard's Merced Division

Case Questions

1. Does the market need the Merced chip?
2. Who will benefit the most from the introduction of the Merced chip in the markets served by ESG? Who will benefit the least, and why?
- 3.* What should Jim Davis recommend? * Provide rationale for your recommendation.

*Answer in writing.

Topic Strategic Alliances

Exercise Boundary less organization

III. ENACTMENT OF TECHNOLOGY STRATEGY: DEVELOPING THE FIRM'S INNOVATIVE CAPABILITIES

Session 9, Nov. 5

Readings	Designing and Managing Systems for Corporate Innovation The Lab that Ran Away from Xerox
Case	PlaceWare: Issues in Structuring a Xerox Technology Spinout
Case Questions	1. Why has Xerox chosen to commercialize PlaceWare outside of Xerox? Do you agree with their rationale? 2. What valuation would you give to PlaceWare in June of 1996? What percentage of that value should Xerox expect for its intellectual property? 3.*Which option should Bruce recommend for structuring the spin-out of PlaceWare? *Answer in writing.
Topic	Strategic Controls
Exercise	Balanced scorecard

IV. ENACTMENT OF TECHNOLOGY STRATEGY: CREATING AND IMPLEMENTING A DEVELOPMENT STRATEGY

Session 10, Nov. 12

Readings	Organizing and Leading Heavyweight Development Teams Creating Project Plans to Focus Product Development
Case	Eli Lilly: The Evista Project
Case Questions	1. What is a "heavyweight project team" and how does it differ from the traditional approach used for organizing development projects at Eli Lilly? 2. What is your assessment of the performance of the two heavyweight project teams described in the case? What factors contributed most to these performance results? In the pharmaceutical context, how far back in the development process should heavyweight teams be deployed (e.g., just for Phase III, Phase II-B, Phase II-A, phase I)? Why? 3.* Is the "heavyweight" project team an approach that you would recommend to Lilly for purposes of commercializing the Evista product? What additional recommendations would you make to Lilly management concerning the use of heavyweight teams going forward? *Answer in writing.

Topic	Strategic leadership
Exercise	Characteristics of leader and manager

V. CONCLUSION: INNOVATION CHALLENGES IN ESTABLISHED FIRMS
Session 11, Nov. 26

Readings	Conclusion: Innovation Challenges in Establish Firms Building a Learning Organization
Case	Apple Computer in 1999
Case Questions	1. Historically, what were Apple's major competitive advantage? 2. How has the dynamics in the PC industry changed in the last 10 years? 3. Evaluate Apple's strategies since 1990. 4.* What should Steve Jobs do today? *Answer in writing.

Session 12, Dec. 3

Special Project Presentations

Session 13, Dec. 10

Special Project Presentations