

Digital Transformation and Digital Culture: A Literature Review of the Digital Cultural Attributes to Enable Digital Transformation

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Abstract. *Digital transformation is unavoidable for organizations nowadays. The promise of financial success pushes organizations to speed up their digital transformation, by increasing the budgets allocated to it. Organizations understand more and more that digital transformation is not only an IT endeavor and that it implies, among others, the important aspect of digital culture. Digital culture goes hand in hand with the process of digital transformation, being both a premise to, and an outcome of it. As a premise, digital culture can be either an enabler for, or a barrier to digital transformation, which is why digital culture is receiving increased attention in scientific literature. This study analyzes the scientific literature to create a well-rounded definition of digital culture, categorizing and describing in detail the attributes of digital culture, both the ones mentioned by previous studies with a similar purpose and adding new categories to provide a more comprehensive understanding of what digital culture entails. Digital culture is characterized by collaboration, both internal and external, customer-centricity, seamless flow of information, decision making at lower organizational levels, responsiveness and rapid action, innovation and entrepreneurial mindset, risk-affinity, flexibility, agility and adaptability, learning and growth orientation, as well as data-driven decisions, digital-first mindset, openness to unusual career developments and change openness and readiness.*

Keywords: digital transformation, digital culture, culture change, change management, organizational culture.

Introduction

Since 2019, the COVID pandemic has led to an acceleration of digital transformation in organizations (Subramaniam et al., 2021). According to a McKinsey Global Survey (2020) with executives, COVID-19 has sped up the digital transformation by 3 to 4 years. Irrespective of industry, size, history or maturity, whether for-profit or not-for-profit, public or private, organization were, are and will continue to be forced to go through digital transformation (Mergel et al., 2019), by both inside and outside forces, in order to survive and stay relevant. Research mentions the so-called VUCA world, which stand for an environment characterized by volatility, uncertainty, complexity, and ambiguity, an environment of continuous change, incremental, as well as disruptive, where organizations are in constant need of adaptation and change (Hartl, 2019).

More than mere survival or staying relevant, successful digital transformation represents an opportunity to increase existing, and to gain new market shares, enter new markets, attract new customers, as well as to let go of the unprofitable ones. Furthermore, digital transformation can be seen as a unique opportunity to create self-sustaining change, with long-lasting impact on technological, organizational, cultural, as well as social aspects (Dunleavy et al., 2006). And given that change is not a moment in time or an endeavor over a limited period of time anymore, but rather a continuous occurrence and an environment (Dunleavy, 2006), building the capability of the above mentioned self-sustaining change creates an increasingly valuable advantage for organizations. Fitzgerald et al. (2014) mention that digirati, i.e. companies with high digital maturity, have the best financial results, outperforming their competitors in market shares, revenue

and profit. Thus, it doesn't come as a surprise that the budgets dedicated to digital transformation have increased more than any other budgets, a confirmation of its perceived importance in organizations' success (McKinsey Global Survey, 2020).

As a consequence of the radical changes experienced during the COVID period, some organizations thrived, some were able to merely survive, while others disappeared. The organizations which emerged successfully from the COVID pandemic proved to have a culture that enabled fast response, innovation and adaptation. Alongside with the IT component, culture is seen as an increasingly important aspect in digital transformation. Literature shows that the existing culture influences the success of digital transformation (Gürkan & Çiftci, 2020), while at the same time digital transformation leads to an adaptation in the existing culture (Mergel & al., 2019) or to the creation of a new culture (Bounfour, 2016).

The link between digital transformation and culture, as well as culture change, has drawn attention to the importance of change management in the success of digital transformation within organizations. However, emphasis has only recently been put on change management in scientific studies (Osmundsen et al., 2018).

