Navigating Digital Transformation: Nexus of Organizational Culture & Key Success Factors

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Abstract

Digital transformation is a major focus for organizations in the evolving business landscape. Digital transformation is high on the agenda of most organizations in the current dynamic business environment. Against this background, this research aims to explore the link between Organizational Cultural Values and the Key Success Factors of digital transformation efforts. The Competing Values Framework (CVF) provided the theoretical underpinning for this study, and which categorizes culture as Clan, Adhocracy, Market and Hierarchy. A mixed-method approach including a Delphi study and a cross-sectional survey were conducted and reveal that Clan and Adhocracy have a positive impact on the success of digital transformation efforts. The findings further show that the Key Success Factors influencing digital transformation efforts include business and IT alignment, agile management, and employee training. On the other hand, Hierarchical culture, characterized by rigidity and formalization, negatively affects these factors. Market culture which is driven by competition and goal orientation had a moderate positive impact.

This research contributes to the existing literature by providing empirical evidence that supports the importance of Clan and Adhocracy cultures to successful digital transformation. From a managerial perspective, this research recommends that organizations seeking to transform digitally to develop these two cultures by encouraging collaboration, trust, teamwork, and innovation. Aligning digital strategies with cultural values, developing digital leaders, encouraging multi-disciplinary teamwork, and investing in continuous employee development are vital for building digital capabilities and ensuring transformation success.

Keywords: Digital Transformation, Organizational Culture, Key Success Factors, Competing Values Framework (CVF), Cultural Values, Digital Culture, Digital Leadership

Resumo

A transformação digital é um foco importante para as organizações no cenário empresarial em evolução. Está no topo da agenda da maioria das organizações no atual ambiente dinâmico. Neste contexto, esta pesquisa visa explorar a ligação entre os Valores Culturais Organizacionais e os Fatores Críticos de Sucesso dos esforços de transformação digital. O Competing Values Framework (CVF) forneceu a base teórica para este estudo, categorizando a cultura em Clã, Adocracia, Mercado e Hierarquia. Uma abordagem de métodos mistos, incluindo um estudo Delphi e um inquérito transversal, revelou que as culturas Clã e Adocracia têm um impacto positivo no sucesso dos esforços de transformação digital. Os resultados mostram que os Fatores Críticos de Sucesso incluem o alinhamento entre negócios e TI, a gestão ágil e a formação dos colaboradores. Por outro lado, a cultura Hierárquica, caracterizada pela rigidez e formalização, afeta negativamente esses fatores. A cultura de Mercado, orientada pela competição e metas, teve um impacto positivo moderado.

Esta pesquisa contribui para a literatura existente, fornecendo evidências empíricas que apoiam a importância das culturas Clã e Adocracia para uma transformação digital bem-sucedida. Do ponto de vista da gestão, recomenda que organizações que buscam transformar-se digitalmente desenvolvam estas duas culturas, incentivando a colaboração, confiança, trabalho em equipa e inovação. Alinhar estratégias digitais com valores culturais, desenvolver líderes digitais, encorajar o trabalho em equipa multidisciplinar e investir no desenvolvimento contínuo dos colaboradores são essenciais para garantir o sucesso da transformação.

Keywords: Transformação Digital, Cultura Organizacional, Fatores Críticos de Sucesso, Competing Values Framework (CVF), Valores Culturais, Cultura Digital, Liderança Digital

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1. Introduction

1.1. Problem Definition and Relevance

Digital transformation has become an organizational imperative in today's turbulent business environment (Westerman et al., 2014). The ubiquitous digital technologies have compelled organizations to undertake digital transformation initiatives to align themselves with the changing business dynamics to sustain in the digital economy. Organizational Cultural Values are found to influence the digital transformation efforts of an organization (Ravichandran & Lertwongsatien, 2005). While the role of organizational culture in digital transformation has gained prominence in the literature, the relationship between specific Organizational Cultural Values and digital transformation efforts is not well understood (Hartl & Hess, 2017). This study attempts to fill the literature gap by investigating the relationship between Organizational Cultural Values and digital transformation efforts.

