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ASSESSMENT OF DIGITAL TRANSFORMATION AND MODIFICATION OF BUSINESS MODELS IN YEKATERINBURG, RUSSIA: LOCAL BUSINESS SURVEY

Abstract:

With the evolution of digital technologies, the traditional system of doing business has been fractured and many companies now more than ever have to react to digitalization. The digital transformation brings innovation not only into the delivering of product. This research paper purposed to clarify the definition of digital transformation (DT) and to analyze the structured approach with phases, activities and results. This research is based literature reviews that provides insight into the basic understanding of DT as well as the approach, phases, activities and results. Based on this review, the main findings are that although DT is known to a great extent, the path to the structured DT of business models is missing. This paper offers a clear definition of the DT of business models and phases for the DT of business models, also the paper offers examples of enablers and DT.

Keywords:

Digital Transformation; business model; digitization; business model innovation; enabler.

1. Introduction

What do vehicle makers like BMW, Logistics companies such as DHL, Elevator producers like ThyssenKrupp, and the video games producer Sony, have in common? They all use the potential of digitization to offer customers smarter and faster services and actively shape their business model's digital transformation (DT). DT affects all sectors of society, in particular economies. At the same time, DT opens new networking possibilities and enables cooperation between different actors, who, for example, exchange data and thus initiate processes. In this context, the DT of business models plays an essential role because business models can be digitally transformed [1]

DT has been discussed for many years, but what is still unaccounted for is a clear blueprint of how DT of business models can be applied in practice, [1] made an extensive analysis based on existing literature and studying practical examples and the major factors unaccounted for in DT of business models is an approach for how to digitally transform business models, which phases and instruments should be considered, and examples of what enablers exist.

1.1. History of DT

The interdisciplinary nature and a relatively short history of the DT result in the lack of commonly accepted definitions, ontologies, and taxonomies [2], Also one may argue that DT is not a new concept, but merely a commercially driven refreshment of a previous trend, similar in shape

and intensity to the trend before [3] in his article explained that the ideas of digital products, services, and mediums were already well-understood in the 1990s and 2000s. For example, mass media advertising campaigns were considered important digital channels with which to reach customers in the 1990s and 2000s, even though the purchases were still made inside brick-and-mortar stores, often with cash.

From 2000 to 2015 according to [1], the rise of smart devices and social media platforms led to a drastic sea change in the methods customers used to communicate with business owners, suppliers, this same drastic change led to a change in customer expectation in regards to response times and multi-channel availability. Businesses started to see that they were now able to communicate digitally with their customers on an individual basis, and often in real-time. An ever-growing selection of digital payment options such as PayPal also contributed to more and more online commerce and opportunities and web-based points for sale.

Because of DT, Businesses now focus on creating value for customers by leveraging the kinds of personalized customer data that mobile technologies can generate on a massive scale [1]. Businesses are now taking advantage of this personalized information and can better streamline their products, communications, and interactions to suit the customers' unique needs.

1.2. Defining Digital Transformation

[2] defined DT as the modification (or adaptation) of business models, resulting from the dynamic pace of technological progress and innovation that trigger changes in consumer and social behaviors. According to [4], the main objectives of DT are obtaining new data and using this data to reimagine these old, rule-based processes.

It is important to note that there is no commonly accepted definition for the term DT. Moreover, the terms digitalization and digitization are often used interchangeably [4].

Based on the literature review by [2; 1], the following definition of DT was proposed for this research:

“The DT framework includes the networking of actors such as businesses and customers across all value-added chain segments [6], and the application of new technologies [7]. As such, DT requires skills that involve the extraction and exchange of data into actionable information. This information should be used to calculate and evaluate options, in order to enable decisions and/or initiate activities that would help increase the performance and reach of a company [6; 1].”

1.3. Defining Business Model

The definition of “business model” is subject to typical academic debates that range from simple statements and dictionary views to philosophical visions. However, the most recent definition of business model by [8] considers it to be a way by which businesses create, maintain, or keep and deliver value important for company and customer.

