



15.913: Strategies for Sustainable Business (H1)
And
15.915 Laboratory for Sustainable Business “S-Lab” (H2)
Spring 2011
Tuesday, Thursday 10-11:30 am
E62-262

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Course website: <http://stellar.mit.edu/S/course/15/sp11/15.913/>
Office Hours by appointment

Introduction

Today, organizations of all kinds - including traditional manufacturing firms, those that extract resources, a huge variety of new start-ups, non-profits, and governmental organizations of all types - are tackling the massive challenges of sustainability. For some, this shift offers real opportunities — for new products and services, for reinventing old ones, or for solving problems in new ways. Other organizations tackling sustainability are engaged in very real struggles in which the solutions are far from obvious. Alongside questions about the problems of sustainability and how to reconcile free-market capitalism with the need for more sustainable business practices are real questions about how to move along the path towards sustainability. How can we translate these real-world challenges into future business opportunities? How can individuals, organizations, and society learn and undergo change at the pace needed to create a sustainable world?

In “Strategies for Sustainable Business”, we'll explore emerging strategies for sustainable businesses and organizations using in-class simulations, cases, role-playing, and speakers. In “Sustainable Business Lab (S-Lab)”, we discuss current methodologies for sustainability analysis and measurement and focus on the “live” project during which participants will work in groups of three to four people with an organization that has requested the Sloan School’s help in thinking through a challenge or opportunity related to sustainability. In both courses, we examine the diversity of organizational approaches to sustainability and the effective means to develop, deploy and manage sustainability strategies.

Readings: Readings include a combination of analytic articles and company case studies drawn from a variety of different industries. ALL articles, class notes, slides, and other resources related to the course will be posted on the Stellar course web site (<http://stellar.mit.edu/S/course/15/sp10/15.913/>). Please check this site regularly.

Attendance: We have designed this class as an integrated whole, and if you miss class it makes it very difficult to maintain a coherent conversation. You’ll miss ideas and concepts - many of

them raised by your colleagues - that are not in the readings and you'll have a more difficult time contributing to the discussion. So, if for some reason you are forced to miss class – and we hope that this will be a very rare occurrence (!) – please let the teaching assistant know in advance to obtain an excused absence. If you miss one class, you will get 10% of your grade deducted; 2 classes, 20% of your grade reduced; 3 absences = automatic failure. Of course, for illness, family emergencies, job interviews, etc., we would grant an excused absence, but again, TAs must be notified in advance.

Requirements for 15.913 Strategies for Sustainable Business:

The requirements for the course and the contribution of each towards the final grade are:

1. Analysis Papers

I. 3 Team Papers (3-4 pages double-spaced) – 750-1000 words 30%

Each team of 2-3 people may select any case to analyze, compare, and apply to a company of your choosing. The objective is to explicitly assess the organizational structure and processes, market context, and other factors in the selected case to assess the potential effectiveness and remaining challenges – and opportunities – for the organization, and the degree to which their approach can be applied to another specific company. Please explicitly discuss strategy, implementation, and impacts for both the case organization and the selected company. For instance, what is the “business case” for sustainability in these two organizations – how are they similar/different? Where could each organization most effectively start their sustainability plan, and how would they most effectively implement it?

The first team paper is due February 18th, the second due February 25th, and the third is due March 4th.

II. Individual Paper (6-8 pages double-spaced) – 1500-2000 words 30%

You may choose any 2 or 3 cases to analyze and compare in terms of strategy, implementation, impacts, and applicability to other companies or organizations. Cases include both the traditional cases and company/industry cases discussed in some of the readings. This individual paper is intended to be an analytic discussion of issues central to the cases. Based on the information provided in the case materials, please be analytically judgmental and evaluative. You should propose alternate managerial views and action plans whenever appropriate and discuss the relevance and applicability of the frameworks proposed in the readings and lectures to these cases and to general trends in sustainability strategies. In short, you should write what you think of the situation in the cases and not merely what the authors of the cases say. **This paper is INDIVIDUAL assignment.** It is due on the last day of class, March 10th.

