# TECHNOLOGY & INNOVATION FOR SUSTAINABILITY

**International MBA IMBA-EN SEP-2024 S-SMS**

Area Information Systems and Technology

Number of sessions: 15

Term: Concentrations

Category: regular

Language: English

Professor: **CONCEPCIÓN GALDÓN SANZ-PASTOR**

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**Vice-Dean Business with Purpose at IE Business School-Director IE Foundation's Center for Social Innovation & Sustainability**

At the heart of my passion lies a profound commitment to sustainable business and social innovation. My dedication to them finds its home at IE Business School, where I have the extraordinary chance to both nurture my passion and extend its influence worldwide.

As the Vice-Dean of Business with Purpose at IE Business School, I lead the Master in Sustainability & Business Transformation and IE's Career Pathway in Sustainability. I collaborate with other vice-deans to create unique sustainability-focused student modules and experiences across our programs.

As the Director of IE's Center for Social Innovation and Sustainability, I head up an exceptional team dedicated to collaborating with our global partners to bring about meaningful and lasting social change. We achieve this by sharing knowledge, fostering innovation, and leveraging our extensive global network and practical expertise to the fullest extent.

I also teach courses in sustainable business and social innovation at IE and in-company programs through Headspring. In addition, I'm the academic co-director of IE's Executive Education program Sustainability, Your Competitive Advantage.

My academic journey includes a degree in Economics from Universidad Autónoma de Madrid, a Master's in Public Administration and International Development from Harvard Kennedy School, and a Ph.D. in International Economy and Development from Universidad Complutense de Madrid. My doctoral research, which attained an Outstanding Award, explores the intersection of technology and social entrepreneurship.

I'm actively involved in research, and sharing insights through media contributions and international speaking engagements. Besides my academic work, I co-founded the Social Venture Puentes Global, serve on Ashoka Spain's Venture Board, and collaborate in several civil society initiatives aimed at fostering business with purpose.

## Office Hours

Office hours will be on request. Please contact at:

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Professor: **RICARDO PEREZ GARRIDO**

E-mail: RPerez@faculty.ie.edu

## Professor of Innovation and Information Systems at IE Business School

Professor of Innovation and Information Systems at IE Business School, Ricardo Perez has combined an extensive professional career with research into the field of innovation and technology. Ricardo is Academic Director of the Master in Digital Business at IE, and has participated and managed several research projects, with total funding of more than €1 million, in areas such as the media industry, banking or telecoms.

During the last twenty years Ricardo has collaborated in education and consulting projects with companies like Inditex, Telefonica, Banco Santander, BBVA, Microsoft, Oracle, SAP, Facebook, Google, Linkedin, Amazon, EA Games, GE, BT, Vodafone, Alcatel-Lucent, Arla, Vestas, Gestamp, and also with universities like Stanford, MIT or Berkeley in the USA, Egade in Mexico, Insper in Brasil, CKGSB and Shanghai Univ in China or Univ. Of Cape Town in South Africa.

He has run innovation projects with many organizations, affecting not only processes and operations but also developing new business models, opening new markets and fundamentally changing the approach to “how we do business” of several of the organizations involved.

Prof. Perez research is related to how digital technologies are impacting the media-telco, banking and retail industry, and how these organizations can create mechanisms and develop innovation capabilities to face the changes. He works with multinational corporations in four continents to apply and test these ideas. He has helped design and deploy innovation efforts in multiple organizations, crafting both the structure of the initiatives and their strategy.

**Academic Background**

CPCL, Harvard Business School Executive Education

PHD Courses (ABD) and Reseach, Corporate Information Systems at ESTII, Universidad Politecnica de Madrid

Research and PhD courses in information technologies, MIT Sloan Business School

MBA, IE Business School

Law Degree, Universidad de Santiago

Professional Background

Independent consultant in Strategy, Innovation and IT/IS, Madrid 1995 - Present

Advisor, Confederación Española de Cajas de Ahorro (C.E.C.A.), Madrid (1995- 1996)

Teaching and Research Experience

Teaching courses on Innovation Management, Digital Innovation, IT/IS Management, Strategy in High Tech Industries, Innovation in the Telecom – Media industry

