Chapter 1
A University Landscape for the Digital World

Abstract As the digital transformation clearly highlights the role of universities and institutes of higher education in shaping a higher education system that is more open and provides education to everyone who can benefit from it, this study seeks to analyze, in more detail, what developments are having an impact on higher education and develops future scenarios for education in 2030. The UK study *Solving future skills challenges* implies that the linear model of education–employment–career will no longer be sufficient in the future, requiring new combinations of skills, experience, and collaboration from educators and employers. This UK study serves as a starting point for the AHEAD trend analysis for a higher education landscape in 2030. Five premises ranging from "No naive innovation view" to "Realistic approach," and "Diversity in higher education" provide the basis for a search for concepts for the higher education of the future.

In the future, universities and institutes of higher education will play an even more central role in managing and shaping the digital transformation.

Higher education fulfills several objectives for society. In the areas of research and teaching, it primarily creates an educational space to prepare for the future. It prepares students for their further personal and professional development, which will be subject to considerable dynamics. It also provides a space for reflexive thinking about what it means to be a citizen of the globalized, digitized world, ultimately offering students opportunities to further develop their character and attitudes.

In addition, the higher education system will need to be more open in the future, providing access to quality education to everyone who can benefit from it.[1] This study addresses the relationship between higher education and initial and continuing vocational education and training, which are still strongly separated in most worldwide education systems (and particularly in Germany).

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[1] Among OECD countries and countries in the European Higher Education Area, higher education continues to be socially selective (Blossfeld et al., 2017; European Commission/EACEA/Eurydice, 2018).

The potential of digitization for universities lies not only in the function it can add through e-learning but also in its integrative force, which can improve higher education as a whole, as the 2018 position paper, "Bologna Digital," makes clear (Gibb, Hofer, & Klofsten, 2018; Orr, van der Hijden, Rampelt, Röwert, & Suter, 2018a, 2018b). The present study incorporates this idea.

Digitization will lead to changes in the higher education landscape; indications of such changes are presented here. This study does not assume that the university landscape as a whole will be a victim of destructive innovation ("disruption"). The high expectations associated with innovations developed in the Silicon Valley environment (keyword: MOOCs) have not yet revolutionized higher education. Instead, universities have adopted these innovations and integrated them into existing degree programs (Jansen & Konings, 2017; Reich & Ruipérez-Valiente, 2019). However, digital developments can also help universities redefine and better fulfill their role. The emergence of innovative new models and organizations will enrich the higher education landscape. Future progress is not just a matter of retrofitting longstanding higher education approaches (Kelly & Hess, 2013), but also of extending them to foster sustainable changes.

What is meant by "Digitization" as a Process?

According to the Oxford English Dictionary, digitization is the conversion of a text, image, or sound into a digital form that can be processed by a computer. This material process in itself has little influence. To achieve a significant impact, digitization must be integrated into a far-reaching process—and a corresponding ecosystem—that uses digital materials for digital transformation (in short: digitalization) (Brennen & Kreiss, 2016). The Internet and digital networks are means to connect different types of information, to generate new data flows, and to structure communication channels for improved interaction between people and processes. The new information nodes and networks enable a new form of process organization (Castells, 2010; Cerwal, 2017). The application of new digital technologies is therefore not only a question of what technology can do but also how it interacts with other established practices and individual and organizational routines. The particular challenge of the twenty-first century is to ensure that all sectors benefit from the increasing digital transformation of society.

The aim of this study is to analyze in more detail the developments that are having a major impact on the environment of higher education, and to develop scenarios for higher education in 2030 on this basis. The present study thus meets a central demand of the position paper by Baumgartner (2018) on the future role of higher education: "We need more creative scenarios with which we can think about the future of social developments and their possible consequences for our institutions (such as universities)."

The organization that represents universities in the UK has recently carried out a study of higher education requirements in a digital, networked world (Universities UK, 2018). The conclusion of this study provides a suitable starting point for the AHEAD study:

> The linear model of education–employment–career will no longer be sufficient. The pace of change is accelerating, necessitating more flexible partnerships, quicker responses, different modes of delivery and new combinations of skills and experience. Educators and employers need to collaborate more closely, and develop new and innovative partnerships and flexible learning approaches. (ibid.)

Thus, concepts are sought for the higher education of the future, which must become stronger and stronger, while building on the current structure of higher education. Such concepts could have an evolutionary and transformative effect on today's higher education system.

This search is based on the following five premises:

- **No naive innovation view**: It can be assumed that some parts of the (institution-alized) system will resemble the current one, while innovations will emerge both within this system and through new organizations.
- **Transfer and renewal through digitization**: Digitization is expected to have an impact on many areas of higher education provision and beyond. In addition, new forms of higher education will become increasingly sustainable and scalable.
- **Realistic**: The scenarios should, where possible, have points of contact with current systems of higher education, allowing their potential, including the tensions inherent in the models, to be demonstrated on the basis of exemplary developments. The year 2030 has been chosen as a future endpoint to ensure that innovations are linked to the current situation and the perspective does not become too speculative.
- **The perspective of the learner**: The learner's path through the educational system is the focus of this investigation. The educational provisions offered by universities depend on learner requirements.
- **Diversity in higher education**: In contrast to other future-oriented studies, this paper does not assume that there will be *one* model of higher education in the future. Instead, we assume that the higher education landscape will continue to become more diversified and that alternative learning and higher education paths will develop in response to various challenges and ultimately coexist. For this reason, the study refers to "higher education" in general, and not simply to institutes of higher education.