

# Unpacking an umbrella term: Business dimensions of Digital Transformation

Working Paper Series



**BUSINESS SCHOOL**  
AALBORG UNIVERSITY



**BUSINESS  
DESIGN  
LAB**

**Business Design Lab**

Aalborg University

Working paper

01 / 2020

Rev. April 2020

## Unpacking an umbrella term: Business dimensions of Digital Transformation

Jeanne S. Bentzen\*, Kristian Brøndum\*, Christian Byrge\*,  
Anders Drejer\* , Lorenzo Massa<sup>1\*</sup>, Jesper C. Sort\*, and Peter  
Thomsen\*

Business Design Lab, Aalborg Business School  
Aalborg University, Denmark

### Abstract

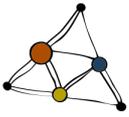
For a long time, business models and business model innovation has received increasing attention. Recently, a new phenomenon regarding transformations enabled by digital technology has emerged. In this paper, we propose a way to unpack the notion of digital transformation along with different dimensions of transformation.

**Keywords:** Digital transformation, Digital technology, Business model innovation

*Please cite this paper as: Bentzen et al. (2020) Unpacking an umbrella term: Business dimensions of Digital Transformation, Business Design Lab, Aalborg University, Working Paper 01/2020*

---

<sup>1</sup> Corresponding author – [lorenzo.massa@business.aau.dk](mailto:lorenzo.massa@business.aau.dk)



**Business Design Lab**

Aalborg University

Working paper

01 / 2020

Rev. April 2020

## 1. Introduction

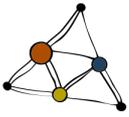
Since the 1990s, there has been an increased interest in the notion of business model (BM) and business model innovation (Foss & Saebi, 2017). Scholars tend to agree that four main events, or “themes”, have concurred to catalyse and sustain interest for this construct (Zott, Amit & Massa, 2011). These are: the advent of the Internet and advances in ICT (Amit & Zott, 2001), interest for the Bottom of the Pyramid (Prahalad & Hart, 2002; Seelos & Mair, 2007), sustainability concerns (London & Hart, 2004; Schaltegger, Ludeke-Freund, & Hansen, 2012) and post-industrial technologies, such as software (Perkman & Spicer, 2010), biotech or nanotech (Bonaccorsi, et al. 2006)<sup>2</sup>.

More recently, a new emerging phenomenon, namely the transformations enabled by digital technologies (DTech), has started to make an inroad into the business model discourses (e.g., see Teece, 2017; Teece & Linden, 2017). Digital technologies seem to be the catalysts for the design of new business models based on multisided platforms, social networks, and (digital) content providers. On the other hand, these novel BMs can be a source of disruption for existing companies and even industries. Companies found themselves in the position of having to rethink their BM in light of the competition coming from companies that design their offerings by leveraging the potential of new digital technologies. These changes can be pervasive, a fact that may have led to the adoption and increasingly popular new term: digital transformation (DT).

The emerging literature on DT is a concept rise with confusion. There are interesting overlaps to what has already happened with the BM construct. Many of the publications on the topic are emerging from practitioners related outlets, such as MIT Sloan Management Review, Harvard Business Review and even the so-called “grey literature” (e.g., World Economic Forum, 2018). While insightful, these publications often do not hold to the standards of rigour - including construct validity and definitional issues - which characterise peer-reviewed academic outlets. As a consequence, we are left with a common-sense understanding of DT derived from our direct experience of its effects on our everyday lives, or the often taken-for-granted intuitive understanding we derive from these practitioner-oriented publications. This understanding is vague and, if coupled with the concept of BMs, which itself is characterised by substantial definitional debate, risks are that the

---

<sup>2</sup> All these phenomena have opened up opportunities for the design of novel forms of boundary spanning activity systems, and scholars have often referred to them as the design of novel BM. See Massa et al. for an explanation.



**Business Design Lab**

Aalborg University

Working paper

01 / 2020

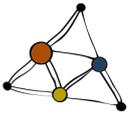
Rev. April 2020

desirable cumulative process is jeopardised, and the divergence of perspective will continue.

