

# Hohenheim Summer School 2025

## Faculty of Business, Economics and Social Sciences

### **Digitalization for Sustainability – Sustainable Digitalization: Individuals, Organizations, and Societies in the Twin Transformation**

The so-called “twin transformation” refers to the current trends of digitalization and sustainability, whose interplay is complex, dynamic, and potentially ambivalent. On the one side, digitalization can support individuals, organizations, and societies to become more sustainable. It can foster a more intelligent use and the conservation of natural and human resources in several ways, e.g. by providing additional information, monitoring behavior, making criteria-guided decisions, and improving the efficiency of processes. On the other side, digitalization is also based on the investment of natural and human resources, accompanied by possible rebound effects, and algorithms are itself biased by design. This refers to the issue of sustainable digitalization. Against this background, understanding the twin transformation means to critically investigate the commonalities and contradictions between digitalization and sustainability and relate them to the needs, demands, and actions of individuals, organizations, and societies.

Based on an interdisciplinary lecture program, the UHOH Summer School 2025 will provide insights into the newest research on the twin transformation. On this basis, participants will be able to develop and critically discuss their own thoughts on the interrelationship between digitalization and sustainability with regard to individuals, organizations, and societies.

#### **Overall learning objectives:**

1. Understanding the Twin Transformation and Its Challenges  
Participants will develop a comprehensive understanding of the interplay between digitalization and sustainability. They will analyze the potentials, trade-offs, and paradoxes of the Twin Transformation from various disciplinary perspectives (e.g., economics, sociology, psychology, ethics, and information sciences).
  2. Critical Reflection and Evaluation of Strategies related to the Twin Transformation  
Participants will develop the ability to critically assess strategies and technologies related to the Twin Transformation. They will examine their impact on individuals, organizations, and societies, considering ethical, ecological, and economic implications.
  3. Interdisciplinary Problem-Solving and Innovation Skills  
Participants will learn to apply interdisciplinary methods and approaches to address the challenges of the Twin Transformation. They will develop innovative strategies, use digital technologies responsibly, and reflect on issues regarding individuals, sustainable business models and societal transformation processes.
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**Frame:**

Heading: Digitalization for Sustainability – Sustainable Digitalization: Individuals, Organizations, and Societies in the Twin Transformation

10 Academic Lectures = 20 Teaching Units per week

6 ECTS points

Academic responsibility lies with Prof. Dr. Ruiner and Ronny Ehlen

Overall responsibility for organization is with Dr. Jana Funk, and cultural program organization will be handled by N.N. (student assistant)

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**Lecture Overview** (in alphabetical order by lecturer)

**Lectures: Monday, June 16th – Thursday, June 26th, 2025**

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***Prof. Dr. Marion Büttgen, Dr. Ellen Weber, Felix Zechiel (M.Sc.), Irini Tsaga (M.A.)***  
**Implementing AI x Sustainability Strategies in Companies: A Case Study Seminar**

**Lecture Abstract:**

This case study seminar focuses on how companies can leverage artificial intelligence (AI) to accelerate sustainability by formulating and implementing appropriate strategies.

After an introduction to the interplay of AI and sustainability, participants apply their newly acquired knowledge in groups by analyzing cases and identifying initiatives for strategy formulation and implementation.

**Learning Objectives:**

1. Understanding “AI x Sustainability” Strategies in Companies  
Participants understand the interplay between artificial intelligence (AI) and sustainability and can analyze and evaluate different strategic approaches (i.e., AI x Sustainability strategies).
2. Evaluating “AI x Sustainability” Strategies in Companies  
Participants can critically evaluate AI x sustainability strategies and initiatives, engaging in informed discussions on 'AI for Sustainability' and 'Sustainable AI' within the broader context of social and ecological sustainability.
3. Gaining intercultural and interdisciplinary Competencies  
Participants enhance their intercultural and interdisciplinary teamwork and communication skills by collaboratively analyzing case studies, designing solutions, and presenting their findings effectively.

**Literature:**

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40. <https://doi.org/10.3316/QRJ0902027>

van Wynsberghe, A. (2021). Sustainable AI: AI for sustainability and the sustainability of AI. *AI and Ethics*, 1(3), 213-218. <https://doi.org/10.1007/s43681-021-00043-6>

Zechiel, F., Blaurock, M., Weber, E., Büttgen, M., & Coussement, K. (2024). How tech companies advance sustainability through artificial intelligence: Developing and evaluating an AI x Sustainability strategy framework. *Industrial Marketing Management*, 119, 75-89.

