PhD profile, II year students, a.a. 2022/2023

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Outline of the research

In recent years, the agri-food sector has been gaining increasing attention. Recent data indicates that by 2050, food production needs to double to fulfil world population demand and that the world expects approximately 9.8 billion people to live in 2050 and 11.2 billion by 2100. There is a widespread belief that digital technologies, such as collaborative robots, the Internet of Things, and Blockchain, can completely revolutionise agriculture, guaranteeing more food produced with few resources. In addition, circular economy strategies have been developed in recent decades to mitigate the adverse environmental effects of activities along the agri-food supply chain.

Based on the above premises, my PhD research project focuses on digital technology management for sustainability. The main aim of my research is to analyse the impact of digital technologies as well as sustainability and circular economy policies on agri-food companies' economic, environmental, and social performance. In this line, this research aims to develop a model that, in line with the company's sustainable development goals, defines a global business model to achieve sustainable production and responsible consumption at the same time.

Through a systematic literature review on the research topic, several research gaps to be addressed have been identified. As a result, my empirical research has been moving toward (1) the development of multiple case studies to analyse the impact of digital technologies and circular economy (CE) practices on agribusinesses' sustainability performance as well as drivers and barriers for the implementation of Industry 4.0 (I4.0) and sustainability, (2) the application of the Life Cycle Assessment (LCA) methodology to estimate the environmental impact of alternative digital technologies and circular practices in order to choose the most beneficial solution for the environment, and (3) the investigation of factors affecting sustainable consumer behaviour of foodstuffs.

This research project is intended to offer key inputs for industry and society. First, identifying the primary factors influencing consumer behaviour regarding food waste (e.g. sustainable packaging and labelling, blockchain technology for product traceability), companies will be able to leverage those factors in order to adopt a more sustainable production model. Further, incorporating CE strategies into their business models may deliver demonstrable environmental benefits. As a result, agri-food firms can obtain a competitive advantage due to brand image improvement. Finally, analysing the impact of I4.0 on business performance, it will be possible to establish which technologies the company should invest in to obtain economic, environmental and/or social benefits.