1.4. Defining DT of Business Model

According to [9, 1], the DT of business models relates to individual business model elements, the entire business model, value-added chains, as well as the networking of different actors in a value-added network.

The degree of the DT includes the incremental (Marginal) as well as the radical (Fundamental) change of a business model. The reference unit is primarily the customer, but a DT can also affect its own business, partners, industries, and competitors. This according to [10] is called a “Digital Disruption”.

The DT of business models requires enabler(s) and technologies that are used to generate new applications or services (on-demand prediction), through data collection and exchange as well as the ability to analyze, calculate, and evaluate options. The evaluated options are used to initiate new processes within the business model [11].

2. Research Questions

Based on the previous review of literature thereby establishing the theoretical foundation for DT and business model. Three independent existing approaches to DT have been examined for this review in regards to DT. [12] defines five phases that layout a development plan for a DT strategy and its implementation. PricewaterhouseCoopers' framework defines six phases of DT [7]. [13]

describe a more concise plan for digital transformation that is specifically designed for the digital future.

However, according to the study by [1], it was concluded that these approaches do not completely cover the DT of business models and do not specify the DT's application. This study was further ratified by [2]. Based on this study, the research questions to be answered include:

- a. What does a structured approach to the DT of business models look like?
- b. What types of phases, activities, and results are relevant?
- c. Which enablers (e.g., sensors, big data, etc.) and which applications are relevant?
- d. What examples exist for the DT of business models and what are the best practices in this field.

2.1. Research Objectives

- a. To assess the level of digital transformation and modifications of business models of local business in Yekaterinburg, Russia
- b. To identify the phases, activities and results of the transformation as applied to the international companies

2.1.1. Research Hypothesis

H₁: International companies do not know how to apply DT and modifications to their business model and do not know the approach to follow.

H₀: Organizations know how to apply DT and modifications to their business model and know the approach to follow.

2.2. Research Design

Analysis of existing definitions, approaches, and examples of the DT of business models. A literature review was done in order to gain insight into current research in DT thereby developing a roadmap for the DT of business models, including examples as adopted from [1].

A case study from the study conducted by [1] will also be applied because this methodology will prove effective and efficient in describing and analyzing relevant cases in which grounded-theory can be developed.

3. Approach to the DT of Business Models

3.1. Roadmap

[1] presented a roadmap in their study based on the presented approaches to DT and based on existing theories about business model innovation [14, 9], the Roadmap for the DT of business models is explained as follows:

a. Digital Reality: In this phase, Digital Reality, the company's existing business model is sketched along with a value-added analysis related to stakeholders and a survey of customer requirements. This provides an understanding of the Digital Reality for this company in different areas.

b. Digital Ambition: Based on Digital Reality, objectives with regards to DT are defined. These objectives relate to time, finances, space, and quality. Digital Ambition postulates which objectives should be considered for the business model and its elements. Subsequently, objectives and business model dimensions are prioritized.

c. Digital Potential: Within this Digital Potential phase, best practices and enablers for the DT are established. This serves as a starting point in terms of Digital Potential and the design of a future digital business model. For this purpose, different options are derived for each business model element and combined logically.

d. Digital Fit: The Digital Fit phase looks at options for the design of the digital business model, which are evaluated to determine Digital Fit with the existing business model. This ensures that one fulfills customer requirements and that business objectives are achieved. The evaluated combinations are then prioritized.

e. Digital Implementation: Digital Implementation includes the finalization and implementation of the digital business model. The various combinations of options are further

pursued within a digital implementation framework. The Digital Implementation also includes the design of a digital customer experience and digital value-creation network that describe integration with partners. Also, resources and capabilities are identified in this phase.

3.2. Enabler

Enablers serve to allow applications or services to be used for the DT of the business model. Four categories for enablers and applications/services are detailed below according to [1].

