

Technology forecast

[Technology](#)



Technology forecasting is considered to be vital in today's business environment. There have been many success stories as well as failures. Forecasting technology impacts many aspects from acquiring a new technology to developing a new technology. The course will start with reviewing several methodologies and then will analyze those impacts and how to make them beneficial for the organizations through many case studies, professional and research articles. Case Studies are selected from Harvard Business School Case Studies. Articles are selected from journals such as Technology Forecasting and Social Change.

Guidelines For Deliverables Cases

Cases will be analyzed and presented in class by teams. You should read and get yourself familiar with the case before the class.

Readings

You will be assigned 2 articles to discuss in class.

Project

Identify an emerging technology as a team and develop a forecast using Technology Forecasting Tools.

Examples of such projects will be provided. Your team is required to present the progress and results of your project during the scheduled times in class. Progress presentations should not exceed 20 minutes and the final presentation will be limited to 45 minutes. You also will need to submit a report which should follow TFSC journal guidelines for a journal paper. Your report should include a literature search justifying the topic and methods used.

CASES

Strategic Planning at United Parcel Service, David A. Garvin, Lynne C.

Levesque, Product#: 306002

Forecasting the Adoption of a New Product, Elie Ofek, Product#: 505062 -

AND - Forecasting the Adoption of E-Books, Elie Ofek, Peter Wickersham,

Product Number: 9-505-063

Illinois Superconductor Corp. : Forecasting Demand for Superconducting

Filters, Mohanbir Sawhney, Lisa Damkroger, Greg McGuirk, Julie Milbratz,

John Rountree, Product#: KEL096

Readings

Introduction to Technology Forecasting

1. Linstone, H. A. , TFSC: 1969-1999. Technological Forecasting and Social Change, Volume 62, Issues 1-2, August-September 1999, Pages 1-8.
2. Ayres, R. U. What have we learned? Technological Forecasting and Social Change, Volume 62, Issues 1-2, August-September 1999, Pages 9-12.
3. Martino, J. P. , Thirty years of change and stability. Technological Forecasting and Social Change, Volume 62, Issues 1-2, August-September 1999, Pages 13-18.
4. Porter, A. L. , Tech forecasting an empirical perspective. Technological Forecasting and Social Change, Volume 62, Issues 1-2, August-September 1999, Pages 19-28.
5. Linstone, H. A. , The 21st century: Everyman as Faust - technology, terrorism, and the multiple perspectives approach. Technological

- Forecasting and Social Change, Volume 70, Issue 3, March 2003, Pages 283-296. Technology Forecasting Techniques
6. Mishra, Somnath, S. G Deshmukh and Prem Vrat, Matching of technological forecasting technique to a technology , Technological Forecasting and Social Change, Volume 69, Issue 1, January 2002, Pages 1-27.
 7. Technology Futures Analysis Methods Working Group, Technology futures analysis: Toward integration of the field and new methods, Technological Forecasting and Social Change, Volume 71, Issue 3, March 2004, Pages 287-303.
 8. Silberglitt, R. , Hove, A. , and Shulman, P. Analysis of US energy scenarios: Meta-scenarios, pathways, and policy implications. Technological Forecasting and Social Change, Volume 70, Issue 4, May 2003, Pages 297-315.
 9. Rowe, G. and G. Wright, The Delphi technique as a forecasting tool: Issues and analysis, International Journal of Forecasting, Volume 15, Issue 4, October 1999, Pages 353-375.
 10. Lena Borjeson, Mattias Hojer, Karl-Henrik Dreborg, Tomas Ekvall and Goran Finnveden, Scenario types and techniques: Towards a user's guide, Futures, Volume 38, Issue 7, September 2006, Pages 723-739.
 11. Winebrake, J. J. , and Creswick, B. P. The future of hydrogen fueling systems for transportation: An application of perspective-based scenario analysis using the analytic hierarchy process, Technological Forecasting and Social Change, Volume 70, Issue 4, May 2003, Pages 359-384.

