

Updated 1-20-09

**University of California, Berkeley
Haas School of Business**

Course Syllabus:

**Business and Technology for
Sustainable Development**

**MBA290T.4
2 credits**

**Spring Semester 2009
Thursday 4:00 PM – 6:00 PM
Location: Cheit Hall, Room C-330**

Instructor: Flavio Feferman
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Course resources: Study.net and b-Space

Course Summary

This course is tailored to students pursuing an international career in economic development, international business, or entrepreneurship in developing regions. The course draws on economic development theory, business cases, and project evaluation techniques (finance, marketing) to provide a holistic view of the role of business and technology in sustainable economic development. Students will learn and apply conceptual frameworks and practical tools that will help them in their international careers. We will discuss pertinent business cases from developing countries (in Latin America, Africa, and Asia) to illustrate key concepts, utilizing examples from diverse economic sectors such as telecommunications, renewable energy, information technology, and agriculture. The course will review the role of technology in promoting economic development and as a source of sustainable competitive advantage for firms.

The course is structured to evolve from a “macro” view of economic development (countries and regions) to a “micro” or business-level view (companies, markets, and projects). The macro analysis provides an important contextual background for the subsequent discussions on the evaluation of business opportunities. We will also discuss special topics such as sustainability, micro-finance, clean energy, public-private partnerships, and the impact of globalization on international business and economic development. The course will include guest lectures by economic development practitioners and entrepreneurs.

The following topics will be reviewed at each level:

Macro Level:

- Countries: economic growth and equity, development strategies, technology and development, globalization, and the role of public and private sectors in economic development.
- Regions: Regional competitiveness, industry clusters, supporting regional institutions (R&D, finance, education), and the Porter Diamond framework.

Micro Level:

- Industry and competitive analysis: Industry assessment, Bottom of Pyramid (BoP) concept, value chains, competitive strategy, Porter Five Forces framework.
- Companies, markets, and projects: Opportunity assessment, business models, customer segmentation in developing countries, adaptation of technology, project analysis and business plans (marketing and finance).

Course Assignments:

Case study preparation: The class will include four case studies. Students will submit written responses to two (2) of these case studies (but will read all four cases in preparation for class discussion). The written responses will be 1-2 pages long (maximum of 1,000 words).

Class participation: Class participation will be an important component of the class. Depending on enrollment, class participation may include a “class discussant” format, where students sign up to discuss specific questions related to the daily class topic and prepare a short bibliography for further reading.

Final group project: As a final group project, students will develop a business concept (“mini-business plan”) for a venture in a developing country that incorporates concepts from industry analysis, opportunity assessment, marketing, and finance (detailed financials and staffing plan will not be required). The mini business plan will also discuss the role of technology in the venture, as well as the impact of government policy and the country’s business environment on the viability of the proposed venture. The venture can be a for-profit business or a non-profit entity (NGO).

We have identified a set of projects for the student teams in areas such as renewable energy, carbon credits, rural IT networks, cell phone enabled applications, microfinance, and international agricultural marketing (Fair Trade). Student groups are also free to choose their own projects, including concepts being developed for business plan competitions. More details on the project options and the final assignment will follow.

Summary of Class Sessions

Part I: Macro View: Business, Technology and Economic Development

Week	Date	Topic	Guest Speaker	Assignment
1	1-22-09	Course introduction		
2	1-29-09	Conceptual background I: Current Policy Debate and Institutions		
3	2-5-09	Conceptual Background II: Technology and Development		
4	2-12-09	Industry Clusters and Regional Competitiveness	Alec Hansen	
5	2-19-09	Globalization (Part I wrap-up) Case study: Eliminate the Middleman?		Case: Eliminate the Middleman?

Part II: A Micro View: Markets, Businesses, and Projects

Week	Date	Topic	Guest Speaker	Assignment
6	2-26-09	Opportunity Assessment I: Business Models	John Millar	Submit project topic & team
7	3-5-09	Opportunity Assessment II: Market and Industry Analysis		Case: ACG
8	3-12-09	Opportunity Assessment III: Marketing in Developing Countries and BOP		
9	3-19-09	ICT for Economic Development	TBD	
	3-26-09	SPRING BREAK – NO CLASS		
10	4-2-09	Clean Energy Technologies in Developing Countries	TBD	
11	4-9-09	Opportunity Assessment IV: Basics of Project Appraisal (Financial Analysis) Case study: Technoserve		Case: Technoserve
12	4-16-09	Microfinance Case study: Opportunity International		Case: Opportunity International
13	4-23-09	Environmental Markets & Communities	Ricardo Bayon Beto Borges	