2. Class Participation and Attendance 40%

Your active participation in the discussion in class is integral to the design of this course. **Class participation counts for 40% of your final grade.** We expect you to be fully prepared, and to have read the cases and assigned readings and to fully participate in the discussion. (Those students for whom English is not a first language and/or may have difficulty speaking up in class are encouraged to meet with one of the faculty to discuss how your participation in class can be ensured.) We will send out mid-way evaluation notices to let you know if you are in need of participation improvement.

S-Lab Projects and Teams

The goal of S-Lab is to provide an opportunity for you to apply the concepts, theories, and tools through working with host organizations on their actual sustainability projects. Your team will professionally and effectively deliver analysis, advice, and recommendations that are immediately useful to your host organization and will advance the field of sustainability as a whole. You will make a formal presentation to your host at the end of your project and provide them with a final report, including supporting written analysis and data as appropriate, and will present a project poster for the MIT and wider community.

We post the S-Lab project proposals on the course website, and students are expected to review the proposals and post their project preferences and interests during 15.913 (H1) to initiate team formation. There will be **project mixers after class, 11:30-12:30, in early February** to form teams for the projects (Location TBA). When you form your S-Lab team, you should aim for four (4) students, with no more than 2 students per team from the same program, and focusing on building a strong mix of skills and experience.

Projects Bids are due February 22nd. Each team will bid on its top four (4) projects. Based on the interests and capabilities of the teams, the faculty then matches the team with a host organization, and the host organization then decides whether to accept the team. Team matches to host organizations will be completed by late February. At this time, we expect student teams to make first contact with the hosts to introduce themselves and begin developing the Work Plan.

We expect that if you submit a project bid you are committing to stay in the course through the completion of the project. If you don't submit a project bid, we will assume that you are dropping the course.

Requirements for 15.915 S-Lab:

The requirements for the course and the contribution of each towards the final grade are:

1. Work Plan

20%

Each team will have a faculty member serve as the advisor for all aspects of the project. It is your team's responsibility, however, to negotiate and manage all aspects of the work plan and the project. **Your detailed work plan is due on April 5, 2011.** The work plan is essentially a contract between you, your team, your host organization, and your S-Lab faculty advisor for what you will do—both the product that you will share with the host and the faculty, as well as the key steps you will take to generate that product. It sets out an agreement to which you are expected to adhere.

The work plan should contain:

1. Clear, concise problem statement – enables your team to understand the host's objectives for this project.
2. Description of the key deliverables – aligns expectations between your team and the host.
3. Detailed description of tasks to accomplish work, with the assignment of those tasks to specific people – align expectations within the team for the completion of the project
4. Detailed timeline for tasks (start and completion) - to track your own progress over the project.

The work plan provides the framework for the Final Report.

2. Final Report and Presentation

50%

We are targeting a long-term impact for your S-Lab project reports, and we will make your Final Report publicly available to advance the field as a whole. The Final Report for your S-Lab host organizations should build on the Work Plan, and should contain:

1. Objectives of the project
2. Background information and references
3. Analysis and results (including methodologies and tools developed by the team)
4. Specific recommendations that reflect the objectives, strategy, concerns of the host organizations.
5. Possible: direct application to a host organization's specific data (as demonstration of feasibility, back-up for specific recommendations, etc.)
6. References to relevant research, best practices, industry standards, etc.

The Final Report can be seen as providing a "user's manual" for the host organizations going forward. As such, they need to be professionally written and clearly represent where the information came from, and how it will need to be modified going forward to reflect dynamic conditions. You have the opportunity to make a substantial contribution to the host organizations - and the field in general - through your projects. We have confidence that you will make that contribution.

You will deliver a **draft of your Final Report to your host organization and faculty adviser by May 5, 2011**. Your team will also create a **poster that describes your project for the May 10 S-Lab Day** for presentation to the MIT community and host organizations. The **Final Report, with Poster and/or Presentation, is due on May 12, 2011** to your host and faculty adviser.