Cultural transformation is often listed as one of the 4 main areas of digital transformation, alongside process transformation, business model transformation and domain transformation. Mergel et al. (2019) state that, although a cultural change towards a digital culture is increasingly seen as essential for digital transformation in organizations, there is not enough literature to map out how to accomplish this change successfully. Their study emphasizes the fact that a change in culture, mindset and skills is an important condition for a sustainable digital transformation. Conversely, digital transformation leads to culture change, which needs to be reinforced in order to stick. This shows that the digital transformation and the change towards a digital culture go hand in hand, supporting each other's outcomes. The organizational change influences the organizational culture, but the organizational culture influences the pace at which the organization changes. However, organizational change and culture change might have different timelines, given that culture requires an extended period of time to change, and this is a challenge that organizations need to navigate.

The purpose of this paper is to thoroughly define the characteristics of a digital culture, by analyzing the existing literature and categorizing all cultural aspects mentioned so far. This creates a solid foundation for organizations to identify the aspects they need to address in order to have a successful digital transformation, understand what aspects keep them from progressing in their digital journey and help them decide which aspects need most attention at a certain moment in their process of digital transformation.

Literature review

Definition of Digital Transformation

Digital transformation, besides the use of digital technologies, creating new applications, migrating to the cloud or integrating artificial intelligence and machine learning, implies strategic leverage of resources and capabilities to enhance organizations and redefine their value propositions to their customers, mention Gong & Ribiere (2021) in their analysis of 134 well-received definitions of digital transformation.

Mergel et al. (2019) differentiate between three terms which have been used interchangeably: digitization, digitalization, respectively digital transformation. The authors suggest the use of the term digitization to “highlight the transition from analog to digital services with a 1:1 change in the delivery more and the addition of a technological channel of delivery”, the

term digitalization “to focus on potential changes in the processes beyond mere digitizing of existing processes and forms”, respectively digital transformation “to emphasize the cultural, organizational, and relational changes that we highlight in the outcomes section in order to differentiate better between different forms of outcomes” (p. 12).

Mergel et al. (2019) also point out that it is not IT’s responsibility to realize the change, but that the digital transformation is rather a larger endeavor, involving several, if not all, aspects of an organization: processes, policies, people and, most importantly, is accomplished through sustained leadership support. Shaughnessy (2018) emphasizes that digital transformation is not focused on technology, but on innovative interaction and collaboration. This shows that digital transformation is now recognized as being more than just a technological shift, that it requires strategy alignment and must involve people, culture, mindset, talent development and leadership (Goran et al., 2017).

Culture, a key aspect of digital transformation

Culture is being brought up more and more as being an essential factor in the process of digital transformation. Zaoui & Souissi (2020) found that 9 out of 32 studies on digital transformation listed culture as an important factor. Hartl & Hess (2017) state that while digital transformation initiatives are taking place in organizations, they often fail due to organizational cultures that act as barriers.

Culture can play the role of either an enabler or a barrier in digital transformation. Workurka et al. (2017) state that a strong culture is linked to high performance, but it can become a barrier in the face of change. The authors suggest that culture can either accentuate or extenuate the challenges and potentials of digital transformation. Buvat et al. (2017) identify that 62% of the Capgemini survey respondents considered culture the top hurdle of digital transformation, a considerable increase from 3 years prior. Similarly, Goran et al. (2017) identify culture and behavioral challenges as the most self-reported barrier to digital effectiveness. Oswald & Kleinemeier (2017) list culture and cultural elements as the primary challenge for organization to be successful in digital transformation.

McKinsey and Company’s study (2020) showed how companies which emerged successfully from the COVID-19 pandemic had the right organizational culture. Osmundsen et al. (2018) list a supportive organizational culture as a success factor of digital transformation. Gürkan & Çiftci (2020) mention that an organization with the right culture can make best use of the benefits of digital transformation.

Changing organizational culture towards a digital culture

One of the main differences between a regular culture change and a change specifically towards a digital culture, is its focus on technology, which is found to be a major force behind digital culture, as well as the commonly applied tools within its management (Harshak, 2013). Zaoui & Souissi (2020) analyzed 32 studies which suggested the steps for a successful digital transformation. One of the conclusions of their analysis was that there are substantial differences in how researchers believe digital transformation is to be successfully implemented. Nine out of the thirty-two studies from their analysis included building a digital culture among the important steps of digital transformation.