One way to mitigate this risk, we contend, is by appreciating that DT is an umbrella concept embracing different manifestations of both digital technologies and transformations which are conceptually distinct. If what we contend is true, then a possible way to promote cumulative progress is by reflecting on “types” of digital transformations. Before we jump into investigating the nexus between BMs and DT, we need to understand what we mean by the latter.

Building on these premises, the goal of this paper is to illustrate a possible way to unpack the concept of DT to identify conceptually distinct “types” that would support research at the nexus between BMs and DT. Indeed, an important step towards developing knowledge about an emergent phenomenon, and a central objective of scientific enquiry, is to create order by organising the various manifestations of the phenomenon into classes. If DT manifests in modalities that are different, then knowledge about these differences is essential.

Firstly, knowledge about different types of DT can support researchers and practitioners to more efficiently investigate and understand the phenomenon by offering the basis for ordering and comparing, storing and subsequently retrieving knowledge. Similarly, it can offer the starting point for other researchers to criticise the offered understanding of the structure of DT and offer better ones. From a theoretical standpoint, there are several possible ways to classify social and organisational phenomena (McKinney, 1966), including DTs. In this sense, we do not intend to claim that our proposed approach will represent a universally valid way of classifying DTs. Rather, it should be understood as a proposal for a new understanding of BM by breaking down the continuum of DT into discrete, conceptually different manifestations that are better suited for investigation and understanding. Secondly, a classification can simplify cognition and facilitate effective communication among actors engaged in collaborative efforts, whether researchers or practising managers (Rohrbeck et al., 2013; Gassmann et al., 2015). Thirdly, well-ordered knowledge provides the basis for midrange theorising about the forces at work within specified manifestations of DT and allows practitioners and researchers to formulate and test contingent hypotheses (Lambert, 2015; Rich, 1992). Fourthly, DT classifications can be used to inspire managers and entrepreneurs to envision opportunities for embracing DT in relationship to the contextual factors and the idiosyncratic aspects characterising single firms and their markets.



**Business Design Lab**

Aalborg University

Working paper

01 / 2020

Rev. April 2020

## 2. Method

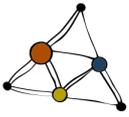
A framework for classification of DT provides an alternative to the idea that the way DT manifests is such that the changes (transformations) it enables are either all alike or are all individually unique (McKelvey & Aldrich, 1983). Classifications in social science - from sociology (Bailey, 1973) to management (e.g., see Rich, 1992) - have been subject to substantial debate, including the BM literature with reference to BM patterns and archetypes (Lüdeke-Freund et al., 2018). According to Rich (1992), there are three possible ways of offering classification: traditional (based on common sense), theoretical (based on a priory theory/heuristic), and empirical (based on a posteriori/arithmetical procedure). And there are four possible philosophical approaches to classification each based on different assumptions about social reality (Rich, 1992). It is beyond the goals of this paper to dig into this level of discussion (see Rich, 1992, for the strengths and weaknesses of each approach).

What is critical for us, however, is to provide transparency on the approach and the criteria employed. In specific, the level of thinking and the choices that were made to come up with the proposed classification. We concur with others (e.g., see Rich, 1992; Ludeke-Freund et al. 2018) that being explicit on the fundamental criteria and choices employed is necessary to make a classification procedure visible to other researchers - and not only the resulting scheme. In turn, this step is critical to ensure their ability to build-on, replicate, and constructively criticise the proposed scheme, fostering cumulative progress.

We followed a *theoretic-empirical classification* approach to taxonomy development (e.g., see Ludeke-Freund et al. 2018 for a similar approach applied to patterns of business models for sustainability). This approach involves specifying the underlying philosophy (Table 1) and relative assumptions, defining an overarching classification theory for DT (section 2.1), determining and selecting relevant characteristics (information about the characteristics previously specified) (section 2.1), identifying according entities (instances of DT) (section 2.2), and finally assigning these entities to emerging groups (classifying them into distinct groups) (Section 3).