<https://doi.org/https://doi.org/10.1016/j.indmarman.2024.03.010>

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**Prof. Dr. Bernd Ebersberger, Indra da Silva Wagner (M.Sc.)**

### **Innovating for a Better Tomorrow**

#### **Lecture Abstract:**

In a world of constant change, innovation is more than just a nice add-on. Rather, innovation is fundamental to the success and survival of companies and organizations. Those who stand still will be left behind. And those who are left behind will disappear. Innovation is the engine of competitiveness, and it allows companies and organizations to contribute to solving major social, ecological, and economic challenges. The rub, however, is that these solutions require a radical shift in how leaders approach problems. We often follow the paradigm of "what has worked before." But that doesn't work for a future, unlike anything we've seen before.

In this lecture, sustainability innovations are discussed and unusual innovation ideas are created. Thereby, this lecture provides participants with a change of perspective and innovation ideas—for them, for their organization, and for a better world.

#### **Learning Objectives:**

1. Understanding the Role of Innovation in Sustainability  
Participants have an understanding of why innovation is critical for addressing sustainability challenges and how it drives competitiveness.
2. Developing unconventional Ideation Skills  
Participants (know and) can apply creative ideation techniques to generate innovative ideas addressing sustainability challenges.
3. Communicate innovative Ideas  
Participants know how to structure a pitch for novel solutions addressing sustainability challenges. They can communicate their ideas effectively.

#### **Literature:**

Bocken, N., Ritala, P., Albareda, L., & Verburg, R. (2019). *Innovation for sustainability: Business transformations towards a better world*. Palgrave Macmillan Cham.

Ekanem, I. (2024). *Principles of innovation, entrepreneurship and sustainability: An evidence-based approach*. Routledge.

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**Prof. Dr. Michael Evers**

### **The Economics and Sustainability Challenges of Cryptocurrencies and Blockchains**

#### **Lecture Abstract:**

Digitalization is transforming financial markets and everyday transactions, particularly through the rise of cashless payments. At the forefront of this transformation are blockchain and, more significantly, distributed ledger technology (DLT), which are often seen as disruptive

innovations. Terms like cryptoassets, Bitcoin, and Ethereum have become global buzzwords. However, one major concern is the sustainability of blockchain, especially the energy-intensive consensus mechanisms used to validate transactions.

The participants explore the foundational economics behind these groundbreaking technologies. The lecture delves into how blockchain and DLT establish trust and credibility in a decentralized network of participants, ensuring the secure transfer of money, assets, and wealth. Additionally, the mechanics of consensus mechanisms are examined, explaining why they require significant energy resources. Finally, alternative, more sustainable approaches to achieving trust and credibility in distributed networks are discussed, considering the future implications for the technology and its adoption.

### **Learning Objectives:**

1. Understanding the Digital Money Revolution  
Participants will be able to analyze and explain the economic principles underlying blockchain and distributed ledger technology, with particular focus on how these technologies facilitate trust and secure transfers of values in decentralized networks.
2. Exploring the Environmental Cost of Trust  
Participants will be able to evaluate the technical and operational aspects of consensus mechanisms in blockchain systems, demonstrating understanding of their energy requirements and environmental impact.
3. Developing Pathways to Sustainable Blockchain  
Participants will be able to critically assess and compare alternative approaches to establishing trust in distributed networks, with emphasis on identifying more sustainable solutions and their potential implications for future technology adoption.

### **Literature:**

- Andolfatto, D. (2012, 02-11). Evil is the root of all money *MacroMania*.  
<https://andolfatto.blogspot.com/2012/09/evil-is-root-of-all-money.html>
- Berentsen, A., & Schar, F. (2018). A short introduction to the world of cryptocurrencies. *Review*, 100(1), 1-19. <https://doi.org/10.20955/r.2018.1-16>
- Kiyotaki, N., & Moore, J. (2002). Evil is the root of all money. *American Economic Review*, 92(2), 62–66. <https://doi.org/10.1257/000282802320189014>
- Nakamoto, S. (2008). Bitcoin: A peer-to-peer electronic cash system.  
<https://bitcoin.org/bitcoin.pdf>

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**Prof. Dr. Ulrike Fasbender, Robin Umbra (M.Sc.)**

**Open Science: Why Should We Care?**

### **Lecture Abstract:**

Around the world, researchers have become aware of the value and importance of open science, not at least because existing practices to collecting, analyzing, and reporting data made it too easy to publish false-positive findings.

In this lecture, participants explore publication biases and replication failures and discuss,

how open science practices, such as disclosure and preregistration, can contribute to overcoming these issues and provide a better, more precise and more reproducible science.

