

Building an exponential organisation: How to transfer accelerating technology from R&D to business

UGRA_014934

Departments	Dept. of Operations, Innovation & Data Sciences
Teaching Languages	English
ECTS	12
Teacher responsible	Romasanta Angelo Kenneth - angelokenneth.romasanta@esade.edu

Course Goals

- Have an approach of the industrial & social applications of Exponential and Industry 4.0 technologies
- Understand the main trends in Exponential Technologies.
- Evaluate the technologies impact on industrial business models.
- Diagnose what projects matter the most for implementing Exponential technologies.
- Develop new business models implementing Exponential Technologies.
- Learn the role of science in society and the economy
- Understand how science is organized: operation of research centers
- Understand the process of technology transfer, from science to the market
- Comprehend the obstacles that exist in the transfer process ("valley of death"), and the role of public policies to overcome it
- Understand and learn to manage the financing process of high-tech startups and the relationship with investors
- Know how to valuate scientific and technologic startups
- Understand the innovation and technology transfer process, both in established organizations and in startups.
- Learn how to present an innovation proposal
- Learn how to organize to innovate and how to manage risk
- Understand the diffusion of innovations
- Include the technology transfer strategy in industries and research centers with tools: open innovation, co-design, co-creation, collaborative work environments, lean and agile management, competitive intelligence, etc.
- Understand the role of culture and its relationship with effectivity of innovative tools/ techniques
- Have an introduction to key technology commercialization concepts and tools.
- Understand the main concepts in IP (Intellectual Property) management: Patents, Industrial Designs, Copyright, Intellectual Property Rights, Trademarks, Industrial secret
- Learn about issues in IP Management: Software patents, registered designs vs. Copyright, Traditional Knowledge, etc.
- Be able to understand the key drivers of a company valuation
- Understand the specific characteristics when valuating a startup
- Know how the venture capital industry works
- Be aware of social entrepreneurship
- Understand the key points when negotiating with an investor and the main clauses which can be

included in a shareholder agreement.

Prerequisites

None

Teaching methodology

- Lectures: Presentations that cover essential theories, concepts, and case studies linking scientific innovation to business practices.
- Group Exercise: Collaborative tasks where students work in teams to solve problems or conduct mini-projects, fostering skills in teamwork and practical application.
- Roleplaying: Simulated business scenarios where students assume roles, enhancing their understanding of business dynamics and decision-making processes.
- Guest Speaker: Inviting entrepreneurs to share real-world experiences, providing students with insights into the application of science .
- Site Visits: Organized trips to research infrastructures to observe the operations of top organizations in this area.
- Prototyping: Hands-on sessions where students create initial models of products, encouraging innovation and practical experimentation.
- Venture Development: Guided projects where students conceptualize and develop their own scientific-based business ventures, applying classroom knowledge to real-world entrepreneurship.

Description

Course contribution to program

The "Exponential Organizations" class within the Bachelor in Entrepreneurship & Business Innovation for Social Impact (BITLASI) course is integral for equipping future social entrepreneurs and business innovators with the knowledge and practical skills necessary to navigate and leverage disruptive technologies. By understanding the industrial and social applications of exponential and Industry 4.0 technologies, students learn to evaluate their impacts, develop new business models, and overcome the significant hurdles of technology transfer—from initial research to market implementation. The course emphasizes the role of science in society, the intricacies of public and private research organizations, and the critical importance of intellectual property management. Furthermore, practical sessions, case studies, and insights from seasoned industry professionals provide a hands-on approach to venture capital financing, technological commercialization, and managing high-growth potential startups. Through this curriculum, students gain the expertise needed to create triple value in a rapidly evolving global market, aligning with BITLASI's commitment to continuous learning and adaptability.

Short description

This course aims to provide an approach to the technologies that are rewriting the operating system of global society and the economy (disruptive technologies with exponential evolution). Specifically, to understand how they are applied, how they are generated, and how they are financed. We will analyze the process of bringing such technologies to the market, starting from basic research centers and universities. We will explore the barriers that exist for efficient technological transfer to the market. We will study the keys to scientifically-based startups with high growth potential and see how they are evaluated and valued from a financial perspective, as well as how financial resources can be obtained to support their growth.

Bibliography

Schilling, M. A., Strategic management of technological innovation., McGraw-Hill. (Book)

Wright, M., Academic entrepreneurship in Europe, Edward Elgar Publishing. (Book)

Activities

- In-class discussions and debates
- Role-play exercises and simulations
- Teamwork
- Group presentations
- Project development and presentation
- Prototype design
- Case study analyses

Content

#	Topic
1	Artificial intelligence / machine learning
2	Biotech, genomics and healthtech
3	Next-gen digital technologies including quantum computing, blockchain, robotics, Internet of things
4	Impact-focused technologies such as CleanTech and SocialTech
5	Technology transfer process
6	Intellectual property strategy
7	Innovation ecosystem orchestration / Open Innovation
8	Technology roadmapping, life cycle management
9	Market analysis, commercialization and business models
10	Financing technology ventures

Assessment

Tool	Assessment tool	Category	Weight %
In-class analysis and discussion of issues	Participation	Ordinary round	20.00%
In-class analysis and discussion of issues	In-class group work	Ordinary round	20.00%
Quizzes/tests	Midterm exam	Ordinary round	20.00%
Quizzes/tests	Final exam	Ordinary round	20.00%
Group project	Final project	Ordinary round	20.00%

PROGRAMS

BITLASI22-Bachelor in Transformational Leadership and Social Impact (Undergraduates: Business)
BITLASI22 Year 3 (Mandatory)