The significance of this study is oftered from the perspective that the findings of this study will provide insights on the dynamics of Organizational Cultural Values and Key Success Factors of digital transformation efforts in an organization. The Key Success Factors of digital transformation efforts of an organization are identified and explained in this paper. The relationship between Organizational Cultural Values and Key Success Factors of digital transformation efforts will provide deeper insights into the drivers or impediments of successful digital transformation efforts in an organization.

Culture influences attitudes, behaviors, and norms in an organization (Schein's, 2010). It shapes the perceptions and responses of people to change, innovation, and technology adaptation in an organization. Hence studying the impact of Organizational Cultural Values on digital transformation efforts will be highly relevant for organizations to align themselves with the complexities of digital technologies.

Though many studies have been done concerning digital transformation and corporate culture separately, no comprehensive research exists regarding how Organizational Cultural Values influence Key Success Factors concerning digital transformation. Therefore, this research will

bridge this gap by investigating systematically organizational culture vis-à-vis success factors for digital transformations.

1.2. Objectives and Research Question

The purpose of this research is to examine the connection between Organizational Cultural Values and Key Success Factors for digital transformation initiatives. Many specific objectives have been set to achieve the main goal. Primarily, the research will look into different organizational culture values relevant to digital transformation efforts comprehensively. Secondly, it intends to outline these Key Success Factors in relation to effective digital transformation initiatives.

Additionally, this study tries to figure out how organizational cultural values interrelate with Key Success Factors in influencing the results of digital transformation undertakings. It focuses on showing organizations how they can make use of their cultural capabilities and deal with cultural obstacles so as to improve the efficiency of efforts toward digital transformation while looking into cultural dynamics vis-a-vis success factors. Ultimately, through a rigorous examination of these relationships, this research aims to contribute to the existing body of knowledge on digital transformation by offering practical recommendations for organizations seeking to navigate the complex terrain of cultural change and digital innovation.

RQ: How do Organizational Cultural Values influence the implementation of Key Success Factors of digital transformation initiatives?

2. Literature review

2.1. Organizational Culture

2.1.1. Organizational Culture and Organizational Performance

The difficulty and non-tangible nature of organizational culture makes it a challenge to define (Taras et al., 2009). Various scholars have proposed different definitions but there is no universally acceptable definition (Belias & Koustelios, 2014). Schein's (2010) definition is quite inclusive and broadly agreed upon, but it has some similar limitations because culture means different things to different people and it relies on interpretation (Chatman & O'Reilly, 2016; Alvesson & Sveningsson, 2015).

Schein (2010) organizational culture can be defined as the system of collectively held values and beliefs, assumptions and norms, which govern behavior and organize activity in organizations. Schein's (2010) organizational culture model identifies three levels that constitute the culture and they are artifacts and behaviors; espoused values; and underlying assumptions (Schein's 2010). The artifacts and behaviors represent the manifest aspect of a culture such as ritual, symbols or language. The espoused values are the expressed beliefs, philosophy or norms which are employed to guide behavior in a particular institution and underlying assumptions are deeply rooted beliefs and values regarded as the natural way of doing and observing things and operate below the level of consciousness.

The latent assumptions are required to be understood first in order to understand organizational culture and its impact on organizational behavior and performance. (Hartnell et al., 2011).

Organizational culture influences several aspects of organizational behavior and performance (Sorensen, 2002). Market-oriented behaviors, Market performance, and financial performance are the variables which according to a study conducted by Homburg & Pflesser (2000) were all significantly influenced by organizational culture. Gregory et al. (2009) also stresses on the importance of organizational culture impacting employee attitudes and overall organizational effectiveness.

2.1.2. Quantitative Approaches to Measure Organizational Culture

Quantitative approaches to organizational culture assessment can contribute to identifying what they are and how they direct behavior in a company (Hofstede et al. 1990). Different instruments measure various dimensions of corporate organizational cultures and help companies identify their culture profiles and areas for culture improvement (Van den Berg & Wilderom, 2004).