Please Note: If confidential information is included in the Final Report to the host organization, please also submit a version of the Final Report without this information to your faculty adviser that could be publicly released.

The final report should be no more than 20 double-spaced pages of text (5,000 words), plus any tables and appendices that help the reader.

3. Participation and Attendance

30%

Your active participation in the discussion in class is integral to the design of this course. **Class participation counts for 30% of your final grade.** We expect you to be fully prepared, and to have read the cases and assigned readings and to fully participate in the discussion. (Those students for whom English is not a first language and/or may have difficulty speaking up in class are encouraged to meet with one of the faculty to discuss how your participation in class can be ensured.)

15.913: Strategies for Sustainable Business

I. FRAMING THE CHALLENGE

1. Course Overview and Case: NIKE

February 1

Lead Faculty: Prof. R. Locke

What does it mean for a private company to act “sustainably”? This session provides an introduction to the course and to the central challenge of sustainability. Sustainability, defined broadly to include social equity, economic development, and environmental restoration, offers new opportunities (but also challenges) for business. To begin our discussion, we will begin with a discussion of the Nike case. How do companies translate sustainability into their product development and commercialization processes? How do they implement these practices and remain competitive in the marketplace? How does one embed “thinking green” into the product development processes of an organization in an effective way? How can people “on the ground” be given the information they need to make the right tradeoffs?

Case: Nike Considered: Getting Traction on Sustainability. MIT 08-077

Recommended Readings:

Richard Locke, Fei Qin, and Alberto Brause, “Does Monitoring Improve Labor Standards? Lessons from Nike.” *Industrial and Labor Relations Review*, Vol 16, No 1 (October 2007)

Richard Locke and Monica Romis, “Improving Work Conditions in a Global Supply Chain.” *MIT Sloan Management Review*, Vol 48, No. 2 (Winter 2007).

2. Nestle: Sustainable Agriculture Initiative

February 3

Lead Faculty: Prof. R. Locke

What is the strategic purpose of the sustainable agriculture initiative?

Case: Nestle: Sustainable Agriculture Initiative – (HBS 9-705-018)

3. The state of the world

February 3

Lead Faculty: Prof. J. Sterman

NOTE: Complete & Submit the Personal Footprint Assignment for Class 2 (see Stellar site) by 5 pm on Wed 2 February

Why is sustainability an important problem for business? A look at the science – and at the possible political and economic consequences of current trends.

Readings:

Sustaining Sustainability: Creating a Systems Science in a Fragmented Academy and Polarized World, by J. Sterman.

A safe operating space for humanity, by J. Rockstrom, Sep. 2009, Vol. 46, **Nature**

Video: *David Suzuki and the Salmon cycle*, by Wicked Delicate Films;

<http://vimeo.com/3470764>

Video: *Saving the Planet*, by George Carlin;

<http://www.youtube.com/watch?v=7W33HRc1A6c>

Recommended Readings:

Tracking the Ecological Overshoot of the Human Economy, by M. Wackernagel et al., 2002, **PNAS**.

Science and Technology for Sustainable Well-Being, by John P. Holdren, **Science**

4. Getting Unstuck: Addressing the Strategic & Organizational Challenges **February 10**

Lead Faculty: Prof J. Sterman

Why do firms have trouble addressing the problem of “worse before better”? How would you recommend a firm facing the problem – for example, a firm that is highly overloaded – address it? Why do firms find it so difficult to do new things?

Readings:

Nobody ever gets credit for fixing problems that never happened. Nelson Repenning and John Sterman, *California Management Review*, 2001.

II. FRAMING THE RESPONSE

A. HOW we do our work – getting our house in order, ops and supply chain

5. Business Models and Supply Systems: WALMART

February 15

Lead Faculty: Prof. A. Hoffman

Wal-Mart has made enormous investments in greening their facilities and in selling green products. Can the world’s largest retailer make a real difference? Does their strategy make sense? For whom?