-----  
INSERT TABLE 1 ABOUT HERE  
-----

The fundamental philosophy is midrange essentialism/nominalism (Table 1). According to this perspective, social phenomena, such as DT, have a fundamental empirical manifestation by which they



**Business Design Lab**

Aalborg University

Working paper

01 / 2020

Rev. April 2020

can be named and grouped (essentialism). Still, the complexity of such phenomena and the fact that observers embrace different viewpoints means that there are several possible ways of classifying. Grouped phenomena, thus, are artificial constructs in the sense of being produced artificially as a result of fundamental assumptions on the nature of social reality and explicit criteria.

### **2.1. Overarching classification theory**

From a semantic perspective, DT implies that something is transformed by mean of digital technologies. Two important questions arise: 1) What is being transformed? And 2) What digital technologies drive those transformations? In this short paper, we focus on the first question.

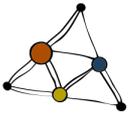
We explicitly decided to anchor the first question to a business-centric unit of analysis, as opposed to, for example, an answer that would take society (and societal changes) as the reference unit of analysis. Thus, we focused on transformation in different areas of a business. As a starting point, we employed a standard categorisation of different dimensions of innovation, namely product/service, processes, organisational innovation and BM innovation as described by Zott and colleagues in relationship to the BM construct (Zott et al., 2011<sup>3</sup>, see also Massa & Tucci, 2013). According to this perspective, DT may involve a transformation of product/services, of processes, of organisational structure (broadly defined) and of BMs. We considered this to be a sufficiently parsimonious and yet comprehensive starting point. In discussing these dimensions, we anchored to the idea that each one entails a different perspective, respectively the perspective of the product/service designer, of the operations manager, of the HR manager, and the perspective of the strategy and/or innovation architect. Taking these “perspectives” into considerations is useful to identify different areas in which DT can manifest within a business.

### **2.2. Identification of “entities” of digital transformation**

This phase involved the identification of empirical manifestation of DT. To do this, we combined analysis of the published literature with five exploratory interviews with senior managers and senior consultants working with DT. The exploratory interviews were all conducted by the corresponding author of this paper and involved open-ended conversations aimed at offering initial insights that would support the need for unpacking DT into different types and a reflection on the possible criteria for classification. Concerning

---

<sup>3</sup> Another additional dimension to consider in this specification of dimensions of innovation would be the ecosystem. Given that, in many instances, the ecosystem comprises several actors who are not directly under the control of a single firm, we decided - for now - to skip this additional possible dimension of innovation/transformation.



**Business Design Lab**

Aalborg University

Working paper

01 / 2020

Rev. April 2020

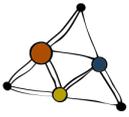
the literature review, we started by searching through the leading academic and practitioner-oriented management journals. Since DT is a relatively new topic, we chose to focus on a recent period, namely from January 2008 to January 2020. The list of journals included eight academic journals: Academy of Management Journal (AMJ), Academy of Management Review (AMR), Administrative Science Quarterly (ASQ), Journal of Management (JOM), Journal of Management Studies (JMS), Management Science (MS), MIS Quarterly, Organization Science (OS), and Strategic Management Journal (SMJ). To these, we added four of the leading practitioner-oriented journals: the California Management Review (CMR), Harvard Business Review (HBR), MIT Sloan Management Review (MSM) and MIS Quarterly Executive.

We performed the literature review using the Scopus and EBSCOhost databases with search filters. We searched for the terms Digital Business, Digital Transformation, Digital Business Strategy and Digital Business Model<sup>4</sup> in the title, abstract or keywords. This initial search returned a sample of 115 papers. Adding to this sample, we performed a Google scholar search with the same key terms but without period restrictions to find highly cited and relevant papers within the area. This search led us to include 15 additionally papers, which resulted in a sample of 130 papers.

