

8-9-2021

Sensemaking of Digital Transformation in Organizations - A Case Study

Xavier C. Cárdenas
IE Business School, xavier.cardenas@student.ie.edu

José M. Esteves
IE Business School, jose.esteves@ie.edu

Follow this and additional works at: <https://aisel.aisnet.org/isla2021>

Recommended Citation

Cárdenas, Xavier C. and Esteves, José M., "Sensemaking of Digital Transformation in Organizations - A Case Study" (2021). *ISLA 2021 Proceedings*. 8.
<https://aisel.aisnet.org/isla2021/8>

This material is brought to you by the Latin America (ISLA) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ISLA 2021 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.



Sensemaking of Digital Transformation in Organizations - A Case Study

Research in Progress Paper

Xavier Camilo Cárdenas
IE Business School
xavier.cardenas@student.ie.edu

Jose Manuel Esteves
IE Business School
Jose.Esteves@ie.edu

Abstract

The increasing diffusion of digital technologies throughout industries and dimensions of life is transforming organizations. However, many fail to develop a digital transformation strategy. This paper presents a theoretical sensemaking model of Digital Transformation (DT) and the preliminary outcomes of an ongoing study. Organizational sensemaking theory, technological frameworks, and digital constructs support the study to understand the development of DT in organizations. The findings of the pilot case study in the hotel industry provide evidence of a framework that could help understand DT from a socio-cognitive perspective. Finally, the pilot case could be the basis for a broader framework, which academics and practitioners could use in other studies.

Keywords

Sensemaking, Digital Transformations, Technological Frameworks, Organizational Change, Digital Technologies

Introduction

In recent years, Digital Transformation (DT) has become an enormous phenomenon worldwide and a relevant topic in Information Systems (IS) research (Nambisan, Lyytinen, Majchrzak & Song, 2017; Vial G, 2019) for practitioners striving to implement DT effectively. Across industries, many companies have failed in their efforts to implement digital transformation strategies (Hess, Benlian, Matt & Wiesböck 2016; Libert, Beck, Wind 2016; Fitzgerald, Kruschwitz, Bonnet & Welch, 2013). However, the existing research fails to address this level of DT failure and the reasons behind the lack of DT strategy and development in organizations.

The contribution of the research is supported by a recent call for "new theories that explain how digital technologies enable, constrain or shape the nature of innovation as a collective action" (Nambisan, Lyytinen & Song, 2017, p.226). It has been suggested that research in DT in organizations is still in its infancy (Piccinini, 2015). Moreover, the nature of IS is changing fast, and its impact is more significant than ever before. Therefore, there is a need for new and bold theories to help understand these challenges and guide contributions (Burton-Jones, Butler, Scott & Xu, 2021).

Sensemaking is a process by which people give meaning to their collective experience (Weick, Sutcliffe & Obstfeld, 2010), used in the research to validate how corporate actors appropriate, act and make sense of IS in the local context. (Svejvig & Blegind Jensen, 2013). A technological framework model is a systematic approach for examining the underlying assumptions, expectations, and knowledge that people have about technology (Orlikowski & Gash 1994, p.2). Lastly, digital constructs understand DT as a process where digital technologies create disruptions triggering strategic responses that seek to alter their value creation paths while managing the structural changes and organizational barriers that affect this process's positive

and negative outcomes (Vial, 2019). For this reason, the study uses sensemaking theory, the technological framework model, and digital constructs to answer the question: how do organizations make sense of DT?

As a preliminary outcome, the research provides a literature review regarding previous research of DT to have a clear definition of the term and identify the constructs of the DT process. Sensemaking theory and technology framework are explored to create an integration between both theories and the constructs of DT. To test the theoretical model, the researcher conducted a case study in the hotel industry with seven semi-structured interviews and coded it to present the findings and preliminary conclusions of the model and a perspective for future research in the field.

Literature Review

DT currently lacks a comprehensive understanding of its definition and levels of analysis (Gray and Rumpel, 2017; Kane, 2017c). For this reason, the research adopted the definition of DT proposed by Gregoire Vial (2019). He defined DT as a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies.