Part III: Group presentations and Wrap-up

Week	Date	Topic	Guest Speaker	Assignment
14	4-30-09	Group Presentations, part 1		
15	5-7-09	Group Presentations, part 2 And Wrap-up		Final Group Paper Due

Part I: Macro View: Business, Technology and Economic Development

Week 1 (1-22-09): Course Introduction: Business, Technology and Sustainable Development

Focus:

(a) Course overview:

- Course content and structure
- Discussion of major course themes
- Defining technology and sustainability (class discussion)

(b) Overview of economic development history and policy: In addition to the course overview, this session will review the conceptual and historical background of economic development policy. The discussion will include: growth, poverty and equity; convergence; economic development strategies; “Washington Consensus” and liberalization; and business approaches to economic development.

Readings: (all optional)

- World Bank, *World Development Indicators* (Introduction)
- Economist, *The new champions: Emerging markets are producing examples of capitalism at its best*
- Economist, *Where money seems to talk*

Week 2 (1-29-09): Conceptual background I: Current Policy Debate and Institutions

Focus:

Continuing topics from the first lecture, Week 2 will review the current economic policy debate, with particular emphasis on the role of institutions in supporting business and sustainable economic development. We will discuss the current debate on Africa to illustrate key points.

Readings:

- Dani Rodrik, *Goodbye Washington Consensus, Hello Washington Confusion?*
- Dani Rodrik, *Institutions for High Quality Growth*, (pp. 1-13 only, others optional)
- Simon Maxwell, *Africa Commission: ‘The Big Push’* (1-page version)
 - (optional) *Africa Commission Report, Executive Summary*
- Easterly-Sachs debate, *El Mundo*, Madrid, May 26, 2007
- Business Week, *Can Greed Save Africa?*, Dec. 10 2007

Week 3 (2-5-09) Conceptual Background II: Technology and Development

Focus:

The conceptual background review continues with a specific discussion of the role of technology in business and economic development. Readings on India and China will illustrate key points. Discussion topics include:

- Technology and innovation: countries and firms
- Productivity growth and economic development (growth theory)
- Intellectual property rights
- Technology policy and institutions for technology development
 - Government vs. corporate R&D (basic vs. commercial research)
 - Policies for technology generation and diffusion
 - Industrial policy and public-private partnerships

Readings:

- UNIDO, *Industrial Development Report, Executive Summary*, 2005 (skip pages 9-10)
- Economist - *Special Report on Technology in India and China*, 2007. Following articles only:
 - *Running fast*
 - *Leapfrogging or piggybacking*
 - *Transcending the genre*
 - *Imitate or die*
 - *Old parts, but a new whole*
- Economist - *Special Report on Innovation*, 2007, articles #1-3:
 - *Something new under the sun*
 - *Revving up*
 - *Can dinosaurs dance?*
- Business Week – *China Rushes Upmarket*, Sept. 17, 2007
- Dani Rodrik – *What’s So Special about China’s Exports?*

Week 4 (2-12-09): Industry Clusters and Regional Competitiveness

Guest speaker: Alec Hansen, President, Economic Competitiveness Group. Dr. Hansen has been at the forefront of the regional cluster approach and has led numerous international initiatives.

Focus:

This session will discuss of the role of geography and industry clusters (or “value chains”) in economic development, with implications for corporations and public policy. The cluster framework emphasizes key requirements for regional economic competitiveness such as finance, R&D, infrastructure, human capital, as well as the role of the private sector activity and entrepreneurship. We will review some well-known examples of clusters, as well as cases from the instructor’s and guest speaker’s personal experience in cluster competitiveness projects.

Readings:

- Michael Porter, *Clusters and the New Economics of Competition* (1998)
 - Note: A longer version of this article is available in Michael Porter, On Competition, Ch. 7: *Clusters and Competition: New Agendas for Companies, Governments, and Institutions* (1998)
- Optional further readings (to be posted on b-Space):
 - Dani Rodrik, *Industrial Policy for the 21st Century*
 - Business Week, *The Wind at Germany’s Back*

Week 5 (2-19-09): Globalization (Part I wrap up)**Focus:**

The closing session for the “Macro” part of the course will review the current debate on globalization and its impact on developing countries, industrialized nations, and firms. We will also discuss whether globalization, IT, and fragmentation of production (e.g. outsourcing) reduce the role of regional clusters. The session on globalization will review and summarize topics covered during the first part of the course.