Through reading the abstract and/or introduction of the 130 papers, we identified the papers most relevant for performing an in-depth read, which left us with 52 papers. The papers excluded in this process only marginally focused on DT or had a very narrow focus. Each author in this paper independently read ten common papers which were deemed to constitute a common ground. We adopted a standard protocol for the analysis of the articles, aimed at identifying emerging insights, in addition to the possible insights on types of DT (by request, the standard protocol is available from the authors). The remaining 42 papers were divided among the different authors and analysed individually adopting the protocol. We held meetings to both fine-tune the protocol based on the common papers as well as to analyse the results from the analysis of the individual papers. This led to the identification of several possible instances of DT explicitly or implicitly described in the received literature, which we used as the basis for subsequent sense-making.

---

<sup>4</sup> An example of the search string used on Scopus: TITLE-ABS-KEY ( "Digital" business" OR "digital" trans" OR "digital" business strateg" OR "Digital" business model" ) AND PUBYEAR > 2008 AND ( LIMIT-TO ( SRCTYPE , "j" ) ) then adding the specific journal



**Business Design Lab**

Aalborg University

Working paper

01 / 2020

Rev. April 2020

### **2.3. A classification framework for Digital Transformation**

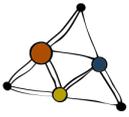
The resulting framework is presented in Table 2. An extended version is presented in Appendix 1.

-----  
INSERT TABLE 2 ABOUT HERE  
-----

According to this perspective, there are four main dimensions of DT based on the transformations that DTech allow in a business. As mentioned earlier, we took the perspective of the major dimensions of innovation, seen from those responsible for the main areas of innovation, namely product/service design, processes and operations, organisational innovation and BM innovation. The first class of transformation involves the possible transformation of the product/service mix that DTech enable (Kane, 2017). These include, for example, turning consumers into prosumers, enabling consumers to participate to the design of the offering in early stages, and – in general - several other product-service mixes that are changing the nature of the relationship between the firm and its customer (Weill & Woerner, 2013; Li, 2018). The second class includes all transformations that involves the re-engineering or redesign of specific processes in an organisation (Mithas et al. 2013; vom Brocke et al., 2014; Lanzolla & Giudici, 2017). The third class involves transformations at the structural level of an organisation (Kane et al., 2019). Notable recent trends, powered by DTech, include the redesign of work procedures in organisations, for example virtual teams. Finally, DTech allows to rethink entire BMs (Libert et al. 2016; Michelman, 2018), as illustrated in Table 2.

### **3. Conclusions**

Understanding and building theory on DT may benefit from appreciating that DTech is allowing different types of innovation in various areas of businesses. In this paper, we propose a way to unpack the notion of DT along with different dimensions of transformation. We hope the proposed scheme can help scholars better orient their research effort on DT.



**Business Design Lab**

Aalborg University

Working paper

01 / 2020

Rev. April 2020

## References

Amit, R., and Zott, C. (2001), "Value creation in e-business," *Strategic Management Journal*, 22, pp. 493-520.

Bailey, K. D. 1973. Monothetic and polythetic typologies and their relation to conceptualization, measurement and scaling. *American Sociological Review*, 38: 18-33.

Bonaccorsi, A., Giannangeli, S., and Rossi, C. (2006), "Entry strategies under competing standards: Hybrid business models in the open source software industry. *Management Science*," 52(7), pp. 1085-1098.

Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation: How far have we come, and where should we go?. *Journal of Management*, 43(1), 200-227.

Gassmann, O., Frankenberger, K., Csik, M., 2014. The business model navigator. In: 55 Models That Will Revolutionise Your Business. Pearson Education Limited.

Kane, B. G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2019). Accelerating Digital Innovation Inside and Out. *MIT Sloan Management Review and Deloitte Insights*, 60471.

Lambert, S., 2015. The importance of classification to business model research. *J. Bus. Models* 3 (1), 49-61.

Li, F. (2018). The digital transformation of business models in the creative industries: A holistic framework and emerging trends. *Technovation*, <https://doi.org/10.1016/j.technovation.2017.12.004>

London, T., & Hart, S. L. 2004. Reinventing strategies for emerging markets: Beyond the transnational model. *Journal of International Business Studies*, 35: 350-370.

