Management of Technology based Organizations

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Office hours: by appointment

Course Description

Management, as we know it today, has been the subject of study and practice roughly for the last 100 years. Some people think that a good manager can manage anything, regardless of its technological base. But there is strong evidence that the ability to evaluate alternative technologies and their investment requirements, the capacity to envision how scientific and technical concepts find their way to the market, and the knowledge about how to manage complex innovation and production processes, all require a distinctive set of skills.

In this course, we will look at what these skills are. Many cases will be studied, of both successful and failed technology based projects and enterprises. By the end of the course students are expected to have developed their own criteria about how Technology based Organizations must be managed.

THIS IS NOT A COURSE ABOUT TECHNOLOGY. Rather, it is a course about the skills required to MANAGE technology based organizations. The focus is on ESTABLISHED ENTERPRISES (large or small), it is NOT on startups.

Objectives

• Learn what a Technology based Organization is.
• Learn about the main differences between managing a Technology based Organization and other types of organizations.
• Understand the Innovation Process in established organizations. Also, learn about the main approaches to manage the Innovation Process.
• Learn how to take decisions regarding Innovation projects
• Review how technology organizations are organized.
• To understand basic Project Management.
• Learn how to manage risk

Methodology

The course is divided in eight parts, each part covering a different topic about management of technology based organizations (large firms or startups). For each topic, a combination of the following will be used:

• Lectures – Students will be presented with contents about the major topics covered in the course.
• **Weekly Assignments** – Assignments will be given BEFORE each topic is presented. Therefore, students are not expected to provide a right or wrong answer for each assignment, but are expected to think about the main issues of each topic.

• **Class discussions** – Many cases will be discussed through the course. Maximum benefit for the student will be obtained only if each case has been prepared by previously doing the corresponding weekly assignment.

• **Readings** – A list of recommended books and papers is provided in the present document. In addition, other sources may be referred during the course.

• **Videos** – When available, relevant videos will also be viewed, as additional materials for the class discussions.

### Evaluation criteria

The final grade of the course will be computed as follows:

- Assignments and class attendance: 50%
- Final exam: 50%
- Total: 100%

Students are required to attend 80% of classes. Failing to do so without justified reason will imply a Zero grade in the participation/attendance evaluation item and may lead to suspension from the program.

As with all courses taught at the UPF BSM, students who fail the course during regular evaluation will be allowed ONE re-take of the examination/evaluation. Students that pass any Retake exam should get a 5 by default as a final grade for the course. If the course is again failed after the retake, students will have to register again for the course the following year.

In case of a justified no-show to an exam, the student must inform the corresponding faculty member and the director(s) of the program so that they study the possibility of rescheduling the exam (one possibility being during the “Retake” period). In the meantime, the student will get an “incomplete”, which will be replaced by the actual grade after the final exam is taken. The “incomplete” will not be reflected on the student’s Academic Transcript.

Plagiarism is to use another’s work and to present it as one’s own without acknowledging the sources in the correct way. All essays, reports or projects handed in by a student must be original work completed by the student. By enrolling at any UPF BSM Master of Science and signing the “Honor Code,” students acknowledge that they understand the schools’ policy on plagiarism and certify that all course assignments will be their own work, except where indicated by correct referencing. Failing to do so may result in automatic expulsion from the program.”
## Calendar and Contents