The research adopted this definition because it is based on two essential observations. First, it is not organization-centric, meaning it involves individual, organizational, and societal contexts. Likewise, sensemaking occurs first at the individual level and is then influenced by organizational and social contexts. Secondly, the author does not use *digital technologies* in the definition because digital technologies are in constant change. Instead, Vial (2019) uses the components proposed by Bharadwaj et al. (2013) of information, computing, communication, and connectivity technologies. Using these components in the definition, instead of digital technologies, enables the research's theoretical model to evolve as new digital technologies that do not exist yet are introduced.

The research also considers the different phases of DT to identify the stage in which companies are. The first stage is digitization, which is the encoding of analog information into a digital format. The second stage, digitalization, describes how IT or digital technologies can alter existing business processes. Lastly, DT represents a company-wide change that leads to developing new business models (Verhoef et al., 2021).

The constructs of DT used in the research to understand said phenomenon are based on the building blocks of the DT process proposed by Vial (2019): digital technologies, disruptions, strategic response, structural changes, and organizational barriers, changes in value creation paths, and positive and negative outcomes. However, to understand the different factors contributing to value creation for the company, the research complements Vial's construct of value creation paths. For this, the research uses digital capabilities of customer experience, operational process, and business models proposed by Westerman, G., McAfee, A., & Bonnet, D. (2014).

This research uses the technological frameworks of Orlikowski and Gash (1994) to better understand DT in organizations from a social cognitive perspective. This perspective recognizes that mental models are particularly salient sensemaking devices during processes of organizational change. The authors define three frames that are used in the research. First is the Nature Framework, which is people's images of the technology and their understanding of its capabilities and functionality (Orlikowski & Gash, 1994, p.4). Secondly, Institutional Frameworks, people's views of why their organization acquired and implemented technology. It includes their understanding of the motivation or vision behind the adoption decisions and its potential value to the organizations (Orlikowski & Gash, 1994, p.7). Lastly, Human Frameworks refer to people's understanding of how technology will be used on a day-to-day basis and the likely or actual conditions and consequences associated with such use (Orlikowski & Gash, 1994, p.4).

This affirmation applies to this research, as it tries to understand how and why change agents decide not to appropriate and act in a DT. Sensemaking is also applicable for making plans or decisions of future events.

In sensemaking theory, Sensemaking "is the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some other way violate expectations" (Maitlis & Christianson, 2014, p.57). Technology is seen as an equivoque, meaning it admits several possible or plausible interpretations so that it can be subject to misunderstanding and complexity, especially new technologies (Weick & Quinn, 2011). This ambiguity or uncertainty disrupts the normal flow of events, causing people to be uncertain about acting. In this case, digital technologies disrupt organization members' ongoing flow, causing discrepancies and thus, triggering sensemaking.

Theoretical Model to Develop Digital Transformation Integrating Sensemaking and Technology Frameworks

The theoretical model proposed for this research shows the development of DT (Vial, 2019) integrating sensemaking (Weick, Sutcliffe, & Obstfeld, 2010) and technological frameworks (Orlikowski and Gash 1994) (Figure 1). For a better understanding of how these three elements interact among themselves, the model includes two axes. It shows the three technological frames on the vertical axis: nature, institution, and human, and the sensemaking process of ecological change, enactment, selection, and retention on the horizontal axis. In the model, constructs to develop DT can interact with these two axes, creating an integrated perspective of the three.