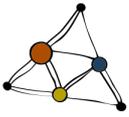
Lüdeke-Freund, F., Carroux, S., Joyce, A., Massa, L., & Breuer, H. (2018). The sustainable business model pattern taxonomy—45 patterns to support sustainability-oriented business model innovation. *Sustainable Production and Consumption*, 15, 145-162.

Malhotra, A., Majchrzak, A., Carman, R., & Lott, V. (2001). Radical innovation without collocation: A case study at Boeing-Rocketdyne. *MIS quarterly*, 229-249.

Massa, L., & Tucci, C. L. (2013). Business model innovation. *The Oxford handbook of innovation management*, 20(18), 420-441.

McKelvey, B., & Aldrich, H. 1983. Populations, natural selection, and applied organizational science. *Administrative Science Quarterly*, 28: 101-128.

Perkmann, M., and Spicer, A. (2010), "What are business models? Developing a theory of performative representation," in Professor M. Lounsbury (Eds.) *Technology and organization: Essays in honour of Joan Woodward* (Research in the Sociology of Organizations, Volume 29, pp. 265-275), Emerald Group Publishing Limited.



**Business Design Lab**

Aalborg University

Working paper

01 / 2020

Rev. April 2020

Prahalad, C. K. and Hart, S. (2002), "The fortune at the bottom of the pyramid," *Strategy & Business*, 26, pp. 2-14.

Rich, 1992. The organizational taxonomy: definition and design. *The Acad. Manag. Rev.* 17 (4), 758–781.

Rohrbeck, R., Konnertz, L., Knab, S., 2013. Collaborative business modelling for systemic and sustainability innovations. *Int. J. Technol. Manage.* 63 (1/2), 4–23.

Schaltegger, S., Lüdeke-Freund, F., & Hansen, E. G. 2012. Business cases for sustainability: The role of business model innovation for corporate sustainability. *International Journal of Innovation and Sustainable Development*, 6: 95–119.

Seelos, C., and Mair, J. (2007), "Profitable business models and market creation in the context of deep poverty: A strategic view," *Academy of Management Perspectives*, 21, pp. 49-63.

Teece, D. J., & Linden, G. (2017). Business models, value capture, and the digital enterprise. *Journal of Organization Design*, 6(1), 1-14.

Teece, D. J. (2018). Profiting from innovation in the digital economy: Enabling technologies, standards, and licensing models in the wireless world. *Research Policy*, 47(8), 1367-1387.

vom Brocke, J., Debortoli, S., Müller, O., & Reuter, N. (2014). How in-memory technology can create business value: insights from the Hilti case. *Communications of the Association for Information Systems*, 34(1), 151-167.

World Economic Forum, 2018. Digital Transformation Initiative. Executive Summary. Available at <http://reports.weforum.org/digital-transformation/wp-content/blogs.dir/94/mp/files/pages/files/dti-executive-summary-20180510.pdf>

Zott, C., Amit, R., & Massa, L. (2011). The business model: recent developments and future research. *Journal of management*, 37(4), 1019-1042.

**Table 1 - underlying philosophy – assumptions**

Underlying theory	Essentialism	Nominalism	Resulting approach
Underlying assumption	DT has a fundamental empirical manifestation by which different types of DT can be identified, named and grouped.  Aristotelian logic and Linnaeus 18 <sup>th</sup> century classification scheme provide the underlying theory.	Groupings of DT are artificial, socially constructed constructs that exist only to serve the scientific community’s need to understand phenomena (Baum, 1988). Reality is socially constructed (Berger & Luckman, 1967)	DT has a fundamental empirical manifestation, which, due to complexity, and the need to simplify cognition, cannot be fully captured. Different non-equivalent observers will produce non-equivalent classification schemes. Several are possible. None is universally better than another.