Given that organizational culture can be an enabler for, as well as a barrier to digital transformation, it is valuable to look at the ways how the culture can be turned into a factor which supports the digital transformation. Luckily, unlike national and personal cultures, organizational culture has the potential to be changed (Firican, 2022). Gürkan & Çiftci (2020) identify 3 potential

strategies to do so: (1) adapt the digital transformation to the existing culture, (2) adapt the culture to match the new status-quo or (3) change the culture completely. However, changing culture is a difficult, lengthy and resource-consuming process, and it also influences which change management approach organizations should choose in order to undergo a successful digital transformation (Gürkan & Çiftci, 2020). Nevertheless, even if changing the culture costs money, not changing it costs even more (Workurka, 2018).

Measuring and defining digital culture

What isn't measured is harder to be influenced in the desired direction. Literature suggests that digital transformation, as well as organizational culture should be measured at different stages, in order to determine the status-quo, what needs to be changed or addressed and with what priority, as well as whether the tactics for culture change and digital transformation have been effective. Hartl (2019) identifies that almost half of her respondents' organizations started their digital transformation journey by assessing their culture and defined a vision of how their digital culture should look like to enable, support, maintain, as well as reinforce a company's digital transformation.

Hartl & Hess (2017) developed a framework to place a culture within one of the four categories: adhocracy (defined by high flexibility and external orientation), market (high control, external orientation), hierarchy (high control, internal orientation), respectively clan (high flexibility, internal orientation). According to the authors, the two culture types that support digital transformation would be adhocracy and clan, both with high flexibility, low amounts of control, but different orientations: internal, respectively external. Going deeper into defining the digital culture with the help of concrete attributes in what follows, it becomes apparent that indeed, high flexibility, as well as both internal and external orientation are cultural aspects that support digital transformation.

Methodology

From a methodology perspective, the approach consisted in qualitative research, i.e. a narrative literature review and critical analysis of various articles in the English speaking landscape published predominantly in the last 10 years. The pool of data used for research has been gathered through extensive searches over the Internet of web pages and articles published in the English language containing the following keywords: digital transformation, digital culture, culture change, change management, organizational culture. The article identifies and summarized what has been published so far on the topic of digital culture in the context of digital transformation, how it has evolved through time and where studies build upon each other.

Firstly, the literature review defines digital transformation, and places digital transformation in the context of COVID-19. Secondly, the research focuses on digital culture, its importance in the context of digital transformation, as well as characteristics enabling a successful digital transformation. The findings from all the researched articles were compared and a comprehensive list of digital culture attributes has been created. Lastly, suggestions have been made for further research.

Results and discussions

In recent years, several studies have been dedicated to digital transformation, as well as to the measures that have proven successful in supporting it. Digital culture, firstly as part of, secondly prerequisite, respectively thirdly as a result of digital transformation has been given increased

attention, as a key success factor in the process of digital transformation. Studies have been dedicated to understanding it, defining it and identifying the cultural traits that create a favorable environment for supporting, accelerating, maintaining and enhancing the process of digital transformation. Previous studies have covered several of these aspects each, but as new research emerges, digital culture can be more clearly defined, breaking down the previously mentioned aspects into even more detail for a better understanding of digital culture, as well as with the purpose of deriving of the most promising measures, tools and techniques for changing the organizational culture into a digital culture, thus achieving a high digital maturity, which is linked to financial gains.

A key cultural aspect of a digital culture, mentioned in most studies is collaboration, both internal and external. Collaboration has been described in various ways, as hyper-connectedness, co-creation of the new status-quo with all internal and external stakeholders, removal of silos, a culture of trust and openness. Some studies emphasize the internal collaboration: internal team work, mixed teams, high collaboration across functions and departments, cross-functional and integrated communities, cooperation, joint business-IT initiatives, while others give more weight to external collaboration, such as with customers, start-ups and other organizations.

Linked to the external collaboration, customer-centricity is considered an important aspect of digital culture, described as customer-orientation, a single organizationally-accepted view of customer, focus on transforming the customer experience through technology, gathering ideas from the market, as well as integrating the feedback and reiterating products and services, and making data driven customer decisions.