Among the most common quantitative instruments for organizational culture assessment is the Denison Organizational Culture Survey (OCS) (Boyce et al., 2015). The Denison OCS measures four core facets of culture which include involvement, consistency, adaptability, and mission (Denison, 1990). With the Denison OCS, leaders, and other relevant stakeholders in an organization become aware of the impact of the organization's current culture on its performance and provide directions to improve strategies to better fit cultures with improvements in organizational effectiveness (Denison et al., 2014).

Organizational Culture Assessment Instrument (OCAI) is also a quantitative approach based on the Competing Values Framework (CVF) (Cameron & Freeman, 1991). The Competing Values Framework defines four culture types which include Clan, Adhocracy, Hierarchy, and Market. The OCAI allows leaders to assess cultural dynamics and generate strategies to foment a more innovative and conducive work culture, by identifying which of the four types dominates in an organization (Cameron et al., 2022).

Organizational Culture Inventory (OCI) is another quantitative instrument used to measure organizational culture (Cooke & Szumal, 2000). More global cultural dimensions such as shared assumptions and values, are rated against twelve culture types of norms that can be aggregated into three broad categories: constructive cultures, passive/defensive cultures, and aggressive/defensive cultures (Cooke & Szumal, 2000). This instrument can also be used as a multi-level diagnostic tool which can be administered on the individual level to help individuals effect changes in the way they behave and drive them to broader organizational development initiatives. (Balthazard & Cooke, 2004).

Organizational Culture Profile (OCP) is based on Schein's (2010) three-level perspective of culture (O'Reilly et al., 1991) and assesses cultural preferences on six cultural dimensions: adaptability or innovation, results-orientation, detail-orientation, collaboration or teamwork, customer-orientation and integrity (Chatman et al., 2014). This method helps organizations assess different aspects of organizational culture based on behavioral patterns and norms of proper conduct (Jung et al., 2009).

In conclusion, useful knowledge regarding organizational cultural dynamics and areas for change can be obtained through the use of quantitative approaches (Jung et al., 2009). For this, organizations may use the Denison OCS, OCAI, OCI, or OCP among many other instruments that help businesses measure their culture profiles, identify cultural problem areas, and implement interventions to improve overall work effectiveness in a specific organizational setting (Chatman & O'Reilly, 2016).

2.2. Digital Transformation

2.2.1. Digital Transformation Concept

While academics provide important perspectives on the multifaceted phenomenon of digital transformation (Reis et al. 2018), there is no agreement on its definition (Morakanyane et al., 2017).

Digital transformation has been described as a strategy (Bharadwaj et al., 2013; Hansen & Sia, 2015; Mithas, et.al., 2013), a process (Berman and Marshall, 2014; Cichosz, 2018; Hansen et al., 2011), or even a business model (Henriette et al., 2016).

The majority of experts view digital transformation as the strategic use of advanced digital technologies (e.g. social media, mobile devices) that can result in significant improvements in business performance, and Fitzgerald et al. (2014) call it an innovation process. Accordingly, Vial (2021) describes digital transformation as a multi-dimensional process aimed at enhancing organizational attributes through the use of information, computing, communication, and connectivity technologies.

2.2.2. Drivers for Digital Transformation

Digital transformation is a multifaceted phenomenon that has been studied and discussed by scholars and industry practitioners alike (Vial, 2021). A vast number of studies consider digital technologies as catalysts of digital transformation (Agarwal et al., 2010; Berman, 2012). For example, artificial intelligence, big data analytics, and the Internet of Things (IoT) enable companies to sense, analyze and respond to their environment, optimize operational decisions, or customize experiences for their customers (Wang et al., 2018; Westerman et al., 2011).

Following technological developments, scholars argue the necessity to develop digital capabilities within companies (Berman & Marshall, 2014; Loebbecke & Picot, 2015). Digital literacy, data analytics capabilities, and a testing culture are essential to help firms leverage the value of digital technologies and master their digital transformation processes (Matt et al., 2015; Schuchmann & Seufert, 2015).

Strategic imperatives have also been identified as a principal driver of digital transformation initiatives (Berman & Marshall, 2014; Bharadwaj et al., 2013). Digital initiatives should be connected to the corporate business agenda, clear objectives should be defined, and cross-organizational coordination and collaboration are essential for the successful implementation of digital transformation (Matt et al., 2015).