- a. Digital Data: The collection, processing, and analysis of digitized data to facilitate and improve predictions and decisions.
- b. Automation: The combination of classical artificial intelligence technologies that enable autonomous work and self-organizing systems. This reduces error rates, increases speed, and makes it possible to reduce operating costs.
- c. Digital Customer Access: The mobile internet enables direct access to the client, who is thus provided with high levels of transparency and new services.
- d. Networking: Mobile or wired networking of the entire value-added chain via high-speed broadband telecommunications allows for the synchronization of supply chains, which leads to a reduction in production times and innovation cycles.

3.3. Best Practices for the DT of Business Models

In order to clarify the definition of DT and to better understand a structured approach with phases, activities, and results of DT of business process, this study will be adopting a case study used in a study by [1] with an attempt to define the following;

- i. Initial situation and problem definition
- ii. Objective and solution approach
- iii. Results
- iv. Application to digital reality

3.4. ThyssenKrupp (A case study)

ThyssenKrupp is a German industrial group with different divisions. The Elevator Technology division produces passenger and freight elevators as well as escalators for office buildings, residential buildings, hotels, airports, shopping centers, and other facilities. In addition to the sale and installation of elevators and escalators, maintenance, repair, and modernization services are also offered [15].

3.4.1. Initial situation and problem definition

ThyssenKrupp's old business model mainly focused on the manufacturing of elevators, installing them, and carrying out maintenance as needed. An increasing number of tall buildings in major cities led to an increased demand for high-performance elevators. Furthermore, customers and users demanded superior elevator reliability. Also, several already-installed elevators posed a risk to users due to maintenance backlogs [16; 17]. Additionally, ThyssenKrupp's competitors began to offer elevator maintenance service packages, which is a high-margin offering compared to product sales. [18; 1].

3.4.2. Objectives and Solution Approach

The objective of ThyssenKrupp's elevator business was to reduce the duration of their elevators' outages by identifying the causes of potential failure in a predictive manner. This would ultimately allow for faster maintenance and shorter repair times. To address this concern, they created the **MAX**, Elevator Monitoring System.

The timely identification of potential causes of outages requires a real-time flow of information which provides key insights into an elevator's current status. To accomplish this, they outfitted ThyssenKrupp elevator components, such as drive motors, elevator doors, and elevator shafts, with sensors. These sensors collect information such as cabin speed and motor temperature. The information obtained is then evaluated with the help of predictive analytics and provided to employees, who are responsible for maintenance and technology. These employees now receive

warning alerts as well as maintenance guidance and recommendations. These changes allowed ThyssenKrupp to proactively carry out maintenance work and with foresight, thus reducing elevator downtime. Also, costs, resources, and maintenance planning were improved. [19, 1].

3.4.3. Results

ThyssenKrupp's MAX Elevator Monitoring System is an example of a maintenance-oriented digitization initiative. MAX collects relevant technical and mechanical information through sensors to reduce maintenance backlogs and improve ThyssenKrupp's overall maintenance services. Put simply, information that was being ignored before is now being collected and utilized to provide value to customers and create profit for ThyssenKrupp *"a textbook example of the DT of a business model"*.

DT is a continual process. One could also imagine other opportunities for DT which ThyssenKrupp could implement. For example, an interactive screen/billboard could be offered in select models of elevators. These touch screens could add value to a wide swath of stakeholders. The interactive elevator billboard could be used by ThyssenKrupp to collect customer satisfaction feedback or the interactive elevator billboard space could be leased or sold outright to end-users or third-party advertising agencies.

ThyssenKrupp's Max system increased profitability by offering a premium maintenance add-on service that promises to decrease maintenance backlogs. The proposed interactive elevator billboard space could provide an additional revenue stream via one-time sales or third-party leasing agreements. Alternatively, advertising revenue from the screens could be used to subsidize the initial list price of the elevator for builders and contractors, allowing ThyssenKrupp to position its products at more competitive price points while maintaining healthy margins vis-a-vis their competitors.