The second half of the class will include a discussion of a short HBS case: *Eliminate the Middleman?*

Readings: (mostly short articles, plus a short case)

- Economist – *Beyond Doha*, October 2008
- Paul Krugman, *Trouble with Trade* (New York Times, December 28, 2007)
- Jagdish Bhagwati, *Technology, Not Globalization, is Driving Wages Down* (FT, 2007)
- Dani Rodrik, *Saving Globalization from its Cheerleaders* (short version)
- (optional) Pranab Bardhan, *Does Globalization Help or Hurt the World's Poor?*

- HBS short case: *Eliminate the Middleman?*

Part II: A Micro View: Markets, Businesses, and Projects

Week 6 (2-26-09): Opportunity Assessment I: Business Models for Emerging Markets

Due: Final project concept and team composition.

Guest speaker: John Millar. John Millar is a consultant focusing on early-stage companies in specialty consumer products, enterprise business applications, and clean technology. He advises private equity firms and individual companies in market assessment, strategy, and corporate development.

Focus: We will define and discuss “business models” and talk about opportunity recognition with guest speaker John Millar. We will also discuss how business models can be adapted to developing country environments, often characterized by missing markets, weak institutions, and poor infrastructure.

Readings:

- Johnson, Christensen, and Kagermann, *Reinventing Your Business Model*
- Khanna and Palepu, *Strategies that Fit Emerging Markets*
- Chesbrough et al., *Business Models for Technology in the Developing World: The Role of Non-Governmental Organizations*.

Week 7 (3-5-09): Opportunity Assessment II: Market and Industry Analysis

Focus: The Week 7 session addresses market and industry assessment. The African Communications Group case illustrates the opportunities and risks faced by a startup technology company in a developing country environment. The case is supplemented by a new article from Michael Porter, *Understanding Industry Structure*, which provides an updated review of the *Five Forces* framework for industry analysis.

Readings:

- Michael Porter, *Understanding Industry Structure* (2007)
- HBS Case – *African Communications Group*

Week 8 (3-12-09): Opportunity Assessment III: Marketing in Developing Countries

Focus: This session concludes the case discussion for African Communications Group and reviews the “Bottom of the Pyramid” concept (Prahalad and Hart). The session will review key concepts in marketing in the context of developing countries, and how products and services can be adapted to a developing country environment. The discussion will encompass concepts such as market analysis, customer segmentation, branding, generic strategies, and a brief review of 3C’s and 4P’s framework (especially relevant for non-MBA students). Students will apply these concepts in the final project.

Readings:

- Prahalad and Hart, *The Fortune at the Bottom of the Pyramid* (article version)
 - Optional further reading: Prahalad and Hammond, *What Works: Serving the Poor Profitably: A Private Sector Strategy for Global Digital Opportunity*,
- Karnani, *The Mirage of Marketing to the Bottom of the Pyramid*
 - Optional: Prahalad, Response to Karnani article
- Business Week, *Nokia: It Takes a Village to Design a Phone for EMs*, Sept. 2007
- Business Week, *Special Report: Upwardly Mobile in Africa*, Sept. 24, 2007
- Business Week, *Scrambling to Bring Crest to the Masses*, June 25, 2007

Week 9 (3-19-09): Information and Communications Technologies for Economic Development

Guest speaker: TBD

Focus: Guest lecture on ICT and Development.

Readings:

- Brewer et al., *The Case for Technology in Developing Regions*
- Business Week, *The Back Roads to IT Growth*, Aug. 6, 2007
- Business Week, article on One Laptop per Child program, March 17, 2008
- Kuriyan, Ray, and Kammen - *How to Use Technology to Spur Development*

(March 26, 2009 - Spring Break – No class)

Week 10 (4-2-09): Clean Energy Technologies (solar, wind, biofuels, and others)

Guest speaker: TBD

Focus: Survey of renewable energy and discussion of leading edge technologies. The session will also address renewable energy from the perspective of developing countries. Specific issues may include:

- New developments in solar, wind, biofuels, energy efficiency, and other clean technologies
- The mixed impact of the oil industry in developing countries (e.g. “Dutch Disease”)
- The impact of biofuels on agricultural and economic development
- Policies to stimulate renewable energy production (w/ examples from Brazil & Nigeria)

Readings:

- Daniel Kammen, Scientific American, *The Rise of Renewable Energy*, Sept. 2006
- Economist: Survey on the future of energy (*The power and the glory*), June 21, 2008
- (optional) Clean Edge: *Tech Trends 2008*
- (optional) National Geographic, *Green Dreams*, October 2007. The online version of the article includes graphics and an interactive comparison of biofuels feedstocks:
 - <http://ngm.nationalgeographic.com/ngm/2007-10/biofuels/biofuels.html>

Further reference for project teams interested in renewable energy in developing countries: *World Bank Renewable Energy Toolkit*.
www.worldbank.org/retoolkit

Week 11 (4-9-09): Opportunity Assessment IV: Basics of Project Appraisal (Financial Analysis)

Focus: This session will introduce students to basic project/business valuation techniques, with particular focus on discounted cash flow (DCF) analysis. The Technoserve case study will provide an applied example. The case also serves as a basis for discussing factors that influence the viability of economic development projects including market analysis, financing, government policy (subsidies, land tenure, securing property rights), the impact of technology (e.g. productivity improvements), environment, and social aspects (equity). The session will serve as a review of finance concepts for MBA students and as an important primer for non-MBAs.