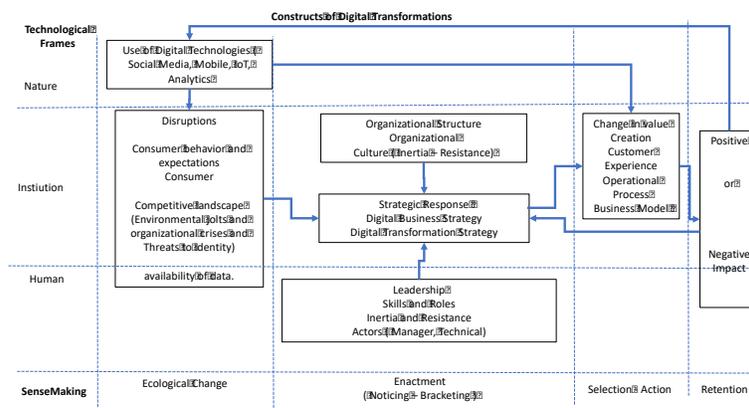


Figure 1. Theoretical Model to Develop a Digital transformations

Source: Elaborated by the authors

Research Instrumentation

To answer the research question, the study conducted a pilot case study. Following the principles mentioned by Yin (2003), the researcher conducted a pilot case study in a hotel chain in Latin America. A multiple case study is suitable for studying a difficult phenomenon to control or manipulate behaviors. The boundaries of the phenomena are not evident, or there are multiple variables in the research (Yin, 2003). DT is a phenomenon with multiple variables or constructs, and the presumed causal links in real life are too complex to understand for other methods.

Seven semi-structured interviews with the C level and middle management were performed during the first semester of 2020. The analysis was conducted in the hotel industry since new actors have appeared in its digital space, challenging the status quo and disrupting the actual business (Jayawardena, Lawlor, Grieco, & Tarnowski, 2013; Gil-saura & Moliner-vela 2011; Kane, 2015).

The data analysis first consisted of coding each construct, sensemaking phase, and technology framework exposed in the model during the interviews. Then, the data analysis continues by evaluating the frequency query of appearance and the relationship between each construct, sensemaking phase, and technology framework. A matrix query using NVIVO was used to understand the relationship between the constructs, the sensemaking phase, and the technology frameworks. Additionally, to validate the coding, two researchers did the coding separately for two of the interviews, leading to a coding comparison with a value Kappa of 0.8, which supports a strong level of agreement.

Conclusions and future directions

The preliminary findings from the pilot case study show that there is no consistent understanding and definition of DT among the organization members. DT is interpreted as completed when it is only in the digitizing phase or at most at the digitalization stage, not DT. This is the first challenge in sensemaking because each member has a different interpretation, leading to a misunderstanding in the conception of the scope of DT.

Regarding the constructs of DT, the study identified that all of them are present. However, there is a lack of knowledge, development, emphasis, or omission of the elements that constitute each construct. There is a lack of technical expertise in IoT, mobile, ecosystems, and social media in digital technologies, and the emphasis is analytics. There is a significant emphasis on the competitive landscape in the disruption construct rather than consumer behavior and data availability. The constructs of skills, roles, leadership, culture, resistance, and inertia have a strong recurrence in the study, which could validate the emphasis of the social-cognitive aspect of DT. Continuing with the construct of strategic response, the organization members did not mention a formal digital business strategy or digital transformation strategy during the interviews.

On the other hand, in the construct of change in value creation, a construct of the DT model was identified. However, it emphasized operational efficiency and customer experience rather than business model changes. This could create a limitation of the scope and opportunities that the organization leverages from DT. Lastly, regarding the construct of DT impacts, there is evidence that the participants recognized more the positive outcomes than the negative ones, not even mentioning privacy and security, as defined in the theoretical model.

Continuing with the theoretical model analysis, the study identified the relationship between constructs and the technological frameworks with the sensemaking process. The study determined a lack of knowledge of digital technologies in all phases of sensemaking, leading to a technical unawareness and, therefore, to the possible inadequate sensemaking of DT. Additionally, the strategy construct is absent or null in the sensemaking research results. Although DT's impacts and value creation effects are considered, a clearly defined strategy does not appear in any sensemaking phase.

Regarding technology frameworks and sensemaking, the study identified that the sensemaking model occurs mainly at the institution framework, referring to people's views of why their organization acquired and implement technology. This includes their understanding of the motivation and vision behind the decisions and value to the organization. Since the proportion of sensemaking in the human and nature framework is lower than the institution framework, it could be possible that this overemphasis misleads the perceptions of DT, which could be perceived as something the organization must do, but it is not an individual responsibility. It could also be perceived as something that will benefit the organization but will not affect people's day-to-day work routines.

It is evidenced that the theoretical model of DT that includes elements of sensemaking and the technologies framework could be frameworks for further research of DT that try to identify how to make sense for an organization to develop a DT.

