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Towards Curricula for Business in Digital Society

Results from Stage One of the CBS Curriculum Review Process, August 2019 Authors: Till Winkler, Jesper Bjørn, Charlotte Hansen, Gregor Halff

Executive Summary

The promises and perils of the digital transformation prompt business schools to respond and reposition their established educational programs. This report summarizes the results from a series of roundtable meetings of CBS faculty with diverse expertise in digitalization, which took place between March and June 2019. This report aims to provide an impetus for steering the revision and advancement of teaching curricula at CBS to enable our students to thrive in digital society.

Section 1 of this report defines the meaning of the term digital transformation for a highereducation institution like CBS and provides selected case examples. Section 2 describes principles for approaching the digital transformation theme from a business school perspective as a process in which critical enquiry and normative action feed into each other. Section 3 concludes that this process, if embedded in research-based education at CBS, is key to contribute to the CBS strategy of creating value to individuals, organisations, and society.



Figure 1. Conceptual Framework and Structure of the Report

The conceptual framework in Figure 1 illustrates the structure of this report. As a next step, teaching coordinators and program directors may identify concrete opportunities for strengthening the enquiry and action in digital transformation at CBS.

1. Definition: CBS' Understanding of Digital Transformation

Digital transformation can be understood as a change process that affects all systems of society through the emergence, diffusion, and assimilation of information and communication technologies and their applications, often with the intended aim to improve the performance of these systems.¹

¹ This report uses the term *digitalization* to refer to the broader societal change process and the term *digital transformation* to refer to the deliberate steering of this change process to affect a specific societal system (the digital transformation of something), cp. Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*.

Digital transformation concerns systems on macro levels (e.g., the government, the healthcare system, the banking industry), meso levels (e.g., companies and public agencies), and micro levels (e.g., work teams, families, and individuals). Such a systems understanding of the actors in digital transformation recognizes the relationships between actors as well as the boundaries with their respective environments.

Although the change processes associated with the digital transformation are manifold and hard to delineate, there are certain defining characteristics of digital transformations. Specifically, digital transformations are *technology-enabled*, they build on digital *infrastructures*, they *exploit data* for decision-making, they *relate* and *combine* subjects and objects in unprecedented ways and they often take *non-linear* pathways.

Technology-enabled: Existing and ever-emerging information, computing, communication, and connectivity technologies are undoubtedly the key enabler of the digital transformation. Digital technologies have made it possible to generate, transport, and collect exponentially growing amounts of data, exploit these for artificially intelligent decision-making, automate operations, and enable new digital business models.

Although digital technologies are sometimes associated with the acronym SMACIT (smart, mobile, analytics, cloud, and internet of things), the types of digital technologies that come to play greatly depend on the specific challenges to be addressed. For instance, the digital transformation of the Danish government at present involves, amongst other technologies, improvements of the online services for citizen and the implementation of open data technologies for the business sector.² The digital transformation of Ørested aims to bring smart grid technologies, advanced analytics, automation, and other digital technology to all parts of their business to improve competitiveness. Hence, the underlying technologies vary across transformations and change over time.

Infrastructure-based: Digital transformations involve infrastructural developments that make digital technologies the backbone of commercial, organizational and societal activities. The most omnipresent digital infrastructure, today often taken for granted, is the Internet consisting of the global network of networks and standardized communication protocols based on which higher-level applications can exchange all kinds of messages and data (e.g. websites, emails, video streams).

Some of these applications have become platforms (i.e., infrastructures in itself) for others. Social media such as Facebook and Twitter have become platforms for free expression in the digital space and changed the logic of public discourse. Amazon and Alibaba have become online commerce platforms creating an ecosystem for retail business execution. Electronic ID services in the Scandinavian countries (e.g., NemID, BankID) create an authentication infrastructure for third party services. Digital transformations often involve establishing, extending, or harnessing such digital infrastructures to improve the functioning of an organization or to create new business ventures.

