

## Technology Analysis and Strategy

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Office Hours: Monday 12:00-14:00; Wednesday 10:00-12:00

Class Hours: Tuesdays

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### **Objectives:**

The development of modern technology has reshaped the way we do business and the way we live our lives. To gain competitive advantages, modern firms must constantly bring new innovations to the world and quickly adopt new technologies developed by others to survive. This course seeks to blend technology with business management from a system's perspective. It builds from the fact that technology has become the most important strategic weapon for firms in high-tech industries. Some scholars call the brave new world as the knowledge economy or information society to stress the importance of technology or knowledge for the next wave of economic growth. The traditional R&D management approach is not enough to describe the business function of developing, utilizing, commercializing, and replacing technological knowledge in this ever changing business world. Management of technology and innovation has become the core discipline for the professional managers of the next generation.

Therefore the focus of this course is the planning and development of technology for the growth and profits of technology-oriented enterprises. The students will gain a firm understanding and the competence in the area of management and technology. Term projects are required, which will further elaborate on particular aspects of the course according to the student's own objectives and background. Term projects also help to consolidate theories and best practices from the western countries to the context of Taiwan's high-tech industries. Interactive learning is emphasized throughout the course. Student's participation in class, including discussion, homework, and quizzes is a critical and integral part of the course.

### **Grades:**

Class Participation: 60%

Research Proposal: 40%

### **Textbook:**

Strategic Management of Technology and Innovation (5th edition)

By Robert A. Burgelman, Clayton M. Christensen, Steven C. Wheelwright  
McGraw-Hill Irwin, Boston, 2009

## Syllabus

9/5

Introduction

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READING II-1 Patterns of Industrial Innovation William J. Abernathy and James M. Utterback

READING II-6 Disruption, Disintegration and the Dissipation of Differentiability  
Clayton M. Christensen, Matt Verlinden, and George Westerman Industry Context

Peering into a crystal ball: Forecasting behavior and industry foresight

Rahul Kapoor,

Daniel Wilde

Strategic Management Journal Volume 44, Issue 3

First published: 28 July 2022

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READING II-2 Exploring the Limits of the Technology S-Curve. Part I: Component Technologies Clayton M. Christensen

READING II-3 Exploring the Limits of the Technology S-Curve. Part II:  
Architectural Technologies Clayton M. Christensen

Hitting reset: Industry evolution, generational technology cycles, and the dynamic value of firm experience

Hakan Ozalp,

J.P. Eggers,

Franco Malerba

Strategic Management Journal Volume 44, Issue 5

First published: 28 October 2022

9/26

READING II-7 Crossing the Chasm and Beyond Geoffrey A. Moore

READING II-8 Competing Technologies: An Overview W. Brian Arthur

Trade-offs to using standardized tools: Innovation enablers or creativity constraints?

Milan Miric,

Hakan Ozalp,

Erdem Dogukan Yilmaz

Strategic Management Journal Volume 44, Issue 4

10/3

READING II-12 Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms Rebecca M. Henderson and Kim B. Clark

READING II-13 Intraorganizational Ecology of Strategy Making and Organizational Adaptation: Theory and Field Research

Innovation and profitability following antitrust intervention against a dominant platform: The wild, wild west?

Sruthi Thatchenkery,

Riitta Katila

Strategic Management Journal Volume 44, Issue 4

First published: 31 October 2022

10/10

READING II-15 Strategic Intent Gary Hamel and C.K. Prahalad

READING II-17 Managing the Strategic Dynamics of Acquisition Integration Robert A. Burgelman and Webb McKinney

Artificial intelligence and the changing sources of competitive advantage

Sebastian Krakowski, Johannes Luger, Sebastian Raisch

Pages: 1425-1452 First Published: 06 February 2022

10/17

Part Three Enactment of Technology Strategy-Developing a Firm's Innovative Capabilities Internal and External Sources of Technology

READING III-1 Capturing the Returns From Research Clayton M. Christensen, Christopher Musso, and Scott Anthony

READING III-2 The Lab That Ran Away from Xerox Bro Uttal

Academic stars and licensing experience in university technology commercialization

David H. Hsu,

Jeffrey M. Kuhn

Strategic Management Journal Volume 44, Issue 3

First published: 10 October 2022

10/24

READING III-3 Transforming Invention into Innovation: The Conceptualization

Stage Robert A. Burgelman and Leonard R. Sayles

READING III-4 The Transfer of Technology from Research to Development H.