Chair, The Future of Media and Advertising in Spain Research Initiative

Professor of Information Technologies and Strategic Management, IE Business School, (2000 – present)

Research fellow of the Information Management Research Centre, IE Business School (2000-2001)

Coordinator and Researcher in the Financial Services and the Web Project of MIT Sloan and IE Business School (2000-2001)

Managing Editor Sloan Management School, MIT, Cambridge (USA) (1999 –2001)

President of Research Commission, Asociación Española de Comercio Electrónico, Madrid (1998- 1999)

### Office Hours

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RPerez@faculty.ie.edu

## SUBJECT DESCRIPTION

The convergence of technology innovation and sustainability is going to be the next digital convergence: companies, governments and institutions will have to be transformed to accomplish not only the United Nations objectives but also to respond to society claiming for a different approach to how we do business.

From the technological perspective, the convergence of technologies creates incredible opportunities almost in every field, and the innovation in business structures combined with the thirst for innovation in capital markets creates the perfect opportunity both for startups and legacy companies to reframe how we do business, while at the same time doing good for our society.

The course will have an optimistic and “this is a world full of opportunities” approach, building on the experience of current game-changers to explore new paths for technology innovation through the lens of sustainability.

This will be a course full of discussions and open-ended questions, where the finish line is not the right answer, but another great question, and an opportunity to keep exploring.

## LEARNING OBJECTIVES

The main learning objectives are:

- Understand the opportunities that the combination of technological innovation and sustainability will create in the next few years.
- Learn how to apply cutting edge technology to sustainable business models in various industries
- Understand the upside and also the potential risks of technology from a sustainability perspective (environmental, social and economic)

## TEACHING METHODOLOGY

IE University teaching method is defined by its collaborative, active, and applied nature. Students actively participate in the whole process to build their knowledge and sharpen their skills. Professor's main role is to lead and guide students to achieve the learning objectives of the course. This is done by engaging in a diverse range of teaching techniques and different types of learning activities such as the following:

| Learning Activity | Weighting |
|---|---|
| Lectures | 35.0 % |
| Discussions | 35.0 % |
| Exercises in class, Asynchronous sessions, Field Work | 10.0 % |
| Group work | 10.0 % |
| Individual studying | 10.0 % |
| TOTAL | 100.0 % |

**AI POLICY**

We highly encourage the use of AI to augment your capabilities. But we also highly encourage you to not "sleep at the wheel" (paper with the reference): if you do, you risk losing the advantage of deep thinking and connecting the dots that will be one of the few advantages you will have over the ever-growing-in-capabilities GenAI models to come.

## PROGRAM

## SESSION 1 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**How Technological innovations will shape the sustainability agenda in the next decade?**

This is a introductory session to the course. The goal is to advance the students' understanding of the opportunities that Tech Innovation linked to sustainability will create for companies, professionals and society as a whole.

## SESSION 2 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Environmental impact of tech: the need for green technology**

Technology is a poweful source of solutions to protect the environment and, at the same time, it also poses new challenges for it. In this session, we will discuss critical challenges being debated today such as the carbon footprint of digital technologies and the need for green software.

## SESSION 3 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**To the future and back: imagining possible futures to explore Tech evolution in the context of sustainability**

We will explore foresight techniques to be used in the context of technology innovation for sustainability. This set of tools will help us understand ways in which we can explore different options and the "what needs to happen so that...?" question that is so useful when thinking about evolution of highly uncertain tech.

## SESSION 4 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Social impact of tech: closing the digital divide**

The unprecedented technological progress we are experiencing is an invaluable tool to confront prevalent issues such as poverty, lack of access to health or education. However, it also generates new challenges for sustainability at a social level. In this session, we will discuss critical challenges being debated today such as the exacerbation of inequality through the digital divide or the potential loss of jobs to accelerated technological advances.