### **Learning Objectives:**

1. Introduction to the Principles of Open Science  
Participants receive an overview of the most important concepts, goals and advantages of open science practice.
2. Practical Application of Open Science Tools  
Participants learn how to use specific tools (e.g. open access repositories, preprint servers, open databases) in their own research process.
3. Reflection on Opportunities and Challenges  
Participants will explore the key opportunities (e.g. transparency, collaboration) and potential difficulties (e.g. data protection, quality control) of the open science movement.

### **Literature:**

- Fecher, B., & Friesike, S. (2014). Open science: One term, five schools of thought. In S. Bartling & S. Friesike (Eds.), *Opening Science: The Evolving Guide on How the Internet is Changing Research, Collaboration and Scholarly Publishing* (pp. 17-47). Springer International Publishing. [https://doi.org/10.1007/978-3-319-00026-8\\_2](https://doi.org/10.1007/978-3-319-00026-8_2)
- Nosek, B. A., Alter, G., Banks, G. C., Borsboom, D., Bowman, S. D., Breckler, S. J., Buck, S., Chambers, C. D., Chin, G., Christensen, G., Contestabile, M., Dafoe, A., Eich, E., Freese, J., Glennerster, R., Goroff, D., Green, D. P., Hesse, B., Humphreys, M., . . . Yarkoni, T. (2015). Scientific standards: Promoting an open research culture. *Science*, 348(6242), 1422-1425. <https://doi.org/10.1126/science.aab2374>
- Vicente-Saez, R., & Martinez-Fuentes, C. (2018). Open science now: A systematic literature review for an integrated definition. *Journal of Business Research*, 88, 428-436. <https://doi.org/https://doi.org/10.1016/j.jbusres.2017.12.043>
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**Prof. Dr. Henner Gimpel, Fabian Probst (M.Sc.)**

### **An Overview of the Twin Transformation from an Information Systems Perspective**

#### **Lecture Abstract:**

As organizations redefine their identities in a rapidly digitalizing world, the urgency of the climate crisis compels businesses to embrace sustainability. Digitalization and sustainability are not just parallel trends but are deeply interconnected. This course refers to the concept of "Twin Transformation", where digital and sustainable transformations reinforce each other. By combining digital technologies, such as artificial intelligence (AI) and digital nudging, with sustainability efforts, organizations can achieve their sustainability goals. Sustainability, in turn, guides ethical and effective digital advancements.

The lecture explores concepts of digitalization and sustainability in industry and society, providing participants with the frameworks and methods needed to navigate this twin transformation.

### **Learning Objectives:**

1. Understanding the Relevance of the Twin Transformation from an Information Science Perspective

Participants gain an overview of the relevance of the Twin Transformation for companies and societies in the context of information science research

2. Learning the Characteristics of the Twin Transformation

Participants analyze characteristic patterns of the problems and potentials of the relationship between digital technologies and sustainability from an information science perspective.

3. Getting to know the Fields of Action of the Twin Transformation

Participants explore key fields of action within the Twin Transformation, identifying areas and business cases where digitalization and sustainability interact and drive change.

**Literature:**

Graf-Drasch, V., Kauffeld, L., Kempf, L., Oberländer, A. M., & Teuchert, A. (2023). *Driving twin transformation - the interplay of digital transformation and sustainability transformation* 31st European Conference on Information Systems (ECIS), Kristiansand, Norway. <https://publica.fraunhofer.de/handle/publica/457302>

Loeser, F. (2013). Green IT and Green IS: Definition of constructs and overview of current practices. Nineteenth Americas Conference on Information Systems, Chicago, USA.

Vial, G. (2021). Understanding digital transformation: A review and a research agenda. In A. Hinterhuber, T. Vescovi, & F. Checchinato (Eds.), *Managing digital transformation* (pp. 13-66). Routledge. <https://doi.org/> <https://doi.org/10.4324/97810030086>

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**Jun-Prof. Dr. Laura Henn, Dr. Ronja Gerdes**

**Lessons from Environmental Psychology for the Twin Transformation: Understanding People's Motivation for Sustainable Behavior and the Role of Digital Technology**

**Lecture Abstract:**

A sustainable transformation requires changes in behaviors and lifestyles of individuals in all parts of life. Digital technologies can support such changes.

In this lecture, participants gain insights from environmental psychology on why, when, and how people are willing and able to change their behavior and how this process can be supported by technology.

**Learning Objectives:**

1. Applying a psychological Perspective to Decision-Making

Participants can apply a psychological perspective to people's behavioral decision-making in interaction with their (physical and digital) environment.

2. Understanding Motivation as a Driver of Sustainable Behavior

Participants gain a fundamental understanding of individual motivation as a driver of sustainable behavior.