Given the fact that Wal-Mart’s customers generally are unwilling to pay a premium for environmentally friendly products, how is the company deriving business value from its sustainability strategy, or if not, how can it ensure that it does? Imagine that you are Andy Ruben or Tyler Elm, evaluating the progress of the electronics, seafood, and textiles networks. Which networks have been most successful? What factors explain the success (or lack of success) of these networks? How is Wal-Mart motivating its suppliers to share information about and continuously reduce the environmental impacts of products and processes? How can the company stimulate the development of disruptive, breakthrough innovations?

Case: Wal-Mart’s Sustainability Strategy OIT-71.

B. WHAT we do – developing new products and markets

6. Seventh Gen: Balancing Customer Expectations with Supply Chain Realities **Feb 17**

Lead Faculty: Prof. A. Hoffman

What's behind the rise in the environmentally-sensitive segment of the household nondurable goods industry? How does a values-driven strategy add costs to production? Will people pay more for environmentally sensitive products? With the information that you have from the case, what decision would you make with respect to baby wipes? How would you communicate this decision to stakeholders?

Case: Seventh Generation: Balancing Customer Expectations with Supply Chain Realities

7. New Markets and Industries: SUSTAINABILITY ENTREPRENEURS **Feb 24**

Lead Faculty: J. Sterman

Special Guests: Ric Fullop, North Bridge Venture Partners; Bruce Jamerson, Mascoma; Others
TBA

What is possible in developing new markets and industries focused on sustainability? What are some of the major challenges – financing? Business models? Team formation? What are some of the major opportunities – creating the ground rules for new markets? Engaging new parties in the development and implementation of solutions?

Recommended Readings: See Stellar

8. Cooperation for a Shared Resource: FISHBANKS SIMULATION **March 1**

Lead Faculty: Prof. J. Sterman

We explore the dynamics of renewable resources in market economies. Through an interactive computer-based simulation, you will play the role of entrepreneurs seeking to maximize your profits as you invest in and manage a fishing fleet.

Reading: Fishbanks Briefing and Role Description

9. Cooperation for a Shared Resource: FISHBANKS DEBRIEF **March 3**

Lead Faculty: Prof. J. Sterman

We will discuss the implications of the simulation for the design and implementation of effective policies to promote sustainable and productive use of renewable resources, including ecological, political, institutional, and other issues.

Readings:

Globalization, Roving Bandits, and Maine Resources, by F. Berkes et. al, March 2006, **Science**.

The Sea, A Survey. The Economist, January 2009.
78

Can Catch Shares Prevent Fisheries Collapse? C. Costello, et al. (2008). *Science* **321**, 1678.

C. WHERE we do it – promoting sustainable communities beyond the firm

10. CASE: Waste Concern

March 8

Lead Faculty: J. Jay

What are the opportunities for collaboration between governments, businesses, and social enterprises in promoting sustainable development?

Case: Waste Concern: Turning a problem into a resource

11. Reflections & Conclusions

March 10

What are the implications of our work together for individual responsibility and personal action? How should one think about the link between business and politics?

Recommended Readings:

Corporate Managers' Operational Discretion to Sacrifice Corporate Profits in the Public Interest, by Einer Elhauge, Chapter 2 – pages 13-76 – from Environmental Protection and the Social Responsibility of Firms. Ed Bruce Hay, Robert Stavins, Richard Vietor (eds), 2005.

The limits to growth revisited by D. Meadows, 1991, in **The Global Citizen**.
Living Lightly and Inconsistently on the Land, *Donella Meadows*,

15.915: Sustainable Business Lab (S-Lab)

I. APPLYING THE KNOWLEDGE: METHODS, TOOLS, AND APPLICATIONS

1. Introduction and Methods/Tools: Life Cycle Analysis

March 29

Lead Faculty: Dr. J. Jay

Special Guest Faculty: Dr. Randy Kirchain, MIT Material Systems Lab; Dr. Edgar Blanco, MIT Center for Transportation and Logistics

How can a company develop a systematic approach to its sustainability activities? What are the current methods and theories? This session will introduce the project-focused portion of the course, looking at specific concepts that can be used to develop an organization's sustainability strategy.