ThyssenKrupp's final decision to prioritize the MAX system probably stemmed from the realization that their in-house maintenance know-how was not being fully utilized. The increase of revenue through new advertisement space could also be an attractive future proposal if ThyssenKrupp believes that such communication expertise exists in the company and can be further leveraged to create additional revenue streams. Comparing the two examples, ThyssenKrupp's MAX maintenance system could be seen as the more pressing need, given their core competencies.

3.4.4. Application to digital reality

ThyssenKrupp digitally transformed its business model by developing an innovative maintenance management system. ThyssenKrupp's MAX system created a data-driven maintenance system which created new benefits for their customers and in turn generated a new revenue stream.

3.4.5. ThyssenKrupp's benefit dimension

The enhanced transparency with regards to the maintenance requirements provided benefits for all stakeholders. ThyssenKrupp recognized it was essential to create a new digitally-driven process but the real benefit for both ThyssenKrupp and their customers was the access to data allowing for real-time maintenance alerts. With regards to a touch panel, elevator riders are presented with an opportunity to provide personal feedback. The touchscreen itself is a relatively uncomplicated technology and its development and installation should deliver the benefit of revenue-generating advertising or gathering personal feedback [1].

3.4.6. ThyssenKrupp's value-creation dimension

The data and capabilities (i.e., resources) for such real-time maintenance alerts were always available but there were not any processes within ThyssenKrupp's business model that specifically took advantage of these resources. Once ThyssenKrupp realized the importance and value of such a maintenance system, it was clear that the development of the MAX system would be able to fulfill this value proposition. The data gathered and simultaneously delivered to both the internal and external stakeholders created tremendous value. ThyssenKrupp would probably possess the internal capabilities to develop their own interactive elevator billboard space but the development could also be handed over to other external stakeholders. Once space is created, the process of creating content could be handed off to marketing departments [1].

3.4.7. ThyssenKrupp's partner dimension

ThyssenKrupp's partners are an important part of the business model and to better integrate the partners into their business model, the value of ThyssenKrupp's maintenance services needed to be communicated. The MAX system was able to deliver this communication, which in turn improved the relations between ThyssenKrupp and their partners. The partners involved in the development of an interactive elevator billboard space would depend on who delivers the actual content. Again, ThyssenKrupp could use this space to obtain feedback about the overall elevator experience but third-party companies could use the space to communicate to their demographics. The initial development of the touch screen platform would probably also benefit from external software development and consulting.

4. Discussion

4.1. Contributions

The contribution of this literature review is to better understand through various theoretical frameworks and reviews on how to successfully execute a DT business model through the approach of DT of business model presented in the review.

4.2. Practical Implications.

Senior managers and business developers will gain from the findings by acquiring a clear definition, examples, and enablers of the DT of business models. the five-step Roadmap will also enable companies to take advantage of DT's potential [10] and reimagine their business model. By applying the Roadmap, companies can optimize their current business model and create a distinct competitive advantage.

4.3. Limitations

This review aims to disclose the essence of the problematic issues in DT of business models, research methods, and results obtained. The reader should bear in mind that due to time, and practical constraints, the results may not be fully generalizable. Furthermore, some aspects (e.g., the five-step Roadmap approach to DT of business model) need to be further investigated.

4.4. Recommendations for Further Research

Further research regarding the impact of the DT of business models would be worthwhile. For example, it would be interesting to create a knowledge-building community where researchers and practitioners can compare experiences gained from this approach in different industries and company sizes. Future studies need to establish the **quantifiable** benefits of DT.

