Managing Innovation for Products, Systems, and Services: MGT 3520
High Tech MBA
Spring 2007
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Purpose

The course seeks to provide an overview of the key issues facing technology-based firms. We will address:

- managing the challenge of technology and product obsolescence,
- market segmentation for the purposes of enterprise growth and customer needs assessment
- user centered design for new products or services.
- Architecture, platforms, and derivative products
- Organizational approaches for innovation, macro and micro.

You will be challenged to think "out of the box," to conceive and design products and services that can obsolete the way your company and your competitors currently do business. You will be asked to seek endorsement for your project work from executives in your corporation.

In addition to individual learning, there will be a heavy emphasis on:

- Working in teams, through a group project to develop a marketing and product/service improvement plan for one of the student’s company’s current product lines or service.
- Oral communications, through a “book report” format with applications to the student’s own company.

Bottom line: Hopefully you will learn a new way of looking at innovation and business growth, and that perspective just might make a difference for your career..

Your instructor:

The lead instructor for this course is Marc H. Meyer. Dr. Meyer, Matthews Distinguished University Professor, is a director of the High Tech MBA. He is also Group Coordinator of the Entrepreneurship and Innovation Group at Northeastern. Dr. Meyer is also a Visiting Scientist at MIT’s Engineering Systems Design division. His research focuses on new product and service development. He was a cofounder of a real-time embedded systems company (Ardence) and has helped a number of entrepreneurs start and grow companies. Over the past several decades, he has worked on next generation systems design and R&D management with industry leaders in both technology and consumer product segments. You will be reading his book, The FAST PATH to Corporate Growth: Leveraging Technologies to New Market Applications. Dr. Meyer holds degrees from Harvard and MIT, and was the 2002 recipient of the Holland Award.
Now, PLEASE READ THE REST OF THIS SYLLABUS CAREFULLY FOR PROJECT WORK, CLASS QUESTIONS, and CLASS MILESTONES. THANK YOU!

Required Texts:


Meyer, M.H., *The FASTPATH to Corporate Growth: Leveraging Technologies to New Market Applications* (forthcoming in 2007, Oxford University Press. You will be reading pre-publication draft text, and will receive copies of the book once it is published.)

Reading Package (provided by the HT MBA administrators). Specific readings, order for, for specific classes are:

Grading components:

This course is an immersion into innovation management and its application to your own companies. Try to set aside dedicated “quiet” time each week to do the assigned reading.

- AN INDIVIDUAL PROJECT. Get Yourself a Promotion. 50% of your grade. The term project is an application of the key concepts presented and discussed in the class regarding the identification and integration and new markets with new technologies for new or renewed lines of products or services, or the revitalization of existing product lines. Most students use this project as a way to get their superiors to listen to a well-conceived, well-researched plan to grow their particular business unit or service function - and ask them for the job of executing the plan! Get a project identified soon! The paper is due on the 6th Class! Another goal of this project is to get you to concentrate on your written communications. Style will be graded as carefully as substance for this project. An individual project style guide is attached.

- A GROUP PROJECT. User Research and Go to Market Planning for a New Potential Product Line or Service. 30% of your grade. This paper is due on the 6th class meeting, with an oral report and written report, following the style guide at the back of the syllabus. The focus of this project is to integrate with your Marketing Course, as well as to emphasis TEAMWORK. Study teams will self-select a product line or service that represents “the future” for EMC that can generate a new stream of revenue for the company. The team will work on identifying the target user, performing some field research/observation of the user, and then develop appropriate recommendations for product or service design, and marketing.