Cohen, S. Keller, and D. Streeter

Are seed accelerators status springboards for startups? Or sand traps?

Benjamin L. Hallen, Susan L. Cohen, Sung Ho Park

Pages: 2060-2096 First Published: 06 January 2023

10/31

READING III-5 Adsorptive Capacity: A New Perspective on Learning and

Innovation Wesley M. Cohen and Daniel A. Levinthal

READING III-6 Making Sense of Corporate Venture Capital Henry W. Chesbrough

Linking New Technology and Novel Customer Needs

External knowledge sourcing, knowledge spillovers, and internal collaboration: The effects of intrafirm linkages on firm-university co-authorship linkages

Francisco Polidoro,

Curba Morris Lampert,

Minyoung Kim

Strategic Management Journal Volume 43, Issue 13

First published: 06 May 2022

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11/7

READING III-7 Note on Lead User Research Stefan Thomke and Ashok Nimgade

READING III-9 Misleading Methods of Financial Analysis Clayton M. Christensen,

Stephen P. Kaufman, & Willy Shih

Managing ecosystem emergence and evolution: Strategies for ecosystem architects

Jarryd Daymond,

Eric Knight,

Maria Rumyantseva,

Steven Maguire

Strategic Management Journal Volume 44, Issue 4

First published: 28 July 2022

11/14

READING III-11 Managing the Internal Corporate Venturing Process: Some Recommendations for Practice Robert A. Burgelman

READING III-12 Managing Internal Corporate Venturing Cycles Robert A. Burgelman and Liisa Valikangas

Cascading innovation: R&D team design and performance implications of mobility  
Melody H. Chang

Strategic Management Journal Volume 44, Issue 5

First published: 16 November 2022

11/21

READING III-13 Ambidextrous Organizations: Managing Evolutionary and Revolutionary Change Michael L. Tushman and Charles A. O'Reilly III

READING IV-3 Organizing and Leading 'Heavyweight' Development Teams Kim B. Clark and Steven C. Wheelwright

Breakthrough invention and problem complexity: Evidence from a quasi-experiment  
Yuchen Zhang,

Wei Yang

Strategic Management Journal Volume 43, Issue 12

First published: 25 May 2022

11/28

READING IV-6 The New Product Development Map Steven C. Wheelwright and W. Earl Sasser, Jr.

READING IV-7 Accelerating the Design-Build-Test Cycle for Effective New Product Development Steven C. Wheelwright and Kim B. Clark

The knowledge-incentive tradeoff: Understanding the relationship between research and development decentralization and innovation

John C. Eklund

Strategic Management Journal Volume 43, Issue 12

First published: 11 May 2022

12/5

READING V-1 Building a Learning Organization David A. Garvin

READING V-2 The Power of Strategic Integration Robert A. Burgelman and Yves L. Doz

Pioneering digital platform ecosystems: The role of aligned capabilities and motives in shaping key choices and performance outcomes

Audra Wormald, Sonali K. Shah, Serguey Braguinsky, Rajshree Agarwal

Pages: 1653-1697 First Published: 20 November 2022

12/12

READING I-3 The Core Competence of the Corporation C.K. Prahalad and Gary Hamel Technological Innovation and Strategy

READING I-6 Assessing Your Organization's Capabilities: Resources, Processes, & Priorities Clayton M. Christensen & Stephen P. Kaufman

Renewing the resource-based view: New contexts, new concepts, and new methods

Constance E. Helfat, Aseem Kaul, David J. Ketchen Jr., Jay B. Barney, Olivier Chatain, Harbir Singh

Pages: 1357-1390 First Published: 31 March 2023

12/19

Final Reports Due

Patent remedies and technology licensing: Evidence from a supreme court decision

Senem Aydin Ozden, Pooyan Khashabi

Pages: 2311-2338 First Published: 24 February 2023

Growing platforms within platforms: How platforms manage the adoption of complementor products in the presence of network effects?

Shiva Agarwal, Cameron D. Miller, Martin Ganco

Pages: 1879-1910 First Published: 15 January 2023

The option value in complements within platform-based ecosystems

Puay Khoon Toh,

Shiva Agarwal

Strategic Management Journal Volume 44, Issue 2

First published: 26 July 2022