We will then start to examine current methods and tools for sustainability analysis, starting with Life Cycle Analysis (LCA) and its roots in various fields. What exactly is meant by "embodied energy," "carbon footprint," and "ecological footprint"? How are these levels measured and what are the strengths and constraints of these methods? How are they actually employed by companies and organizations to accomplish specific objectives?

Recommended readings:

*Note on Life Cycle Analysis, Susan Svoboda, **Pollution Prevention in Corporate Strategy**, University of Michigan, 1995.*

*Strategic sustainable development – selection, design, and synergies of applied tools, Roberts et al., **Journal of Cleaner Production**, 10 (2002) 197-124.*

*Strategy & Society: The link between competitive advantage and corporate social responsibility, Michael Porter and Mark Kramer, **Harvard Business Review**.*

2. Applying Life Cycle Analysis, developing usable tools

March 31

Lead Faculty: Dr. J. Jay

Special Guest: Christof Walter, Unilever; Dr. Edgar Blanco

What are the challenges of developing a general life cycle tool for the agribusiness industry? How do tools get embedded in practice and decision making among non-experts?

Required reading: Cool Farm Tool Users Guide, explore the tool

3. Applications to the World: CLIMATE CHANGE NEGOTIATIONS **April 5**

NOTE: MEETING IN E62-233

Lead Faculty: Prof. J. Sterman

Due: Detailed Project Work Plan

4. Applications to the World: CLIMATE CHANGE Debrief **April 7**

NOTE: MEETING IN E62-233

Lead Faculty: Prof. J. Sterman

5. Methods/Tools: Corporate Assessment and Reporting **April 12**

Lead Faculty: Prof. J. Jay

Special Guests: Prof. Andy Hoffman; Jamie Salo, TruCost, Inc; Christine Jantz, JantzMorgan, LLC; Allen White, Tellus Institute and GRI.

*How do we assess the Environmental, Social, and Governance performance of firms?
How do corporate stakeholders (investors, employees, NGO's) use these metrics?*

Readings: GRI Briefing, Timberland CSR Report

7. Applications to Companies: Simulation of Sustainability Start-Up **April 14**

NOTE: MEETING IN E62-233

Lead Faculty: Prof. J. Sterman

Assignment: Simulation; see handout

6. Applications to Organizations: S-Lab Alums **April 21**

Lead Faculty: Dr. J. Jay

Special Guests: Adam Siegel, RILA; Others TBA

What are some of the current trends in sustainability – in companies, organizations, government? Recent S-Lab alums talk about their current jobs and the role that sustainability plays in their organization and industry.

I. APPLYING THE KNOWLEDGE: S-LAB TEAM PRESENTATIONS

8. Lessons in the Real World **April 26-May 5**

Lead Faculty: Dr. J. Jay

What are the other teams doing? How are they framing the problems, and what is the state of knowledge or best practice in this area? What are the specific concerns or capabilities of their host organizations?

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In each of these sessions, several teams will be selected to provide a brief (10 minute) description of their projects – problem statement, key deliverables, results to date, and specific application to the host organization as a basis for class discussion and questions. Each presenting team should provide 1 reference article on their topic for background readings for the class. These articles will be posted on the course website, and will be recommended readings.

Due: Draft Final Report

May 6

12. S-Lab Day

May 10

Each team will create a poster that clearly presents their S-Lab project, including problem statement, state of knowledge or best practice, results, and specific application to host organization. The poster session is open to MIT community, host organizations, and interested parties.

Due: Poster

13. Wrap-up and Reflection

May 12

A chance to reflect back on the material we've covered in the semester, focusing particularly on the way in which so many "sustainability" issues are related to each other. Material that makes it clear that we are dealing with an interconnected system: a) it's not just "climate" or "agriculture" or "social justice" – all the issues are deeply interrelated and b) actions that fail to understand the dynamics of the system may have counterproductive consequences. How did your S-Lab project reflect these – and different - considerations?

Due: Final Report