- Class preparation and classroom participation. 20% of your grade. This means good listening and good feedback to your classmates, as well as being prepared to present your own materials in a concise, professional manner. Failure to attend class sessions, or to participate in an attentive manner will lead to a lowering of the grade by up to a full point (as from an A to a B, or a B to a C.) Reading emails and the like during class is the surest way to receive this type of demerit.
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<thead>
<tr>
<th>Class</th>
<th>Discussion Points</th>
<th>Readings &amp; Cases</th>
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<tr>
<td>Strategy &amp; Technology</td>
<td>Introduction to Course</td>
<td>Read: Why Smart Executives Fail. Chapters 1, 2, 3, 4, 5</td>
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<td></td>
<td>The Enterprise Growth Framework</td>
<td>This book sets up the context for understanding problems and developing growth strategies in your own company.</td>
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<td>- Ice story</td>
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<td>- IBM’s Renewal</td>
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<td>Discussion of Threats facing EMC and Activities Taken to Deal with Them.</td>
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<td>Discussion of Individual Projects</td>
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<td>Discussion of Group Projects, and Team Roles.</td>
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<td>Strategic Market</td>
<td>Segmenting Markets for Growth</td>
<td>Read: Why Smart Executives Fail. Chapters 6, 7, 8</td>
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<td>Make Your Contacts with Management. Present them your personal project idea</td>
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<td>Moore &amp; The Case of Agricultural Products</td>
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<td>User Centered Design</td>
<td>The Honda Element Example</td>
<td>Meyer, FASTPATH, Chapter Intro, Chap 1, 2, 3, 4</td>
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<td>- User Case Scenarios,</td>
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<td>- Concept Development for Subsystems</td>
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<td>Validating Insights:</td>
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<td>MBA’s and Petfood</td>
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<td>Developing Product Strategies: The Case of Telecommunications Services</td>
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<td>5/7</td>
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| Product Line and Platform Strategies | HTMBA User Design Applications  
(See class note). | Meyer, FASTPATH, Chapters 5, 6, 7, 8  
Meyer & Lehnerd, The Power of Product Platforms, Chapter 1  
Meyer & Detore, “Product Development for Services” |
|-------------------------------------|-------------------------------------------------|
| 5/21                                | The Modularity Framework  
• Defining Modular, Scalable Platforms  
• Guest speaker: Al Lehnerd  
• Software Applications  
• Services  
The Diaper Case: In Class Exercise  
Modularity and Measurement in Services |
| Business Model Innovation | Innovating Business Models  
Creating Financial Projections for New Product Lines and Services | Meyer, FASTPATH, Chapters 9, 10, 11  
Work on your Individual and Group Papers! |
| 6/4                                | The Case of Homeland Security |
| Organizational Frameworks | Business Process and Organization Frameworks Needed for Innovation  
The SaveMe Software Case | Wheelwright and Clark, “Organizing and Leading Heavyweight Development Teams”, Chapter 8  
Meyer, FASTPATH, Chapter 12, 13  
INDIVIDUAL PROJECTS DUE! |
| 6/11                               | |
| Group Projects | Teams present their Group Projects | GROUP PROJECTS DUE! |
| 6/25                               | |

Email any questions on assignments, deliverables, and study questions to: mhm@neu.edu
Managing Innovation for Products, Systems, and Services
The Individual Project & Style Guide
12-15 Pages Plus Exhibits

The purpose of the individual project is integrate and apply the concepts from class to a near term project that you would like to lead at your company. Think about a project that could be accomplished within an 18 month time frame, where you would have a direct role in managing the project, (with a significant promotion and accolades for a successful result!)

Guiding Questions for Your Individual Project (READ CAREFULLY)

The purpose of the individual project is to create a plan that can help you get a promotion when the plan is presented and endorsed by your senior management. Any one who gets promoted during the semester as a result of project work has a super leg up on getting an “A” in the class.

As you think about your term, please consider the following questions.

1. **A Next Generation Product Architecture and the Product Line based on that Architecture**:
   Can you design a next generation architecture that employs new technologies? What are the benefits of that architecture relative to your company’s current offerings? What are the new products that could be based on that architecture?

2. **A New Process Development**: Are there opportunities to dramatically improve efficiency or costs by sharing subsystems and processes between product or service lines that do not share much at the present time? Is there an opportunity to bring substantial efficiency to your product development or product testing processes?

You must also consider who is the **sponsoring executive** that would be most interested in your project. How can you attain access to that executive to “sponsor” your term project?

The IDEAL PROJECT IS ONE THAT CAN LEAD TO INCREASED RESPONSIBILITIES AND PROMOTION IN THE COMING THREE to EIGHTEEN MONTHS.

Planning or thinking “templates” are provided on the Professor’s Web site. Look at them, use them! Go to marchmeyer.com, enter the teaching section, go to our Innovation Course, and hit the Templates button. They are in Spreadsheet format, so you can adjust them easily. Don’t use all the templates, but just those that help you think about your project. Model your project with those templates that make sense for you, and then write the text! A style guide for the projects is also available on the Professor’s Web site and also accompanies this syllabus.

We want the report to be of strategic value to your corporation, something that you would be proud to present to your executive management team. All reports will be treated as confidential material. See the Individual Project Guide.

The types of projects most commonly performed are:
• Creating the next generation product/service architecture that addresses unmet latent needs in your current target market.
• Leveraging an existing architecture into new, emerging markets to increase revenue
• Creating a new architecture and or platform subsystems that can be shared across products and/or processes to reduce costs
• Improving core processes in manufacturing or service delivery that will offer “big impact” in cost of goods or delivery cycles.

