

Managing Innovation for Products, Systems, and Services: MGTG280
High Tech MBA
Fall 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 instructors:

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, which was ranked as the #4 entrepreneurial campus in the U.S. by Forbes Magazine in 2005. Dr. Meyer is also a Visiting Scientist at MIT's Engineering Systems Design division.

Dr. Meyer's research focuses on the integration of market, technology, organization, and business model innovation for 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 Growth: Leveraging Technologies to New Market Applications*. Dr. Meyer holds degrees from Harvard and MIT, and was the 2002 recipient of the Holland Award from the Industrial Research Institute and is a Research Fellow of the Center for Innovation Management Studies.

Additional materials can be found at www.marchmeyer.com, and follow the link at the bottom to my teaching Web site. Various materials are in the teaching section. Also, you can look at www.fastpathmanagement.com for additional PowerPoint slides to show your friends and colleagues.

Now, PLEASE READ THE REST OF THIS SYLLABUS CAREFULLY FOR PROJECT WORK, CLASS QUESTIONS, and CLASS MILESTONES. THANK YOU!

Required Texts:

Meyer, M.H., 2007. **The Fast Path Corporate Growth: Leveraging Knowledge and Technologies to New Market Applications**. Oxford University Press.

Moore, G.A., 2002. **Crossing the Chasm: Marketing and Selling Mainstream Customers**, NY: HarperCollins, 2002. (In paperback)

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

- Bower, J.L. and Christensen, C.M. , Disruptive Technologies: Catching the Wave, *Harvard Business Review* (Jan/Feb. 1995), pp. 43-53
- Norman, D. A. (2002). Emotion and design: Attractive things work better. *Interactions Magazine*, ix (4), 36-42.
- Meyer , M.H .and A.D. DeTore, "Product Development for Services," *Academy of Management Executive*, Vol. 13, No. 3, 1999, pp. 64-76.
- Meyer, SAVEME Software Case (available on the course Web site for download.)
- Wheelwright, S. and Clark, K., *Revolutionizing Product Development*, New York: Free Press, 1992. Chapter 8: "Organizing and Leading Heavyweight Development Teams"

Course Web Site

- Stall Points: Barriers to Growth for the Large Corporate Enterprise, the Corporate Executive Board
- Links to Consumer on the Coach and Greptive Video from Professor Crane's Market Text Book Web site.

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.* 40% 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 Product Line or Service Needing Help.* 30% of your grade. This paper is due on the 7th class meeting, 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 emphasize TEAMWORK. Study teams will self-select a product line or service in one of the team member’s companies that is need of renewal or better marketing, or for which a new market application. 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. The sponsoring company gets the energy of brilliant HTMBA’s, who in turn, get a great opportunity to apply class concepts in a consultative manner. This is a joint project with your Marketing Course.
- **An EXECUTIVE Memorandum.** Due the 2nd class meeting. **10% of the Grade.** See the course timeline for details of this assignment..
- **Class preparation and classroom participation. 20% of the 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.

Most of the class meetings will require that you present your applications of class frameworks for your individual term project. The professor will make sure that all students have a chance to present their projects during one of our class meetings, and to use these presentations to help answer project questions for the entire class.

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. Be forewarned!

Class Schedule

Class	Topics for Lecture, Discussion, and Student Presentation	Readings & Deliverables
<p>1. Strategy & Technology</p> <p>9/29 PM</p>	<p>The Enterprise Growth Framework Illustrated with Ice, IBM, Mars</p> <p>Discussion of Group Projects, and Team Roles.</p>	<p>Bower, J.L. and Christensen, C.M. , Disruptive Technologies: Catching the Wave, <i>Harvard Business Review</i> (Jan/Feb. 1995), pp. 43-53.</p> <p>StallPoints pdf on Blackboard</p> <p>Meyer, FASTPATH, Intro and Chap 1</p> <p>The article and the Stall Points pdf sets up the context for understanding problems and developing growth strategies in your own company. My first chapter provides an approach and hope that companies pull themselves out of the abyss.</p> <p><i>Think hard about your Individual Project. Think of one or two good candidate projects. Identify the executive sponsor. Which project most directly leads to career advancement over the next 12 to 18 months?</i></p>