The class will also include a brief discussion of private and social returns (and the concept of “shadow prices”), illustrating methods utilized by development banks and donor agencies.

Readings:

- HBS Case – *Technoserve and the Tanzanian Specialty Coffee Industry* (Excel spreadsheet template for the case will be posted)
- HBS – *An Economic Framework for Assessing Development Impact*

Week 12 (4-16-09): Microfinance

Focus: Microfinance represents an important advance in business approaches to economic development. This session provides an overview of the microfinance industry, supplemented by a HBS case discussion. We will discuss the pros and cons of for-profit and non-profit approaches to microfinance.

Readings:

- Economist: *Survey on Microfinance, 2005*
- Business Week: *Microfinance Draws Mega Players*, July 9 & 16, 2007
- Business Week: *The Ugly Side of Microlending*, December 24, 2007
- HBS Case: *Opportunity International, Measurement and Mission*

Week 13 (4-23-09): Environmental Markets and Communities

Guest speakers: Ricardo Bayon and Beto Borges. Ricardo Bayon is a partner with EKO Asset Management Partners, a specialized investment firm focused on emerging markets for environmental assets (carbon, water, biodiversity). Previously, he helped found and served as Managing Director of “Ecosystem Marketplace,” a web site and information/analysis service covering these emerging environmental markets. He co-authored a number of publications on voluntary carbon markets and biodiversity. Jose Roberto (Beto) Borges is the Director of the Communities and Markets Program at Forest Trends, an NGO focused on helping industry, conservationists, researchers, and communities achieve conservation and sustainable resource use. He was formerly a director of the Brazil Program for the Rainforest Action Network, and is a recognized international expert on environmental programs and communities.

Focus: Overview of the markets for environmental services, including carbon credits. We will discuss the functioning of these markets and how they provide new business opportunities in both developed and developing countries. We will also discuss environmental programs and markets from the perspective of local communities.

Readings:

- Scientific American: *Making Carbon Markets Work*, December 2007.
 - <http://www.sciam.com/article.cfm?id=making-carbon-markets-wor>
- Michael Wara, *Is the Global Carbon Market Working?*
- (optional) Economist: *China, India and climate change*, June 5, 2008

Week 14 (4-30-09): Group Presentations and Wrap-up, part 1

Reading: None
Focus: Student teams will present their final papers in class. Papers will focus on opportunity assessment in developing countries (“mini-business plan”).

Week 15 (5-7-09) Group Presentations and Wrap-up, part 2

Reading: None
Focus: Student teams will present their final papers in class.

Grading:

25% **Class participation and attendance.** Your creative and constructive involvement in class discussion is an important component of class. Please note that we are looking for *quality* of participation, not quantity. Class participation should reflect your familiarity with the assigned readings.

Depending on class size, we may assign class “discussants” for each session. As a class discussant, you will:

- Prepare a half-page suggested “Further Reading” list for handout to the class on the topic of the week you select.
- Prepare answers (or opinions) to 2-3 discussion questions on the topic of the week that will be incorporated into the class discussion.

20% **Case study write-ups:** Prepare short answers to case study questions. Four case studies are planned for the course. Students will submit only two (2) written case responses for grading purposes, but will prepare for all four cases. Responses should be 1-2 pages long (maximum of 1,000 words).

45% **Group final paper:** An opportunity assessment (“mini-business plan” without detailed financials or staffing plan) for a business venture in a developing country, integrating concepts and tools from the course. Details and suggested structure to follow.

10% Team presentation (PowerPoint)

FAQs on Final Group Paper

- a. To the extent possible, utilize concepts discussed in class and those in the readings.
- b. Combine objective data, your synthesis of those data, and your own subjective views.
- c. Use multiple data sources (primary or secondary).
- d. Cite the sources of your data.
- e. You may form teams of 3-4 people. We encourage you to include at least one MBA and one Engineering student in each group.
- f. If you want to review your work with me prior to presenting it, please schedule a date in advance.