Data-exploiting: Digital transformations aim at better utilizing the amounts of data that accrue from interacting with digital technology and digital platforms (i.e., our digital traces). Datafication refers to the desire to use big data, predictive analytics, artificially intelligent algorithms and other tools and techniques to transform organizations into data-driven enterprises. Datafication can alter how knowledge is gained, managerial actions are taken, and service is provided.

² A Stronger and More Secure Digital Denmark, Digital Strategy 2016-2020 / The Government / Local Government Denmark / Danish Regions

At the same time, datafication calls for due care in terms of aspects such as data privacy, the reliance on algorithmic decision-making, and the impacts of business automation on human labour. Therefore, the analysis, the discussion, and the development of the ethical and legal norms related to the use of data are as inherent to digital transformation as the technology itself.

Relational and combinatorial: Digital technology is different from other technology in that it deeply integrates with our everyday lives and connects and relates everything – subjects and objects. Digital transformations combine technology in novel ways and strengthen the symbiosis between humans and technology. Individuals (we, the subjects) typically have one or multiple digital identities and enhance our communicative and functional abilities through a wealth of smart devices, apps, and trackers (e.g., for maintaining relationships, navigating from A to B, or staying healthy).

With the Internet of things, more and more objects (e.g., vehicles, goods, wearables) become part of this network and serve as autonomous senders and receivers of information. A key aspect in the digital transformation of manufacturing (also referred to as Industry 4.0) is, therefore, the integration of digital technologies in core work processes and products. Cyber-physical systems combine wireless connectivity, sensors, and software components in a way that drastically changes and often reduces human work across many manufacturing and service processes.

Non-linear: The pathways of digital transformations are often not linear, but unpredictable, characterized by an accelerating speed of change, and rapid disruptions. The process of how new digital players replace traditional roles and systems is often chaotic and destructive for the incumbents. Among the commonly cited digital disruptors are, for example, Uber in mobility, AirBnB in hospitality, PayPal in payments. Incumbents try to learn from the disruptors and adjust their traditional business models, with varying degrees of success.

In fact, digital transformations have staggeringly high failure rates in both public and private companies. Prominent failures in Denmark have occurred in the tax recovery system (EFI), in public safety (PolSag), and in the insurance field (Proask), to mention only a few examples. Executing digital transformation can thus pose tremendous challenges to an organization for it requires bringing purposeful change to complex sociotechnical systems.

2. Approaching Digital Transformation: Enquiry and Action

How can CBS as a knowledge institution address the digital transformation as a phenomenon with all its facets? How can CBS help our students become part of a society that seizes the opportunities and masters the challenges of digitalization? And what are the core CBS-values that we want to emphasize in this process? – This section describes principles for approaching the digital transformation theme from a business school perspective.

The panel of digitalization experts converges in that a business school as CBS needs to approach digital transformation through a duality of enquiry and action. Enquiry represents the more critical perspective that allows students to reflect upon on digitalization phenomena, the "knowing why." Action represents the more normative perspective that lets students act responsibly in a digitally transforming world, the "knowing how."

Enquiry and action both inform and feed into each other, as indicated by the spiral arrow in Figure 1. Students need to understand the technology and its impacts to critically reflect upon the challenges and their possible normative solutions. As actors in society, in turn, they also need to critically reassess the systemic effects of their actions and the efficacy of their solutions. Although the

organization is a core unit of analysis and intervention at a business school, other levels of enquiry and action are as well applicable to this duality.

Enquiry into digital transformation in particular covers the following fields:

- **Understanding technologies and applications**: Recognizing which digital technologies are developed by businesses; Identifying in which work processes they are used by organisations and individuals; Evaluating the advantages and disadvantages of these technologies.
- **Evaluating digital transformation potentials**: Assessing the business opportunities related to the application of digital technologies; Recognizing effective forms for transformation; Explaining digital transformation failures.
- **Relating the digital to its societal context**: Analysing the ethical, political, and legal dimensions of digitalization; Understanding regulation of digital assets, data privacy, and security; Assessing societal implications on human life, power, and societal wellbeing.