**Table 2 - a Typology of Digital Transformations (short)**

Dimension of Transformation (perspective assumed)	How (what Digital Technology allows)	What (possible outcomes of the transformation)	Examples
<b>1. Product / Service Transformation</b> (Perspective: product / service designer)	Service (from Physical/Analogue → Web based → Mobile based)	<ul style="list-style-type: none"> <li>Change the nature of relationship between firm/customer</li> <li>Pro-sumption</li> <li>Customers shifting from a “passive” to an “active” role</li> </ul>	<b>Danske Bank</b> <b>Ryan air</b> <b>Marriott</b>
	Product Co-Creation and customization	<ul style="list-style-type: none"> <li>From Products to whole Customer Experiences<sup>5</sup></li> </ul>	<b>Lego, Nike</b>
	Moving from “leading products” to “leading customer experience”	<ul style="list-style-type: none"> <li>Adding value for the customers</li> <li>Getting new customer segments</li> <li>New revenue/profits</li> <li>Cost reduction</li> <li>Efficiency</li> <li>Speed</li> </ul>	<b>LexisNexis</b> <b>USAA</b>
<b>2. Processes Transformation</b> (Perspective: Operations Manager)	Process Automation (Robotics)	<ul style="list-style-type: none"> <li>Cost reduction</li> <li>Efficiency</li> <li>Speed</li> </ul>	<b>Med24</b> <b>Coolshop</b> <b>Amazon</b>
	Optimisation - Use digital technology (software, tags, IOT) to optimize processes	<ul style="list-style-type: none"> <li>Planning → Optimization → Process Efficiency → Cost reduction and value to the customer</li> </ul>	<b>American Airline</b>
	Utilize digital sales/promotion channels	<ul style="list-style-type: none"> <li>Bigger outreach OR hit target customers</li> <li>Cost reduction</li> <li>Agility</li> <li>Utilize the new ways of performing marketing online to target the core customers</li> </ul>	<b>Alex Springer</b>
	Using chips/tracking and digital platform to optimize management	<ul style="list-style-type: none"> <li>Optimizing</li> <li>Efficiency</li> </ul>	<b>Post-Nord, UPS</b> <b>UPS</b>

<sup>5</sup> Customers are more and more getting used to getting a “whole package” around products and services and are not “just” looking for the best product, but the best bundle of products/services.

<b>Dimension of Transformation</b> (perspective assumed)	<b>How</b> (what Digital Technology allows)	<b>What</b> (possible outcomes of the transformation)	<b>Examples</b>
		<ul style="list-style-type: none"> <li>• Keep better track of inventory and assets to better utilize these</li> </ul>	<b>Hilti</b>
3. <b>Organisation structure</b> (Perspective: HR manager, Organization Designer)	Use of cloud, document sharing, teleconferencing tools, work platforms, to design new ways of working (Virtual collaboration/teams - Smart working)	<ul style="list-style-type: none"> <li>• Cost reduction<sup>6</sup></li> <li>• Virtual teams</li> <li>• Flexibility</li> <li>• Skills available</li> </ul>	<b>Boeing- Rocketdy</b>
4. <b>Business model Transformation</b> (Perspective: Strategist – Innovation Architect – Business Designer)	Multisided Platforms – web based and mobile based	<ul style="list-style-type: none"> <li>• From offering value to the customer (passive - receive) to enabling customers create their own value (active - design)</li> <li>• Long tail</li> <li>• Matching (dispersed) demand and supply</li> <li>• Scalability</li> <li>• Using digital technology to enable these platforms online and on mobile platforms</li> </ul>	<b>AirBnB Über Alibaba Apple</b>
	Subscription-based models	<ul style="list-style-type: none"> <li>• Customers’ “lock-in”</li> <li>• Periodic and more predictable payments</li> </ul>	<b>Adobe Blacksox.com</b>
	Data Monetization	<ul style="list-style-type: none"> <li>• Offer a service for free to users in exchange of data which are monetized elsewhere</li> </ul>	<b>Patientslikeme.com</b>

<sup>6</sup> Cost reduction could both be the reduced need for physical spaces and “outsource” functions like call centres. Further, reduce traveling cost when you can collaborate virtually. A broader availability of skills, you can have employees sitting in countries/regions with the most/best skills within an area and have them part of the team without having them physically present.

