

## Technology Analysis and Strategy

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Class Hours: Fridays

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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

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### Introduction

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- Abernathy, W. J., & Utterback, J. M. (1975). Patterns of industrial innovation (Reading II-1).
- Christensen, C. M., Verlinden, M., & Westerman, G. (2004). Disruption, disintegration and the dissipation of differentiability (Reading II-6).
- Doshi, A. R., Bell, J. J., Mirzayev, E., & Vanneste, B. S. (2024). Generative artificial intelligence and evaluating strategic decisions. *Strategic Management Journal*, 46(3).

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- Christensen, C. M. (1992). Exploring the limits of the technology S-curve. Part I: Component technologies (Reading II-2).
- Christensen, C. M. (1992). Exploring the limits of the technology S-curve. Part II: Architectural technologies (Reading II-3).
- Szerb, A., & Furr, N. (2025). The emergence and evolution of innovation ecosystems: Evidence from the solar PV ecosystem. *Strategic Management Journal*, 46(10).

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- Moore, G. A. (1991). Crossing the chasm and beyond (Reading II-7).
- Arthur, W. B. (1989). Competing technologies: An overview (Reading II-8).
- Masclans, R., Hasan, S., & Cohen, W. M. (2025). Measuring the commercial potential of science. *Strategic Management Journal*, 46(9).

4/10

- Henderson, R. M., & Clark, K. B. (1990). Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms (Reading II-12).
- Burgelman, R. A. (1991). Intraorganizational ecology of strategy making and organizational adaptation: Theory and field research (Reading II-13).
- Sergeeva, A., & Zott, C. (2025). How founders' values enable business model innovation in new ventures: The case of Magnum Photos. *Strategic Management Journal*, 46(10).

4/17

- Hamel, G., & Prahalad, C. K. (1989). Strategic intent (Reading II-15).

- Burgelman, R. A., & McKinney, W. (2006). Managing the strategic dynamics of acquisition integration (Reading II-17).
- Stagni, R. M., & Santaló, J. (2025). Investors' attention and the paradox of technologically related diversification: Evidence of stock market mispricing. *Strategic Management Journal*, 46(10).

4/25

- Christensen, C. M., Musso, C., & Anthony, S. (2004). Capturing the returns from research (Reading III-1).
- Uttal, B. (1983). The lab that ran away from Xerox (Reading III-2).
- Calic, G., Neville, F., Furnari, S., & Chan, C. S. R. (2024). Seeing the whole: Configurational cognition and new venture resource mobilization. *Strategic Management Journal*, 46(2).

5/1

- Burgelman, R. A., & Sayles, L. R. (1986). Transforming invention into innovation: The conceptualization stage (Reading III-3).
- Cohen, H., Keller, S., & Streeter, D. (1979). The transfer of technology from research to development (Reading III-4).
- Hock-Doepgen, M., Heaton, S., Clauss, T., & Block, J. (2024). Identifying microfoundations of dynamic managerial capabilities for business model innovation. *Strategic Management Journal*, 46(2).

5/8

- Cohen, W. M., & Levinthal, D. A. (1990). Adsorptive capacity: A new perspective on learning and innovation (Reading III-5).
- Chesbrough, H. W. (2002). Making sense of corporate venture capital (Reading III-6).
- Shen, X. S. (2026). How to grow new applications out of old research? Evidence from firm cumulative investments in deep learning.

5/15

- Thomke, S., & Nimgade, A. (2000). Note on lead user research (Reading III-7).
- Christensen, C. M., Kaufman, S. P., & Shih, W. (2008). Misleading methods of financial analysis (Reading III-9).
- Oyedeji, B. A. (2025). Perceptions of knowledge transferability and entrepreneurial entry: The role of firm-initiated turnover. *Strategic Management Journal*, 189-227.

5/22

- Burgelman, R. A. (1984). Managing the internal corporate venturing process: Some recommendations for practice (Reading III-11).
- Burgelman, R. A., & Valikangas, L. (2005). Managing internal corporate venturing cycles (Reading III-12).
- Carlson, N. A., & Burbano, V. (2025). The use of LLMs to annotate data in management research: Foundational guidelines and warnings. *Strategic Management Journal*, Early View.

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- Tushman, M. L., & O'Reilly, C. A., III. (2004). Ambidextrous organizations: Managing evolutionary and revolutionary change (Reading III-13).
- Clark, K. B., & Wheelwright, S. C. (1992). Organizing and leading 'heavyweight' development teams (Reading IV-3).
- Lindbjerg, L., & Vladasel, T. (2025). Hiring entrepreneurs for innovation. *Strategic Management Journal*, 3182-3217.

6/5

- Wheelwright, S. C., & Sasser, W. E., Jr. (1989). The new product development map (Reading IV-6).
- Wheelwright, S. C., & Clark, K. B. (1992). Accelerating the design-build-test cycle for effective new product development (Reading IV-7).
- Kapacinskaite, A. (2025). From wells to windmills: Resource redeployment and new technology investment in the energy sector. *Strategic Management Journal*, Early View.

6/12

- Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation (Reading I-3).
- Christensen, C. M., & Kaufman, S. P. (2006). Assessing your organization's capabilities: Resources, processes, & priorities (Reading I-6).
- Argyres, N., Rios, L. A., & Silverman, B. S. (2025). On the heels of giants: Internal network structure and the race to build on prior innovation. *Strategic Management Journal*, 46(7).

Final Reports Due