



Syllabus

Academic Year	2021/2022
Program	Law, Digital innovation and Sustainability
course	Digital Transformation
Term	I semester
Year	1
SSD	
Credits	6

INSTRUCTIONAL GOAL

The course will deepen the student's comprehension of the digital transformation that is pervading society. The course will examine the process that contributes to the transitions to a digital society and economy. Therefore, digitalization is having an impact on different levels, affecting structures and the strategies of the organization, their ability to respond to external stimuli, the interactions with the stakeholders and the definition of the value proposition. Hence, the Digital transformation course aims also to support the students to understand the problems that the digital transformation might arise and, at the same time, to assess the new opportunities that the digitalization produces. At the end of the course, students will have a clear overview of how digitalization tools contribute to the development of problem-solving strategies. The course will also deepen essential aspects of the digital transformation, such as data management, and provide an overview of innovative digital tools.

The digitalization of the activities is enabling organizations to collect and store a large quantity of data. Hence, data management is becoming one of the main aspects on how the digitalization is impacting the society, changing the way people see democracy, privacy and a multitude of different aspects of personal and professional life. The potentiality of this new "gold" needs to be further explored. Therefore, the course will provide theoretical and practical notions to understand the importance and relevance of data in the digital transformation. For this reason, the course will provide students a basic toolkit of quantitative methods, which supports them in the comprehension of the potential of data management. Besides, these tools provide students with the basics to extract value from the data. Furthermore, students will have an overview of how data could be interpreted to solve a variety of real-life problems.

The course introduces also emergent digital technologies and the more broadly concept of the digital revolution. The development of new digital tools is also changing the way information is elaborated and problems are solved. For this reason, the course will provide the basis for the use of practical tools that the students could apply in their daily future work activities. Hence, at the end of the course, students will not only be able to understand the primary dynamics of digital transformation, but the course will provide them with an overview of general digital tools, methods and techniques and how these could be applied by private and public actors to tackle organization and society problems. As an example, the course could explore the possibilities opened by machine learning and how they could use for problem-solving.

INTENDED LEARNING  
OUTCOMES

**Knowledge and understanding:**

By the end of the course, students should be able to:

- Understand the emerging digital trends and the importance of the digital revolution.
- Have a clear vision of the importance, from a managerial, legal and sustainable prospective of the investigation on data.
- Understand related and emergent digital technologies

**Applying knowledge and understanding:**

Upon completing the study program, students will be able

- to use a technical approach and digital tools.
- to have a way of thinking that takes in consideration the opportunities that digitalization offers.
- effectively communicate and work, using a technical vocabulary

**Making judgements:**



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Upon completing the study program, students will be able to:

- present an informed scientific opinion in the public debate concerning the of digitalization in the society.
- gather data from different sources and elaborate algorithm in order to solve problems.
- prepare original research supported by relevant bibliography and data analysis and debate different perspectives to address the issue.

**Communications Skills:**

Upon completing the study program, students will be able to:

- develop the ability to communicate in written form through completing the assignment and oral form through the class debate and the presentation of the project.
- use the notions and the communication of typical of the digitalization and technology sector.
- foster the development of relational skills in international and multicultural settings.

**Learning skills:**

Upon completing the study program, students will be able to:

- build an analytic toolkit for the analysis of complex processes which involve the application digital solutions
- solve problems in dynamics settings and use digital tools for their resolution.

This ability will be acquired through class participation, class debate, and research carried out for the development of their project.

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Pre-requisites	Good knowledge of English is required (oral and written). Compulsory course attendance.
Course content	<p>The course provides a general overview of the phenomenon of digital transformation and a clear description of how the diffusion of new technologies is shaping routines and defining new problems and solutions.</p> <p>Topics that will be covered by this part of the course include the following:</p> <ul style="list-style-type: none"><li>• Importance of the digital revolution.</li><li>• Digitalization trends and their impact on societies.</li><li>• Analysis of the main pillars of digitalization</li><li>• The role of data in the digital transformation</li><li>• In-depth investigation of data</li><li>• Introduction to new digital tools</li><li>• Providing a basic toolkit of quantitative methods</li><li>• Digital tools to solve real-life problems</li><li>• Digital transformation and its impact on the organizations</li></ul> <p>The first phase of the course will investigate the role of digital transformation and its importance in shaping society. This part will be mainly theoretical, and it will provide students with the general background in which the course builds on. Understanding how the environment is changing is crucial to define the relations that the new technologies are making possible and how they impact the natural, social and organizational ecosystems. Hence in the first part students will also explore the pillars of the digitalization and digital transformation.</p> <p>The second phase will investigate the role of data in the digital transformation. First, the course will introduce the importance of data, the new technologies, which enable their storage and elaboration, and their role in defining a new paradigm. The course will continue the focus on data supporting students to have an in-depth comprehension of the typologies of data, the possible applications and the regulatory system which enables their use. In addition, there will be an introduction to the new digital technologies which are emerging, such as Machine Learning and Artificial Intelligence.</p>

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In the third part, the course will explore practically the potentialities of data management and of new digital tools. In this phase, students will have hands-on experiences, learning how these new tools could contribute to the problem-solving process in different fields. In addition to the technical competences, students will learn the basics of quantitative methods and their role in the digital analysis of reality.

In the fourth part, the digitalisation transformation will be analysed with attention in its role in shaping organizations. Hence, the new role of digital tools within the organizations will be explored. In this phase, it will be given to students an overview of the important role that digital tools and the new professions have on the strategy and daily activities of organizations.

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Reference Books

The analysis of very recent or current issues means that it is impossible to refer to a specific textbook. The slides, referring to a given lesson, will be made available to students in advance. However, in order to have a general and analytical view on the economic workings of innovation, students can refer to:

Rogers, David L. *The digital transformation playbook: Rethink your business for the digital age*. Columbia University Press, 2016.

Matt, Christian, Thomas Hess, and Alexander Benlian. "Digital transformation strategies." *Business & Information Systems Engineering* 57.5 (2015): 339-343.

Kane, Gerald C., et al. "Strategy, not technology, drives digital transformation." *MIT Sloan Management Review and Deloitte University Press* 14.1-25 (2015).

Westerman, George, Didier Bonnet, and Andrew McAfee. "The nine elements of digital transformation." *MIT Sloan Management Review* 55.3 (2014): 1-6.

Pappas, Ilias O., et al. "Big data and business analytics ecosystems: paving the way towards digital transformation and sustainable societies." (2018): 479-491.

Ustundag, Alp, and Emre Cevikkan. *Industry 4.0: managing the digital transformation*. Springer, 2017.

-Students are expected to read the papers/articles assigned each week

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Teaching Methods

Slides will be available before the lesson covering each of the specific topics addressed in the course. Hence the traditional presentation of the analytical problems can be concise and leave room to Q&A and discussions.

The topics dealt with will be further examined within case study lectures and the development of Applications and Lab session.

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Assessment

Competences will be assessed via written exam. There will be a mid-term exam and a final project, each of which will count for 50% of the final grade. Students that will not take the midterm during the course are required to take a full exam after the course.

The intermediate (written) test concern the theoretical part. The final project will ask to students the application of the theoretical and practical skills that they acquire during the course in a problem-based field project.

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