Also related to collaboration, another important attribute of a digital culture is the seamless flow of information, described as the fast and transparent access to the right information at the right time, continuous knowledge exchange supported by the right infrastructure, processes and workflows, internal and external networks of information sharing, as well as no hoarding of information between stakeholders. A seamless flow of information supports and enhances collaboration.

Digital culture is also characterized by decision-making at lower organizational levels: front-line workers and lower level employees are empowered to act in a pro-active and independent way, to participate in decision-making and take ownership, to release a “not-my-job” mentality in favor of accountability. Executives consciously shift decisions to lower organizational levels, delegate more and control less, and encourage a flatter organization.

Responsiveness and rapid-action is another valuable attribute of a digital culture. Responsiveness is characterized by experimentation and acting early, by more acting and testing, rather planning and organizing, by rapid decision-making, also enabled by decision-making at lower organizational levels, as well as by focus on rapid launch to bring products and services in front of customers for validation.

Innovation is undoubtedly a key-aspect of a digital culture and also a highly desired trait by any organization. Innovation implies intrapreneurship, entrepreneurial mindset, orientation towards overcoming constraints, pursuit of continuous improvement, as well as out-of-the-box, even disruptive thinking. Closely connected to innovation is a culture characterized by risk-affinity, where boldness is favored over caution, and taking risks, even if calculated, is encouraged. Also tied to innovation, a praised aspect of digital culture is flexibility, meaning adaptability, agility, speed and dynamism, as well as an attitude of chasing potential, fostering curiosity, building intrinsic motivation and following an inspiring vision.

A key-attribute of a digital culture is an orientation towards learning and growth, which implies continuous learning, pursuit or continuous growth and advancement, learning from, and tolerance for failure, a trial and error mentality and focus on iterations.

Last, but not least, a few other aspects of a digital culture have been mentioned in isolated studies, which add new partially new components to the description of digital culture: data-driven decisions, meaning using data and analytics not only for customers, but also internally, digital first mindset, meaning looking for and using digital solutions as a default, unusual career evolution, meaning being open to and exploring new career path opportunities created by digital transformation, and change readiness, in general, not digital transformation related attribute, which supports any type of change in organizations, including a change in culture.

Table 1. Cultural characteristics favoring a digital culture.

Cultural Aspect	Characteristics	Study
Collaboration	Hyper-connectedness Co-creation, as opposed to silos Trust towards internal and external stakeholders Open culture	Berman (2012) Hartl (2019) Hartl & Hess (2017) Buvat et al. (2017)
Internal	Low functional and departmental silos High collaboration across functions and departments Cross-functional & integrated communities Cooperation, including internal team work Team work valued more than individual efforts Joint business-IT digitization initiatives	Goran et al. (2017) Idem Harshak (2013) Hartl & Hess (2017) Gürkan & Çiftci (2020) Haffke et al. (2017)
External	Collaboration of consumers and organizations External, rather than internal collaboration External partners, e.g. start-ups	Berman (2012) Gürkan & Çiftci (2020) Hartl (2019)
Customer centricity	Single view of customer Data driven customer decisions Gathering ideas from the market Customer orientation Transformation of customer experience	Goran et al. (2017) Hartl (2019) Harshak (2013) Hartl & Hess (2017) Buvat et al. (2017)
Flow of information	Fast and transparent access to information Continuous knowledge exchange No hoarding of information Internal & external networks of information sharing	McKinsey & Company (2020) Goran et al. (2017) Idem Hartl & Hess (2017)
Decision-making at lower levels	Empowering frontline workers Empowerment to act pro-actively and independently Participation Executives shift decisions to lower level employees No "not-my-job" mentality, instilling accountability Delegation over control Flat organization	Hartl (2019) Hartl & Hess (2017) Idem Goran et al. (2017) Idem Gürkan & Çiftci (2020) Harshak (2013)
Responsiveness and rapid action	Encourages experimentation and acting early More action, less planning Rapid decision making Focus on rapid launch	McKinsey & Company (2020) Gürkan & Çiftci (2020) Harshak (2013) Idem