## SESSION 5 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Measuring the impact and opportunities of the Tech industry: understanding the footprint of current developments**

The widespread access to the Internet, the digitalization of the economy and the proliferation of mobile-based solutions (apps) already revolutionized many sectors in the last decade. Nowadays, this revolution is reaching far beyond most people's expectations. But it comes with a cost: products that are too packed with capabilities, with life cycles that are too short. We will explore the opportunities that building other types of products (lighter, with smaller footprints) could bring to the market and the innovation opportunities that it creates.

We will explore the effect of one of the current biggest trends in tech: the impact of GenAI models in this case in terms of energy consumption, proliferation of data centers, advances in computing from the perspective of hardware and software, the open vs closed model discussion and its impact in biases, jobs, development, equality and many other things.

## SESSION 6 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Tech Innovation and Sustainability Opportunities in the Energy industry (Part I)**

We will explore the opportunities in the energy industry by going through the examples of startups exploring the opportunities and big legacy corporations navigating the challenges.

We will explore opportunities in the energy industry from the perspective of big corporations. How do they look at innovation? How do they think about growth when their market seems to be shrinking?

In this first session we will look at how difficult the transition is even when you have a great tech to deploy.

## SESSION 7 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Tech Innovation and Sustainability Opportunities in the Energy industry (Part II)**

We will explore the opportunities in the energy industry by going through the examples of startups exploring the opportunities and big legacy corporations navigating the challenges.

We will continue the conversation from the last session, this time looking at the innovators and how they are tackling the opportunities created in this space.

In this second session we will follow the money to try to understand the new-new things that will be coming to the industry with the potential of re-shaping... well, not only the world but also the entire conception of energy density and consumption and the ever growing race for more and cheaper energy.

## SESSION 8 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Tech Innovation and sustainability Opportunities around the new mobility (Part I)**

How will the new mobility affect municipalities? And the design of cities? Will a post-covid city be different? How will we look at the transportation industry? How will the new ownership models work?

The implications are staggering. We will explore what happens when we start changing technologies and business models in this huge industry, and the potential to change even the geopolitical vision of the world.

## SESSION 9 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Tech Innovation and sustainability Opportunities around the new mobility (Part II)**

In this session, we will continue the convesation from the previous session, focusing on examples of startups tackling mobility issues from an environmental and social perspective. These ventures are moving cities beyond being smart to being more liveble thanks to technology and, in doing so, they are attracting investor's attention.

## SESSION 10 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Responsible consumer/business behaviors boosted by technology: Sustainability in Retail**

In this session, we will discuss the technology-driven cultural/social changes that have led to this new scenario in which clients, companies and investors are displaying more sustainable behaviors. Building on the example of circularity, students will advance their understanding of how human core elements, which drive consumer behaviour and our ability to actually engage with technology, continues to be critical, in conjunction with technology development.

## SESSION 11 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Tech Innovation and sustainability Opportunities in the new health industry**

From your new favourite veggie burger to the biotech companies that built the Covid vaccines, there are many challenges in the limits of these innovations, and technology is clearly at the center of many of the new things that are happening there. The health industry is one of the most promising spaces for corporations and entrepreneurs wanting to make a difference nowadays. In this session, we will focus on examples of startups and corporations tackling health-related issues from an environmental and social perspective. These companies are developing new tools to provide more advanced and inclusive lifestyle, diagnosis and treatment options.

## SESSION 12 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Tech Innovation and sustainability opportunities in the new food/agrotech industry**

In this session, participants will explore the intersection of technology, innovation, and sustainability within the evolving landscape of the food and agrotech industry. We will delve into emerging opportunities where technological advancements can drive positive environmental impact and foster sustainable practices in agriculture and food production. Through examples and discussions, attendees will gain insights into leveraging cutting-edge technologies to address global challenges, optimize resource utilization, and contribute to the development of a more sustainable and resilient food system.

## SESSION 13 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Where are the next opportunities for Innovation and sustainability?**

After looking at several industries and how they are facing the sustainability challenge from the perspective of technology, we will explore a framework that will allow us to analyze the new opportunities arising from the convergence of early stage technologies, and how companies are looking at them.

Where are the biggest investments in sustainable tech today? Search in Crunchbase or Pitchbook and come to class with an example.