## Appendix 1 – a Typology of Digital Transformations (extended)

Dimension of Transformation (perspective assumed)	How (what Digital Technology allows)	What (possible outcomes of the transformation)	Examples
<b>1. Product / Service Transformation</b> (perspective: product / service designer)	Service (from Physical/Analogue → Web based → Mobile based) (Kane, 2017)	<ul style="list-style-type: none"> <li>• Change the nature of relationship between firm/customer</li> <li>• Pro-sumption</li> <li>• Customers shifting from a “passive” to an “active” role – transfer of tasks from the firm to the customer.</li> </ul>	<p><b>Danske Bank</b> – e-banking (web) and, today, mobile banking (mobile) allow customers to do most of activities that previously required a visit to the bank.</p> <p><b>Ryan air</b> –ticket booking process has gone from agencies (booking) + airport (check-in) to online book + online and mobile check-in</p> <p><b>Marriott</b> – Changing their service from being analogue to digital. Checking in and checking out can be done online. Order room service can be done online etc. (Kane, 2017)</p>
	Product Co-Creation and customisation (customers engaged in the creation and customisation of products) - Digital interface allowing customers to create their own personalised product (e.g., shoes, music) (Li, 2018)	<ul style="list-style-type: none"> <li>• From Products to whole Customer Experiences (shift from traditional focus on traditional product development to focus on customer engagement / experience → holistic experience for the customer)<sup>7</sup></li> </ul>	<p><b>Lego, Nike</b> Create online interfaces that made it possible for customers to co-create or co-develop the products and customise them to their own preferences. Furthermore, the digital technology enabled the customer to real time see the final product.</p>
	Moving from “leading products” to “leading customer experience” (Weill & Woerner, 2013)	<ul style="list-style-type: none"> <li>• Adding value for the customers</li> <li>• Getting new customer segments</li> <li>• New revenue/profits</li> </ul>	<p><b>LexisNexis</b> - world’s largest providers of information to legal market, transformed from having the best consultants on the market that customers could hire to create unique content and a database where information would be easy to find and then have online services if the customers need further support (Weill &amp; Woerner, 2013)</p>

<sup>7</sup> Customers are more and more getting used to getting a “whole package” around products and services and are not “just” looking for the best product, but the best package of products/services.

Dimension of Transformation (perspective assumed)	How (what Digital Technology allows)	What (possible outcomes of the transformation)	Examples
			<p><b>USAA</b>, a financial service provider, reorganised its channels and call centres, consolidating them into a unified member experience organisation focused on life events rather than products. Typical life events are buying a house or a car, having a baby or getting married. (Weill &amp; Woerner, 2013)</p>
<p><b>2. Processes Transformation</b> (perspective: Operations Manager)</p>	<p>Process Automation (Robotics)</p>	<ul style="list-style-type: none"> <li>• Cost reduction</li> <li>• Efficiency</li> <li>• Speed</li> </ul>	<p><b>Med24, Coolshop, Amazon</b> Fully automated warehouses</p>
	<p>Optimisation - Use digital technology (software, tags, IOT) to optimise processes (Mithas et al. 2013)</p>	<ul style="list-style-type: none"> <li>• Planning → Optimisation → Process Efficiency → Cost reduction and value to the customer</li> </ul>	<p><b>American Airline</b>– first flight company to use software to tailor routes and flight paths to save fuel = cost reduction. Further, they were the first to use software and technology to enhance the baggage on/offloading = save time and give customers their baggage faster. (Mithas et al. 2013)</p>
	<p>Utilise digital sales/promotion channels (Lanzolla and Giudici, 2017)</p>	<ul style="list-style-type: none"> <li>• Bigger outreach OR hit target customers</li> <li>• Cost reduction</li> <li>• Agility</li> <li>• Utilise the new ways of performing marketing online to target the core customers or create a bigger outreach than previously possible.</li> </ul>	<p><b>Alex Springer</b> opened new digital sales channels for existing brands, such as digital versions of the news in the printed paper and expanding online classified advertising and in leveraging printed editorial content via multimedia channels. (Lanzolla and Giudici, 2017)</p>
	<p>Using chips/tracking and digital platform to optimise management (vom Brocke et al., 2014)</p>	<ul style="list-style-type: none"> <li>• Optimising</li> <li>• Efficiency</li> <li>• Keep better track of inventory and assets to better utilise these</li> </ul>	<p><b>Post-Nord, UPS</b> – Use digital tracking of parcels to better inform the customers about the progression of the parcel but also to enable better resource allocation knowing where the bulk of parcels are going.</p> <p><b>UPS</b> – tracking their working fleet/trucks to know where they are so they can optimise their routes and give customer precise feedback if customers are calling regarding where their parcel is</p>