The study completes the first step of an overall objective to test an ongoing model to understand how organizations make sense of DT. The following steps will be going in-depth in the elements that this pilot case identified as questions of sensemaking. The study will also be complemented with multiple cases and other sources of data collection to identify relationships and differences that could validate and adjust the

model. Finally, the preliminary finding could be the basis for a broader framework that may be used for understanding DT for both academics and practitioners.

References

- Bharadwaj, A., El Sawy, O., Pavlou, P., Venkatraman, N., 2013. Digital business strategy: toward a next generation of insights. *MIS Quart.* 37 (2), 471–482.
- Burton-Jones, A., Butler, B. S., Scott, S. V., & Xu, S. X. (2021). Next-generation information systems theorizing: A call to action. *MIS Quarterly: Management Information Systems*, 45(1), 301–314. <https://doi.org/10.25300/MISQ/2021/15434>
- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. 2013. Embracing Digital Technology: A New Strategic Imperative. *MIT Sloan Management Review*, pp. 1–12.
- Gil-saura, M. R. I., & Moliner-vela, B. 2011. Does technology make a difference? Evidence from Spanish hotels, pp. 1–12.
- Gray, J., Rumpe, B., 2017. Models for the digital transformation. *Softw. Syst. Model.* 16 (2), 307–308.
- Hess, T., Benlian, A., Matt, C., & Wiesböck, F. 2011. Options For Formulating A Digital Transformation Strategy, 2016(June), pp. 17–33.
- Jayawardena, C. C., Lawlor, F., Grieco, J. C., Savard, M., & Tarnowski, M. 2013. Challenges and innovations in hotel operations in Canada, 5(2), pp. 177–189.
- Kane, G. C. 2015. Metlife Centers Its Strategy On Digital Transformation [PDF].
- Kane, G.C., 2017c. Digital maturity, not digital transformation. Retrieved September 1, 2017, from <http://sloanreview.mit.edu/article/digital-maturity-not-digital-transformation/>.
- Libert, B., Beck, M., & Wind, Y. J. 2016. 7 Questions To Ask Before Your Next Digital Transformation.
- Maitlis, S., & Christianson, M. 2014. Sensemaking In Organizations: Taking Stock And Moving Forward. *Academy Of Management Annals*, 8(1), pp. 57–125.
- Nambisan, S., Lyytinen, K., Majchrzak, A., Song, M. 2017. Digital Innovation Management: Reinventing Innovation Management Research In A Digital World. *MIS Quarterly*, 41(1), pp. 223-238
- Orlikowski, W. J., & Gash, D. C. 1994. Technological frames. *ACM Transactions on Information Systems (TOIS)*, 12(2), pp. 174–207.
- Piccinini, E. 2015. Transforming Industrial Business: The Impact Of Digital Transformation On Automotive Organizations. 2015 International Conference On Information Systems: Exploring The Information Frontier, ICIS 2015, 63, pp. 1–20.
- Svejvig, P., & Blegind Jensen, T. 2013. Making Sense Of Enterprise Systems In Institutions: A Multiple Case Study of The Re-Implementation Of An Accounting System. *Scandinavian Journal Of Information Systems*, 25(1), pp. 3–35.
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. 2021. “Digital transformation: A multidisciplinary reflection and research agenda”. *Journal of Business Research* (122), pp. 889–901.
- Vial, G. 2019. "Journal Of Strategic Information Systems Understanding Digital Transformation : A Review And A Research Agenda." *Journal Of Strategic Information Systems*, (28:2)
- Weick, K. E., & Quinn, R. E. 2011. "Organizational Change And Development." *APA Handbook Of Industrial And Organizational Psychology* (3:1), pp. 691–728.
- Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. 2010. "Organization Science And The Process Of Sensemaking" (16:4), pp. 409–421.



Westerman, G., McAfee, A., & Bonnet, D. (2014). *Leading Digital-Turning Technology Into Business Transformation*; Harvard Business Review Press. Retrieved From <https://www.capgemini-consulting.com/leadingdigital> Working Paper, University Of Toronto.

Yin, R. K. 2003. *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.
York, 1967.