Biotech, foodtech, agritech, nanotechnology, augmented humans... the posibilities are amazing. We will explore some of them and look at a model of analysis to be able to do it again in the future and find opportunities - and help them develop - early.

## SESSION 14 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Innovative organizational approaches to new sustainability-driven business models**

The possibility to create new business models that not only don’t harm the sustainable development agenda but boost it has led to a plethora of new kinds of hybrid organizations that don’t necessarily fit well in the usual definitions. We will discuss the creation of innovation ecosystems that include sustainability as the core value of the effort. In this discussion we will cover issues related to deeply understanding the trends, creating the links with the ecosystem and deploying a set of tools and structures to profit from this initiatives.More details will be offered during the course.

## SESSION 15 (LIVE IN-PERSON)

**Sustainability Topics:**

- Environment
- Governance
- Social Challenge
- Economic Development

**Conclusions, final presentations and wrap up**

## EVALUATION CRITERIA

Your final grade in the course will be based on both individual and group work of different characteristics that will be weighted in the following way:

| criteria | percentage | Learning Objectives | Comments |
|---|---|---|---|
| Class Participation | 30 % | | |
| Individual Work | 30 % | | |
| Group Presentation | 40 % | | |

**FAILING GRADE AND REASSESSMENT**

**FAILING AND REASSESSMENT**

When students receive a Fail in a course, they have the opportunity to present themselves for reassessment in order to earn the necessary credits toward graduation.

The reassessment of students should be scheduled between 5 and 10 working days after the review session takes place.

Grades for the reassessment are limited to a Low Pass and Fail. Both, the initial Fail as well as the grade of the reassessment remain on the transcript. For the purpose of calculating the GPA however, only the grade of the reassessment is to be considered. Students receiving a failing grade in the reassessment of a course will not be able to continue in the program.

**INDIVIDUAL REPORT**

- Find a Company that is working in the intersection of Tech and Sustainability (aligned with the Sustainable Development Goals, so there are many options).
- Contact and interview them. Get as much insider information as possible. What do the interviews and information tell you? Interviews must be documented (recorded).
- Based on the interview, convince us that this might be a great investment. What if we were a sustainable fund looking for investments. How will you convince us?
- You will be evaluated according to: the relevance of the interview (choice of startup, choice of interviewee, depth of the information attained), the depth of your analysis of the information obtained through the interview, use of compelling arguments + sourced data (data with no source won't be accounted for), connection with debates in class.
- Your report should be 2 pages + annex (add there links, data…) or less. It should be delivered by session 14, end of day. You can submit the report before if you want to, window will be from session 10 to 14.

**CLASS PARTICIPATION**

Three main criteria will be used in reaching judgment about your class participation:

1. Depth and Quality of Contribution: The most important dimension of participation concerns what it is that you are saying. A high quality comment reveals depth of insight, rigorous use of case evidence, consistency of argument, and realism.
2. Moving Your Peers' Understanding Forward: Great ideas can be lost through poor presentation. A high quality presentation of ideas must consider the relevance and timing of comments, and the flow and content of the ensuing class discussion. It demands comments that are concise and clear, and that are conveyed with a spirit of involvement in the discussion at hand.

3. Frequency: Frequency refers to the attainment of a threshold quantity of contributions that is sufficient for making a reliable assessment of comment quality. The logic is simple: if contributions are too few, one cannot reliably assess the quality of your remarks. However, once threshold quantity has been achieved, simply increasing the number of times you talk does not automatically improve your evaluation. Beyond the threshold, it is the quality of your comments that must improve. In particular, one must be especially careful that in claiming more than a fair share of “airtime”, quality is not sacrificed for quantity. Finally, your attempts at participation should not be such that the instructor has to “go looking for you”. You should be attempting to get into the debate on a regular basis.

## BEHAVIOR RULES

Please, check the University's Code of Conduct here. The Program Director may provide further indications.

## ATTENDANCE POLICY

Please, check the University's Attendance Policy here. The Program Director may provide further indications.

## ETHICAL POLICY

Please, check the University's Ethics Code here. The Program Director may provide further indications.