12. Sager, B. , Scenarios on the Future of Biotechnology.
Technological Forecasting and Social Change, Volume 68, Issue 2,
October 2001, Pages 109-129.
13. Modis, T. , Technological forecasting at the stock market.
Technological Forecasting and Social Change, Volume 62, Issue 3,
November 1999, Pages 173-202.
14. Devezas, Tessaleno C. , Harold A. Linstone and Humberto J. S.
Santos, The growth dynamics of the Internet and the long wave theory,
Technological Forecasting and Social Change, Volume 72, Issue 8,
October 2005, Pages 913-935.
15. Ilonen, Jarmo, Joni-Kristian Kamarainen, Kaisu Puumalainen,
Sanna Sundqvist and Heikki Kalviainen, Toward automatic forecasts for
diffusion of innovations, Technological Forecasting and Social Change,
Volume 73, Issue 2, February 2006, Pages 182-198.
16. Martino, Joseph P. , A comparison of two composite measures of
technology , Technological Forecasting and Social Change, Volume 44,
Issue 2, September 1993, Pages 147-159. Emerging Technology
Forecasting Techniques
17. Inman, Oliver Lane, Timothy R. Anderson and Robert R. Harmon,
Predicting U. S. jet fighter aircraft introductions from 1944 to 1982: A
dogfight between regression and TFDEA, Technological Forecasting
and Social Change, Volume 73, Issue 9, November 2006, Pages 1178-
1187.
18. Anderson, Timothy, Rolf Fare, Shawna Grosskopf, Lane Inman
and Xiaoyu Song, Further examination of Moore's law with data

- envelopment analysis, *Technological Forecasting and Social Change*, Volume 69, Issue 5, June 2002, Pages 465-477.
19. Barley, S. R. , What Can We Learn from the History of Technology. *Journal of Engineering and Technology Management*, Volume 15, Issue 4, September 1998, Pages 237-255.
 20. Bowonder, B. , T. Miyake, and B. Muralidharan, Predicting the future: Lessons from evolutionary theory, *Technological Forecasting and Social Change*, Volume 62, Issues 1-2, August-September 1999, Pages 51-62.
 21. Guice, J. , Designing the Future: The Culture of New Trends in Science and Technology. *Research Policy*, Volume 28, Issue 1, January 1999, Pages 81-98.
 22. Phaal, R. , Farrukh, C. J. P. , and Probert, D. R. , Technology Roadmapping - A Planning Framework for Evolution and Revolution. *Technological Forecasting and Social Change*, Volume 71, Issues 1-2, January-February 2004, Pages 5-26.
 23. Kayal, A. , Measuring the Pace of Technological Process: Implication for Technological Forecasting. *Technological Forecasting and Social Change*, Volume 60, Issue 3, March 1999, Pages 237-245.
 24. T. U. Daim, G. Rueda, H. Martin, and P. Gerdtsri, Forecasting Emerging Technologies: Use of Bibliometrics and Patent Analysis, *Technology Forecasting and Social Change*, Volume 73, Issue 8, October 2006, Pages 981-1012.
 25. Watts, R. J. and A. L. Porter, Innovation Forecasting. *Technological Forecasting and Social Change*, Volume 56, Issue 1, September 1997, Pages 25-47.

Schedule

Subjects to be Covered Assignment/Readings 1/4

- Teams Formed 1/11
- Introduction to Technology Forecasting
- Technology Planning
- Case Study1: Strategic Planning at United Parcel Service
- Case Preparation and Presentations
- Article Discussion Articles 1-5 1/18 UNIVERSITY CLOSED 1/25
- Extrapolation by Regression - Guest Speaker: Jisun Kim
- Project Proposal Presentations 2/1
- Delphi, Analogy, Scenarios, Environment Monitoring, Growth Curves
- In Class Exercise: Cable TV Diffusion Article Discussion ? Articles 6-16
2/8
- Case Study 2: Forecasting the Adoption of a New Product
- Case Preparation and Presentations
- Project Progress Presentations 2/15
- Emerging Technology Forecasting Methods: TFDEA - Guest Speaker -
Tim Anderson 2/22 ? Emerging Technology Forecasting Methods:
Bibliometrics, Patent Searches,
- Article Discussion? ? Articles 17-25 3/1
- Project Results Presentations 3/8
- Case Study 3: Illinois Superconductor Corp. : Forecasting Demand for
Superconducting Filters
- Case Preparation and Presentations 3/15
- Final Reports