3. Evaluating the Role of Technology in Sustainable Behavior

Participants can elaborate on the potential and limitations of technology for sustainable behavior with regard to the role of pro-environmental motivation.

## Literature:

- Henn, L., & Kaiser, F. G. (2019). Sustainable societies: Committed people in supportive conditions. In J. Hoff, G. Quentin, & S. Lex (Eds.), *The Role of Non-State Actors in the Green Transition* (pp. 17-33). Routledge.
- Henn, L., Taube, O., & Kaiser, F. G. (2019). The role of environmental attitude in the efficacy of smart-meter-based feedback interventions. *Journal of Environmental Psychology*, 63, 74-81. <https://doi.org/https://doi.org/10.1016/j.jenvp.2019.04.007>
- Nielsen, K. S., Cologna, V., Bauer, J. M., Berger, S., Brick, C., Dietz, T., Hahnel, U. J. J., Henn, L., Lange, F., Stern, P. C., & Wolske, K. S. (2024). Realizing the full potential of behavioural science for climate change mitigation. *Nature Climate Change*, 14(4), 322-330. <https://doi.org/10.1038/s41558-024-01951-1>
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**Prof. Dr. Andreas Kuckertz**

## Entrepreneurship as a Catalyst for the Twin Transformation

### Lecture Abstract:

This lecture examines the transformative role of entrepreneurship in digitalization and sustainability, guided by Davidsson et al.'s (2020) external enabler framework. It explores how external enablers such as technological advances, regulatory changes, and societal shifts can be harnessed to create new opportunities for innovative ventures that promote sustainable practices through digital means. By integrating digital solutions with sustainable business models, entrepreneurial initiatives can effectively address the challenges and opportunities presented by the twin transformation. Case studies will illustrate successful approaches and highlight the potential for startups to balance technological advancement with sustainable development.

The highly interactive lecture encourages participants to engage in discussions, collaborative activities, and critical analysis to apply these concepts to real-world scenarios, fostering a dynamic learning environment.

### Learning Objectives:

1. Understand the Role of Entrepreneurship in the Twin Transformation  
Participants will learn how entrepreneurship drives digitalization and sustainability by leveraging external enablers like technology, regulation, and societal change.
2. Evaluate the Impact of Digitalization on Sustainable Business Models  
Participants will critically assess how digital solutions contribute to sustainability, considering both benefits and potential challenges such as rebound effects and biases.
3. Apply theoretical Concepts to Real-World Entrepreneurship  
Participants will use frameworks like the external enabler framework to analyze and develop entrepreneurial strategies that balance innovation with sustainability.

## Literature:

- Berger, E. S. C., von Briel, F., Davidsson, P., & Kuckertz, A. (2021). Digital or not – The future of entrepreneurship and innovation. *Journal of Business Research*, 125, 436-442. <https://doi.org/10.1016/j.jbusres.2019.12.020>
- Hinderer, S., & Kuckertz, A. (2022). The bioeconomy transformation as an external enabler of sustainable entrepreneurship. *Business Strategy and the Environment*, 31(7), 2947-2963. <https://doi.org/10.1002/bse.3056>

Kuckertz, A., Berger, E. S. C., & Gaudig, A. (2019). Responding to the greatest challenges? Value creation in ecological startups. *Journal of Cleaner Production*, 230, 1138-1147. <https://doi.org/10.1016/j.jclepro.2019.05.149>

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**Prof. Dr. Siegmund Otto, Sarah Zabel (M.Sc.)**

## **Smart Sustainability – Sustainability on the Interface between Humans and New Digital Technology**

### **Lecture Abstract:**

This lecture discusses the opportunities of specific technologies for the environment, society, and economy, as well as the challenges that need to be taken into account when applying these technologies (e.g., biases in algorithms, or an increase in inequality through barriers to access to technology). Different areas of application (e.g., smart cities, customer relationship management) and different technologies are examined and analyzed against the background of sustainable development.

In the first part of the lecture, a matrix of different major smart technologies (e.g., blockchain, machine learning) and major sustainability goals (e.g., sustainable cities, health and welfare) is introduced. This matrix allows to discover the challenges and opportunities that come with these technologies for the different sustainability goals. In the second part, participants will focus on one or two of these challenges.

### **Learning Objectives:**

1. Understanding the Sustainable Development and its Complications  
Participants understand and critically evaluate factual and possible trade-offs between environmental, social, and economic sustainability goals
2. Understanding the Role of Smart Technologies for Sustainable Development  
Participants understand and critically discuss the role of digital information and communication technologies in and for sustainable development as well as its intended and unintended effects.
3. Evidence-based Problem Solving  
Participants can critically discuss opportunities and challenges of smart technologies for sustainable development and develop evidence-based solutions in responsible promoting sustainability by the use of digital technologies.