2. Strategic Market Innovation

10/13 AM

The Power Tower Framework Illustrated with Raytheon

Segmenting Markets for Growth Framework with Winch Example

Customer Segmentation (illustrated with the Farmer's example)

Prioritizing Segments and Formulating a Growth Strategy (using Food)

Adjacent Applications: McKesson

Moore, G. , *Crossing the Chasm Chapters 1 through 8*

Write no more than a five page memorandum describing your company's core market, its size and growth rate, and the different type of Chasm users your company faces. What have been the implications of that for your products, services, and marketing programs. What are the implications moving forward? WRITE CLEANLY and THOUGHTFULLY. SUPPORT WITH DATA WHEN YOU CAN.

Make Your Contacts with Management. Present them your personal project idea. CONFIRM INDIVIDUAL TERM PROJECT.

3. Product and Service Concept Innovation

10/23 EVENING TUESDAY!

Student Presentations on Segmentation Frameworks and Market Foci of Their Own Companies.

**Types of User Research:
CPG Methods
Consumer on the Couch Video**

User Centered Design Framework

- User Case Scenarios,
- Latent Needs,
- Concept Development for Subsystems

Illustrated with HONDA

Illustrated with ManagedComp

Meyer, FASTPATH, Chap 2, 3

Apply Chapter 3. Reader Exercises, Questions 1, 2, and 3.

Prepare a single page PowerPoint slide for Question 1 and 2 respectively. Question 3 data can be placed within the Question 1 slide. This will require that you talk to your marketing department; *not a bad thing if you wish to move into product management or general management !* Not all students will be able to gather detailed market size, growth, and competitive data – but certainly try your best. This perspective will serve you well moving forward!

4. Technology and Platform Innovation

11/10 AM

Student presentations on User Centered Design for Their Individual Projects

The Modularity Framework

Illustrated with Black and Decker, Boeing, and The MathWorks

The Diaper Case: In Class Exercise

Meyer, FASTPATH, Chapters 4, 5, 6 and Apply Chapters 4 and 5.

Norman, D. A. (2002). Emotion and design: Attractive things work better. *Interactions Magazine*, ix (4), 36-42

Apply Chapters 4. Reader Exercises, Questions 1 and 3. Extra Credit: Question 2 (Take pictures/movies of your target users). Super extra credit: implement Question 4. Prepare a set of PowerPoint slides (not many) on your findings.

5. Organization and Process Innovation

11/24 PM

Student Presentations on Design Concepts, Architecture and Product/Service Strategy for Their Individual Projects.

Organizing for Innovation: The Challenges and Some Solutions

Illustrated with IBM for Core Business

Illustrated with Raytheon for New Ventures

The Launch and Learn Process

3M Greptile Video.

Meyer, FASTPATH, Chapter 7, 8 and Apply Chapter 7

Apply Chapter 5. Chapter 5, Reader Exercises 1-4, as best and creatively as you can for your Individual Project.

Extra Credit, Chapter 7, Reader Exercise 1. Prepare a one or two page PowerPoint on the Architecture and Product/System/Service derivatives for your Individual Project. Think about how layering modularity, or better interface design might improve the user's existence, the systems integrator's existence, or the reseller's existence?

Meyer, FASTPATH, Chapter 12, 13

Wheelwright and Clark, "Organizing and Leading Heavyweight Development Teams", Chapter 8

Meyer & Detore, "Product Development for Services"

6. Business Model Innovation

12/8 AM

Hand-in Paper

Student Presentations on Action Steps, Roadmap, and Budget for their Individual Projects.