Action on digital transformation in particular covers these fields:

- **Applying digital technologies and tools**: Using analytics tools to turn data into meaningful information; Applying predictive algorithms to recognize their strengths and weaknesses, creating and co-creating prototypes; Utilizing data productively in business operations.
- **Designing digital business opportunities**: Creatively exploring problems and solutions; Designing, testing and adapting digital tools; managing operational and strategic digitalization projects; Instantiating and innovating digital business models.
- **Leading digital and societal change:** Actively creating and shaping the digital transformation; Acting responsibly with data and digital assets; Providing input to policy change; Making ethically sound decisions in the interest of society.

3. Value Creation: Business in Digital Society

The iterative going back and forth between critical enquiry and normative action, if anchored in research-based education at CBS, will sustain value and knowledge creation in the digital society.

CBS is in a good position to embed enquiry and action on digital transformation more deeply in curricula and teaching. The wide range of areas taught at CBS caters to the breadth of the digital transformation theme. Study programs can draw on the deep knowledge and the interdisciplinarity in our research to reflect digital transformation broadly. Some faculty already addresses aspects of digital transformation in different contexts. The question of how enquiry and action can take an even more prominent role in the curricula at CBS will be the point of departure of the next stages of the curricular review process.

The focus on digital transformation contributes to the CBS Business-in-Society strategy. As a business university, we strive to be a contributing part of society, creating knowledge and value at all levels – for individuals, organizations, and society as a whole. The combination of critical enquiry and innovative action is more relevant than ever for a fast-changing and digitally transforming society. Not only can this focus on digitalization help us produce graduates who will create value to business and society by being able to reflect and act responsibly in a digitally transforming world. It can also strengthen the link between research, education and societal practice, business and politics more broadly.

The CBS strategy until 2020, Business in Society, therefore also applies for CBS acting in a digitally transforming society: Business in Digital Society.

Appendix: Methods

In three roundtable meetings, faculty with specific expertise in digital transformation and from different departments at CBS gave input to the curriculum review process *towards curricula for business in digital society*. The selection of experts aimed to represent the broad scholarly field of digitalization as well as the interdisciplinarity found at CBS (see Table 1 below). The Dean of Education invited to and moderated the meetings.

The first roundtable (March 29) meeting focused on explaining the objectives of the curriculum review process and sharing the different backgrounds of the researchers who served as an academic panel for this process. In the second roundtable meeting (April 29), the expert panel worked and agreed upon a common structure including three questions the paned would need to respond to.

The expert panel responded to the following questions:

- 1. What is a possible CBS definition of the digital transformation?
- 2. From a CBS viewpoint what are dominating systems in the digital transformation?
- 3. Build a narrative that can bridge and transgress the dichotomy of the operational/engaging perspective and the critical/normative perspective.

Two of the authors of this document reviewed these written inputs and synthesized them in a first version of the framework depicted in Figure 1. At the third roundtable meeting (June 3), the group discussed and further refined this framework. This report is based both on the review of the written inputs from the expert panel as well as on additional inputs gained from the discussions.

Name	Title	Department	Role
Andreas Wieland	Associate Professor	OM	Expert
Andrej Savin	Associate Professor, Director of CBS Law	LAW	Expert
Antonia Erz	Associate Professor	MARKTG	Expert
Attila Marton	Associate Professor	DIGI	Expert
Cédric Schneider	Associate Professor	ECON	Expert
Charlotte Hansen	Platform manager	MSC	Co-author
Christina D. Tvarnø	Professor	LAW	Expert
Gregor Halff	Dean of Education	MSC	Moderator, co-author
Hans Krause Hansen	Professor	MSC	Expert
Ioanna Constantiou	Professor WSR	DIGI	Expert
Jesper Bjørn	Platform manager	MSC	Co-author
Lars Bo Jeppesen	Professor	SI	Expert
Michael Werner	Associate Professor	ACC	Expert
Mikkel Flyverbom	Professor WSR	MSC	Expert
Rasmus Johnsen	Associate Professor	MPP	Expert
Till Winkler	Associate Professor	DIGI	Expert, co-author
Ursula Plesner	Associate Professor	IOA	Expert

Table 1. Participants of the Roundtable Meetings