Cultural Aspect	Characteristics	Study
Innovation	Intrapreneurship Innovative, entrepreneurial mindset Overcoming constraints Pursuit of improvement Disruptive thinking	Hartl (2019) Idem Harshak (2013) Hartl & Hess (2017) Buvat et al. (2017)
Risk-friendliness	Taking risks Boldness, over caution Risk-affinity	Goran et al. (2017); Hartl (2019) Gürkan & Çiftci (2020) Fitzgerald et al. (2014)
Flexibility	Adaptation and agility Potential, curiosity, vision, motivation Agility Flexibility and adaptability Speed and dynamism	Hartl (2019) Harshak (2013) Kane et al. (2016) Hartl & Hess (2017) Buvat et al. (2017)
Learning orientation	Learning and failure tolerance Continuous learning Focus on learning and iterations Trial & error mentality Pursuit of growth Pursuit of continuous advancement Learning from failure	McKinsey & Company (2020) Hartl (2019) Harshak (2013) Piccinini et al. (2015) Hartl & Hess (2017) Idem Idem
Data-driven decisions	Use of data and analytics for decisions	Buvat et al. (2017)
Digital first mindset	Digital solutions as default	Buvat et al. (2017)
Career evolution	Rapid, unpredictable career progression	Harshak (2013)
Change readiness	Openness to change	Hartl & Hess (2017)

Source: Authors' own research.

Interestingly, the high flexibility mentioned by Hartl & Hess (2017) is indeed seen as a key aspect of digital culture. Both internal and external orientation are favorable for digital transformation and can be included under the umbrella of collaboration with external and internal stakeholders. These two orientations, even though the authors define them as two opposites of a spectrum, do not exclude each other in reality. This means, that a culture with high flexibility, which is able to leverage both internal and external collaboration successfully has higher chances of a successful digital transformation. If the company is able to additionally create a culture of innovativeness, responsiveness, fast decision-making and learning mindset, the chances of success increase even more.

Conclusion

Digital transformation is represented by a constantly changing environment, rather than a change initiative delimited in time and scope. In this context, an organization with a digital culture not only survives, but thrives in continuous change. Digital culture change is different than regular culture change through its technology centrality: technology as enabler of digital culture and digital culture as enabler of technology. This is why, digital culture change should be approached differently than a general change in culture.

This study has painted the picture of the characteristics of digital culture, which ensure a successful digital transformation in organizations. By working towards developing or enhancing these characteristics, organizations will be able to reach positive financial outcomes.

From a limitations perspective, the number of studies dedicated specifically to digital culture in the context digital transformation remains limited. Not a lot of empirical studies have been conducted so far to cover this topic and, from the existing studies, mostly will have been conducted on companies that survived COVID, thus already having of digital culture to a certain degree and a certain level of maturity in digital transformation. Furthermore, it being a fairly new topic of interest, while culture changes over time and results only surface mid to long-term, it is harder to measure digital culture and its outcomes. Lastly, most of the studies have been conducted through interviews, which express subjective opinions of the employees and their managers, who work within the company and who live every day in the cultures they are assessing. It would be interesting to have an objective evaluation of culture conducted by externals, such as consultants or external evaluators, at various points in time.

Further research could focus on how to create a digital culture which scores high in each of the identified characteristics. Given that culture change cannot happen organically, but must be reinforced through the right change management methods, further research should focus on the change management approaches that have proven successful throughout the companies which underwent digital transformation and compare them with existing change management models, identifying potential additional suggestions for the change towards a digital culture, but also identifying gaps in the change management models with respect to their application in the specific case of digital transformation. Additionally, the existing culture influences the change management approach for digital transformation. Further research can focus on identifying the right change management approach for the specific context of an organization.

Lastly, the higher the automation, the less important the organizational culture and the more important the managerial performance (Dunleavy et al., 2006). It would be interesting to know whether at any point in digital transformation, the importance of digital culture changes and why. This would give even more insights in the process of changing towards a digital culture and its importance throughout the digital transformation journey.

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