Business Model Innovation: A Strategic Perspective

Work through City Furniture Case

Illustrations for Services: Insurance and Healthcare

Student Presentations on Action Steps, Roadmap, and Budget for their Individual Projects.

Meyer, FASTPATH, Chapters 9 (for those students interested in next year's work, read chapter 11).

Prepare Powerpoint slides on Action Steps, Roadmap, and Budget for your Individual Project.

INDIVIDUAL PROJECTS DUE!

7. COMPANY GROUP PROJECTS

12/15 AM/PM

Hand-in Group Project

Group Project Presentations done in conjunction with Marketing Course.

Group Projects Due & Presented in Conjunction with the Marketing Class (You will take your Accounting Examination First)

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. **An Important Process Development or Improvement:** Are there opportunities to dramatically improve efficiency or costs of an internal or externally focused process by applying the concepts of user centered design and platform development to your "users?"
3. **A New Product Line or Service for a New Market Application.** Are there emerging markets, or unserved niches within existing markets, that might be potentially addressed by current or newly emerging technology? Can you grow revenue? Can you conceive of a product or service line, a go to market strategy, a team and organization strategy, and an investment package needed for a successful outcome? The boldest of the projects, this will require that you read and apply Chapters 9 and 11 in the Fast Path book.

Any one of these three questions is the basis of a term project. Your project should – must – be focused on helping you get a promotion to an area of work or responsibility that you would truly enjoy. This might be outside your current product line, function, or service activity. 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? Get started right away! Use the "student card;" it really works.

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

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 enterprise, 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:

1. The User: Insights into Needs, Current Solutions, Shortcomings.
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.
4. Branding, Distribution, and Business Model Implications of your Proposal.
5. Organization Recommendations (use organization templates where appropriate)
6. Action Steps, a Project Roadmap, and Budget

Use a selected number of frameworks / templates from the Fast Path book to help you "tell your story." However, do not make your project an illustration of the frameworks.

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 obviously show an understanding and application of the major frameworks presented in class.

Managing Innovation for Products, Systems, and Services

The Group Project

User Centered Design and Go to Market Strategies for New Product or Service Concepts

12 Page PowerPoint Presentation, 4 Page Executive Memorandum

One way to gain confidence in marketing and business concepts is to first apply such methods to someone else's business first, before turning the lens on your own company.

The **purpose of the group project** is to integrate and apply the concepts from class as a multifunctional team to product line or service in need of renewal or more effective launch from one our your study group team member's own companies.

Your instructors will provide you with a selection of new product or service ideas from sponsoring corporations. We will form teams around these projects during one of our early class meetings.

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 recommendations for product and architecture design.

Student teams must apply the management frameworks for market segmentation, user needs, architecture, and product line roadmapping. Teams must also do source level user research, including the development and application of a conjoint analysis study for target users. Teams must also consider implications for marketing and business models.

The deliverable is a PowerPoint presentation to be presented in last class meeting, plus an Executive Memorandum that both critiques and provides suggestions with respect to the following:

1. Identify buyer and/or the end-users, 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. Field visits with some customers are essential.
2. A competitive benchmark on function and price, e.g. of products currently addressing these users – the current state of the target application space.
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. The requirements for a "go to market" strategy that would best suit the innovation. This should include branding, price, and distribution channel.
5. Any logical implications of the product line or service renewal for the company's established business models.

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.

Roles for Participating Companies

Each participating company will provide a project sponsor who will help coach the study team through an initial telephone conference, supporting documents and other materials, and a coaching telephone conference in two 30 day intervals. Sponsors are warmly invited to attend the class meeting to listen to the team reports.

Students are instructed to respect the confidentiality and sensitivity of new product and service concepts provided by participating companies. Any sort of competitive issues will be handled during team formation: no competitor or supplier to a participating company will be placed on that company's project.

Northeastern Contact Information for Project Support:

Professor Marc H. Meyer, mhm@neu.edu

Professor Rosanna Garcia, r.garcia@neu.edu