Within these types of projects are plenty of room for market innovation, organizational innovation, and process innovation. What might you do in this course that could lead to career advancement for you personally?

The format of the project is:

Executive Summary (Clearly state the purpose of the project, resources required, and actions steps)

Main Content:

2. The Next Generation Solution: Technologies, Products, Services (use architecture, subsystem scalability, and product line mapping templates where appropriate)
3. The Business Case for the Solution: Either a projection of revenue, compared to development and market costs, with an ROI or NPV projected; or a projection of cost savings, compared to development and implementation costs.
5. Organization Recommendations (use organization templates where appropriate)
6. A Budget and Timeline

Next Actions Steps (time line, resources required, and your role)

The style of the project is an executive memorandum that is clear and concise, and contains exhibits that can be used in a presentation to executives.

The papers should show obviously show an understanding and application of the major frameworks presented in class.
Joint Group Project for

Managing Innovation for Products, Systems, and Services
and
Creating and Sustaining Value for the Customer

Business Strategies for Disruptive Technologies
15 Page PowerPoint Presentation, 10-15 Page Executive Memorandum
Due Date: Monday June 25th

The purpose of the multi-functional group project is to integrate and apply the concepts from both classes to a NEW MARKET APPLICATION that the company might fund for internal, organic development. Pick a good project on which to work, and get corporate buy-in for your study team (free consulting from high powered individuals). Focus on the market dimension of the opportunity as much as the technology dimensions: Market Segments, User Needs, Competitive Analysis, and Go to Market Strategies - as much as Technology and Architecture.

Student teams must apply the management frameworks from the Managing Innovation course for market segmentation, user needs, product architecture, and product line road-mapping as well as marketing concepts and frameworks from the Creating and Sustaining Value course. They must also consider implications for new business models. The hand-in will be a PowerPoint presentation, plus an Executive Memorandum that both critiques and provides suggestions with respect to the following:

1. **Identify buyers** and/or the end-users (i.e., target market) and specify their needs, both perceived and latent, for products based on the technologies. This should include a market segmentation framework, and a user case scenario for a primary user of the innovation, and the perceived and latent needs. Observational/ ethnographic research with some customers and/or users is essential. Clearly state the marketing objectives you are trying to achieve by targeting these customers/ users (e.g., sales and market share and why these objectives are reasonable ones.)

2. **A competitive benchmark/positioning (2X2 matrix)** illustrating the competitive positioning of products currently addressing these users and the market positioning space you wish to occupy. Explain: a) the value provided to the customer by this positioning and b) the competitive advantage of this positioning strategy.

3. **An assessment of the architecture**, functionality, and variety offered within the product line or service and how it might be improved. This should include an architecture for the new product line, as well as a product line roadmap.

4. **Go-to-Marketing Program (4 P’s)**

   1. **Product** - description of the product, its benefits/attributes, packaging and brand name.
2. **Price** – statement of retail/wholesale price and rationale for this price. Also include cost to the manufacturer, plus wholesale and retail margins and prices, where applicable.

3. **Promotion** – elements of promotional mix to be used and rationale for use of each of these elements. Provide specific media choices, costs, and rationale for use for each element of the promotional mix. Also provide an example of an advertisement (on-line, print, video) or other promotional material.

4. **Place** – level of coverage desired, rationale for this degree of coverage, and types of intermediaries to be used.

Be sure to provide rationale for each of your marketing program decisions.

5. **Budget and Pro Forma Income Statement** (Put financial elements in Exhibits) – outline how much your promotional plan will cost (in total and by promotional elements). Estimate your manufacturing costs per unit and calculate the breakeven sales level for your plan. Develop a pro forma income statement for the first year of sales.

**Roles for Team Members:**

Not everyone can do everything, or be responsible for everything. We suggest that you organize your team in accordance with the team organization principles that we discuss in class, a trial application for your group projects.

- Project facilitator and devil’s advocate
- Technology and IP diggers, product designers
- Segmentation, user needs, & competitive mavens
- Go to market / channel experts

Each team should divide its resources to accomplish these tasks.

**Evaluation of Joint Group Project:**

Two copies of your PowerPoint presentation should be provided to the instructors, one for each of us. Both Marc and Gloria will read the presentations as well as the Executive Memorandums and based upon this assessment, each of us will designate a grade for each team which we will independently use in our determination of final grades for our respective course.