Dimension of Transformation (perspective assumed)	How (what Digital Technology allows)	What (possible outcomes of the transformation)	Examples
			<p><b>Hilti</b> – tracking tools/equipment on building sites and if they work/not-working/broken down to create more value for the customer. Replacing broken tools and help identifying potential problems. (vom Brocke et al., 2014)</p>
<p>3. <b>Organisation structure</b> (perspective: HR manager, Organisation Designer)</p>	<p>Use of cloud, document sharing, teleconferencing tools, work platforms, to design new ways of working (Virtual collaboration/teams - Smart working) (Kane et al, 2019)</p>	<ul style="list-style-type: none"> <li>• Cost reduction<sup>8</sup></li> <li>• Virtual teams</li> <li>• Flexibility</li> <li>• Skills available</li> </ul>	<p><b>Boeing- Rocketdy</b> – Used virtual teams to become more agile and flexible in their innovation of new products, which led to faster improvements. Furthermore, they also used the virtual teams in their supply chain to get more rapid information and better integration, which led to more skills and lowering the costs. (Malhotra et al., 2001)</p>
<p>4. <b>Business model Transformation</b> (perspective: Strategist – Innovation Architect – Business Designer)</p>	<p>Multisided Platforms – web based and mobile based (Libert et al. 2016)</p>	<ul style="list-style-type: none"> <li>• From offering value to the customer (passive - receive) to enabling customers create their own value (active - design)</li> <li>• Long tail</li> <li>• Matching (dispersed) demand and supply</li> <li>• Scalability</li> <li>• Using digital technology to enable these platforms online and on mobile platforms</li> </ul>	<p><b>AirBnB, Über, Alibaba</b> – connecting (dispersed) demand and supply by exponentially reducing search cost (log tails). Solve “unused capacity” issues (e.g., airbnb, blablacar) - (Libert et al. 2016)</p> <p><b>Apple</b> – was early focusing on products and services, but with the introduction of app-store, iTunes etc., they now enabled music creators and music lovers to easier connect via their platform. So, the phone more became the best platform product, vs. “just” best design product.</p>
	<p>Subscription-based models (Michelman, 2018)</p>	<ul style="list-style-type: none"> <li>• Customers’ “lock-in”</li> </ul>	<p><b>Adobe</b> – moving from being a one-time payment software to be a</p>

<sup>8</sup> Cost reduction could both be the reduced need for physical spaces and “outsource” functions like call centres. Further, reduce traveling cost when you can collaborate virtually. A broader availability of skills, you can have employees sitting in countries/regions with the most/best skills within an area and have them part of the team without having them physically present.

Dimension of Transformation (perspective assumed)	How (what Digital Technology allows)	What (possible outcomes of the transformation)	Examples
		<ul style="list-style-type: none"> <li>Periodic and more predictable payments</li> </ul>	<p>subscription-based software where the focus also shifted from “best product” to “best customer experience” to enable the subscription and lock in effect. (Michelman, 2018)</p> <p><b>Blacksox.com</b> delivers socks on a monthly basis to its subscribers. Customers do not have to worry to buy socks anymore.</p>
	Data Monetisation	<ul style="list-style-type: none"> <li>Offer a service for free to users in exchange of data which are monetised elsewhere.</li> </ul>	<p><b>Patientslikeme.com</b> platform connecting patients with similar diseases – patients’ data are sold to pharmaceutical companies.</p>



**BUSINESS SCHOOL**  
AALBORG UNIVERSITY



**BUSINESS  
DESIGN  
LAB**