References:

1. Schallmo, D., Christopher, A. W., & Luke, B. (2017, December). Digital Transformation of Business Models-Best Practice, Enablers, and Roadmap. *International Journal of Innovation Management*, 21(8). doi:10.1142/SI36391961740014X
2. Kotarba, M. (2018). Digital Transformation of Business Models. *Foundations of Management*, 10. doi:10.2478/fman-2018-0011
3. Auriga. (2016). *Digital Transformation: History, Present, and Future Trends*. Retrieved 01 06, 2021, from <https://auriga.com/blog/digital-transformation-history-present-and-future-trends/>.
4. Proctor, J. (2017). *Digital Transformation vs Business Reengineering (BPR)*. Retrieved January 06, 2021, from <http://content.inteqgroup.com/digital-transformation-vs-business-process-reengineering>
5. BDI, & Roland, B. (2015). *Analysis of the study — The Digital Transformation of industry, Roland Berger Strategy Consultants and the German Federation Industrie e.V.* Germany.
6. BMWi. (2015). Industry 4.0 and the digital economy - Boosting Growth Employment and innovation. *Federal Ministry of Economics and Energy, Berlin*.
7. PwC. (2016). *Digital Transformation - The biggest change since the Industrial Revolution*. Frankfurt: Pricewatercoopers.
8. Canvanizer. (2019, January 11). *Creating a new Business Model Canvas*. Retrieved 01 06, 2021, from <https://canvanizer.com/new/business-model-canvas>

9. Schallmo, D. (2016). *Now Digital Transform: How The Successful Digital Works Transformation of your business model*. Berlin: Springer-Verlag.
10. Tatiana, G., Tatiana, C., & Natalia, S. (2019). How Digital Transformation Can Influence Business Mode, Case Study For Transport Industry. *13th International Scientific Conference on Sustainable, Modern and Safe Transport (TRANSCOM 2019)*. Slovak Republic: Elsevier B.V.
11. Philip, I. B. (2021). *Literature Review of Digital Transformation of Business Model*.
12. Esser, M. (2016, 02 02). *Oppotunities and challenges through digital transformation*. Retrieved January 07, 2021, from <http://www.strategy-transformation.com/digitale-transformation-verstehen/>
13. Bouee, C., & Schaible, S. (2015). *The Digital Transformation of Industry: Study on Roland Berger and BDI*.
14. Bendor-Samuel, P. (2017, July 21). *The power of digital transformation in a data-driven world*. Retrieved January 07, 2021, from <https://www.forbes.com/sites/peterbendor-samuel/2017/07/21/the-of-digital-transformation-in-a-data-driven-world/4e1837393f2c>
15. *ThyssenKrupp* . (2016a). Retrieved January 07, 2021, from ThyssenKrupp Elevator Homepage: <http://www.thyssenkrupp-elevator.com/Unternehmen.3.0.html>
16. *ThyssenKrupp* . (2016b). Retrieved from ThyssenKrupp delivers mobility solutions for global landmarks: [http://www.thyssenkrupp-elevator.com/Eintrag-anzeigen.104.0.html?&cHash/44b80049df1e8243dcd8a7e31a8ec5c92&tx_ttnews%5Btt_news%5D1/4564\(04/20/2016\)](http://www.thyssenkrupp-elevator.com/Eintrag-anzeigen.104.0.html?&cHash/44b80049df1e8243dcd8a7e31a8ec5c92&tx_ttnews%5Btt_news%5D1/4564(04/20/2016))
17. Wetzel, D. (2014, March 17). Retrieved January 07, 2021, from Germany;s elevators are becoming a risk.: <https://www.welt.de/wirtschaft/article128523956/Deutschlands-Fahrstuehlewerdenrden-risk.html>
18. Jabil. (2019, January 11). *Digital Transformation is here. Is your Workforce ready?* Retrieved 01 07, 2021, from <https://www.jabil.com/insights/blogmain/how-to-prepare-employees-for-digital-transformation.html>
19. *CGI*. (2016, 05 20). Retrieved 01 06, 2021, from Predictive Maintenance: <https://www.de.cgi.com/casestudy/thyssenkrupp-elevator-predictive-maintenance>