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<tr>
<th>Week</th>
<th>Content</th>
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| **Week 1:** | **PART I – DEFINITIONS**  
- Andreas Bechtolsheim – The Process of Innovation (Video)  
Assignment: WHY DID NOKIA FAIL? |
| **Week 2** | **PART II – WHERE DO INNOVATIONS COME FROM**  
Where do Innovations come from – I  
- “Technology Push” MIT Deshpande Center (Video)  
- “Market Pull” Iridium  
- Reverse Innovation  
Assignment: THE TATA NANO: SUCCESS OR FAILURE? |
| **Week 3** | **PART III – INTELLECTUAL PROPERTY**  
How to protect Innovations – Intellectual Property  
- Patents  
- Copyright  
- Trademarks  
- Industrial Secret  
- Software Patents Debate  
- Free Software and Open Source Software  
Assignment: SOFTWARE PATENTS |
| **Week 4** | **PART IV – PROJECT EVALUATION AND SELECTION**  
- Is it Real, Can We Win?  
Assignment: BUG LABS |
| **Week 5** | **PART V – PROJECT MANAGEMENT**  
Modern Project Management  
- The Formal Project Management System. Tools and Techniques  
- Project Organization  
- Multi-cultural Project Management  
Assignment: GANTT, OBS and WBS |
| **Week 6, 7** | **PART VI - MANAGING RISK**  
Collaboration Strategies.  
- Siemens Mobile.  
Organizing to Innovate  
- Functional vs. Matrix Organization. The Ambidextrous Organization  
- Xerox PARC.  
- Why Corporate Skunk Works need to die  
Assignment: READ THE IBM CASE |
| **Week 8** | **PART VII – INNOVATION AND BUSINESS STRATEGY**  
Innovation & Business Strategy  
- Emerging Business Opportunities at IBM.  
- 3M |
| **Week 9** | **Week 10:** | Course Summary. Exam |

Management of Technology based Organizations | MSc in Management

Note: This document is only informational, detailed contents and faculty may change.
Reading Materials/ Bibliography/Resources

RECOMMENDED TEXTBOOKS


Thamhain, H.J., Management of Technology, John Wiley & Sons, 2005

Scott Berkun Lecture: The Myths of Innovation, http://www.youtube.com/watch?v=amt3ag2BaKc

Andreas “Andy” Bechtolsheim: The Process of Innovation https://www.youtube.com/watch?v=08frKEAtav4

SPECIFIC REFERENCES ON THE INNOVATION PROCESS

Stage-Gate International www.stage-gate.com

Vedmand, T., Kielgast, S., and Cooper, R.G.,(2016) Integrating Agile with Stage-Gate, Innovation Management.se


WHERE DO IDEAS COME FROM

Reverse Innovation


TEDxBigApple - Vijay Govindarajan - Reverse Innovation http://www.youtube.com/watch?v=ztma1t_LZE

Managing Innovation, Chapter 5


Batelle, J, (2006), The Search, Penguin Group


PROJECT MANAGEMENT

INNOVATION EXAMPLES

Lynn, G.S., Reilly, R.R., Blockbusters, Harper Collins, 2002


ENTREPRENEURSHIP


Osterwalder, A. and, Pigneur, Y (2010), Business Model Generation, John Wiley and Sons

Steve Blank’s web steveblank.com

OTHER REFERENCES


Harford, T., (20011) Adapt, Little Brown

Bio of Professors

Xavier Castillo obtained his Telecommunications Engineering degree from UPC in 1976, a M.Sc. in Electrical Engineering from CMU in 1978 and a Ph. D. in Electrical Engineering (Computer Engineering) in 1981 also from CMU. Later he obtained an MBA from IESE in 1988, and a BA (Honours) in Humanities (Music) from the Open University in 2009.

During the last forty years, he has held several executive management positions in IT and telecommunications companies, including Data General, BT, Retevision and Tempos 21. He has also worked at AMETIC, the Spanish ITC Trade association.

Dr. Castillo has been teaching regularly at La Salle and the BSM/UPF.

Didier Grimaldi has hold different positions in IT consulting in Multi-national Companies (IBM and Capgemini) assessing CIOs and CEOs in the digital transformation. Since 2012 he is Associate Professor at Pompeu Fabra Business School teaching courses of Innovation and IT Strategy.

PH.D in Business Administration and Management from the Polytechnic University of Catalonia. His thesis is related to Innovation, business ecosystem and Smart Cities. He holds also an Executive Education in IESE business school of General Management (PDG). Besides, he has an Industrial Engineering degree of the SUPELEC School in Paris.