### **Literature:**

United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development.

Vinuesa, R., Azizpour, H., Leite, I., Balaam, M., Dignum, V., Domisch, S., Felländer, A., Langhans, S. D., Tegmark, M., & Fuso Nerini, F. (2020). The role of artificial intelligence in achieving the Sustainable Development Goals. *Nature Communications*, 11(1), 233. <https://doi.org/10.1038/s41467-019-14108-y>

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**Prof. Dr. Caroline Ruiner, Dr. Ronny Ehlen**

## **Work (in) the Twin Transformation: A Paradox Perspective**

### **Lecture Abstract:**

The twin transformation affects the world of work where it often leads to the emergence of contradictions. For example, digital technologies can contribute to economic and ecological sustainability by improving work and process efficiency but at the cost of a deterioration of social sustainability in terms of working conditions. While highlighting possible tensions, the paradox perspective also acknowledges that they cannot be ultimately solved. Instead, organizations and workers have to deal with the competing demands of the twin transformation in the sense of a dynamic equilibrium, which implies constant balancing and adjusting.

The lecture introduces the participants into a paradox perspective on the twin transformation, presents specific paradoxes related to the twin transformation, explores how workers and organizations theoretically and practically manage the paradoxes, and discusses the (un)intended downstream effects.

### **Learning Objectives:**

1. Understanding the Twin Transformation from a sociological perspective  
From a sociological perspective, participants will be able to define the concept of the twin transformation and explain its implications for the world of work, particularly in relation to economic, ecological, and social sustainability.
2. Exploring Paradoxes in the Twin Transformation  
Participants will be able to apply a paradox perspective to the twin transformation, understanding that competing demands cannot be fully resolved but instead must be managed in a state of dynamic equilibrium with respect to unintended downstream effects.
3. Developing Practical Solutions  
Participants will develop a practical understanding of how organizations and workers can manage paradoxes, focusing on strategies for navigating conflicting demands in real-world scenarios.

### **Literature:**

- de Vaujany, F.-X., Leclercq-Vandelannoitte, A., Munro, I., Nama, Y., & Holt, R. (2021). Control and surveillance in work practice: Cultivating paradox in 'new' modes of organizing. *Organization Studies*, 42(5), 675-695. <https://doi.org/10.1177/01708406211010988>
- Hahn, T., Figge, F., Pinkse, J., & Preuss, L. (2017). A paradox perspective on corporate sustainability: Descriptive, instrumental, and normative aspects. *Journal of Business Ethics*, 148(2), 235-248. <https://doi.org/10.1007/s10551-017-3587-2>
- Schad, J., Lewis, M. W., Raisch, S., & Smith, W. K. (2016). Paradox research in management science: Looking back to move forward. *Academy of Management Annals*, 10(1), 5-64. <https://doi.org/10.5465/19416520.2016.1162422>
- Smith, W. K., & Lewis, M. W. (2011). Toward a theory of paradox: A dynamic equilibrium model of organizing. *Academy of Management Review*, 36(2), 381-403. <https://doi.org/10.5465/amr.2009.0223>
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**Prof. Dr. Matthias Uhl**

**Behavioral Ethics of Digitalization: Towards an empirically Informed Sustainability**

**Lecture Abstract:**

An increasing number of decisions are being delegated to autonomous systems. Even if their role is limited to providing decision support, they nevertheless systematically mediate our relationship with the world. An understanding of human attitudes towards artifacts and their power over us is crucial to enable sustainable human-centric digitalization.

The lecture discusses normative approaches to the ethics of digitalization and provides participants with an overview of relevant empirical results from the field.

**Learning Objectives:**

1. Understanding the ethical key challenges of digitalization  
Participants will gain the ability to characterize the ethical implications of digitalization for society and elaborate on the chances and risks of novel technologies.
2. Reflecting on the impact of digitalization on human morality  
Participants will critically reflect on the role of digitalization for human morality and internalize the moral ambivalence of trust in artificial intelligence.
3. Applying behavioral methods to use cases  
Participants will learn to apply methods of behavioral research to investigate the ethically relevant effects of specific digital technologies.

**Literature:**

Coeckelbergh, M. (2020). *AI ethics*. MIT Press.

Liao, S. M. (2020). *Ethics of artificial intelligence*. Oxford University Press.

Nyholm, S. (2023). *This is technology ethics: An introduction*. John Wiley & Sons.