In addition, business model innovation has been identified as a key driver of digital transformation (Agarwal et al., 2010; Berman & Marshall, 2014). Companies must evolve their business models to cope with digital disruption and turbulent changes in the Marketing environment and embrace new business models, platform strategies, and innovative value propositions (Janowski, 2015; Mithas et al., 2013).

Value chain transformation is also considered a key driver of digital transformation initiatives (Agarwal et al., 2010). Companies must re-invent their traditional value chain activities and leverage the potential of digital technologies to increase efficiency, reduce costs and to enhance customer experience (Wang et al., 2018).

2.2.3. Impacts of Digital Transformation

Digital transformation is not simply a technology initiative, but rather a fundamental reorganization across the entire organization (Hanelt et al., 2021). Organizations undertake digital transformation to remain competitive, but they must also re-assess and re-align existing structures, processes, and cultures (Kane et al., 2017). Digital transformation and organizational change are intertwined in various business domains such as business models, processes, customers, employees, and culture (Vial, 2021).

Digital transformation undermines traditional business models and requires organizations to react to changing Markets and technology (Berman, 2012; Westerman et al., 2011). Scholars propose that organizations must examine their revenue streams, value offerings and partner ecosystem (Agarwal et al., 2010; Bharadwaj et al., 2013).

Digital transformation impacts organizational operations and enables organizations to optimize internal processes, improve efficiency, and drive innovation (Bharadwaj et al., 2013; Lucas et al., 2013). Digital technologies allow organizations to automate business processes, allocate resources more effectively, and remain agile in the face of changing Market conditions (Schuchmann & Seufert, 2015; Westerman et al., 2011).

Additionally, digital transformation impacts the interface between the organization and its customers and enables organizations to develop new types of personalized and omnichannel customer experiences (Berman, 2012; Luna-Reyes & Gil-Garcia, 2014). In particular, scholars emphasize the capacity of organizations to leverage digital technologies to understand customer needs and preferences, to predict customer actions and to reach customers across various touchpoints (Matt et al., 2015; Schuchmann & Seufert, 2015).

Digital transformation substantially impacts employees as well, because new roles, skills, and ways of working are emerging (Schuchmann & Seufert, 2015). Scholars particularly emphasize the need for organizations to build a digitally capable workforce, to foster continuous learning, and to empower employees to adopt new digital tools and ways of working (Hansen & Sia, 2015; Janowski, 2015).

Last, digital transformation impacts organizational culture as digital technologies drive innovation, collaboration, and organizational agility (Schuchmann & Seufert, 2015; Hansen & Sia, 2015). In particular, organizations need to foster a culture that is open to change, experimentation, and risk (Berman & Marshall, 2014).

2.2.4. Key Success Factors in Digital Transformation

Digital transformation initiatives are multifaceted endeavors that require attention to many different aspects (Vogelsang et al., 2019). Leadership is one of the most significant factors among many that influence the outcome of a digital transformation strategy (Cichosz, 2020; Holotiuk & Beimborn, 2017). Leaders set the tone for the company and must be able to envision the organization's transformation toward digitalization (Cichosz, 2020).

Establishing a suitable organizational culture is likewise a prerequisite for overcoming digital transformation challenges successfully (Cichosz, 2020). A digital culture creates agility, openness to change and innovation, as well as a learning mindset, on all levels within the organization (Cichosz, 2020).

Furthermore, internal and external knowledge of technology is also a crucial aspect (Cichosz, 2020; Vogelsang et al., 2019). Internal expertise enables companies to build capabilities, resources, and innovations focused on the digital transformation process. Collaboration with external partners provides opportunities to seek specialized knowledge and innovative solutions that can advance the company's digitalization (Cichosz, 2020; Vogelsang et al., 2019). Initiatives that encourage cooperation with technology suppliers and startups, as well as the realization of pilot projects, are examples of how companies can acquire knowledge, expertise, and innovations related to collaboration (Cichosz, 2020; Vogelsang et al., 2019).

Lastly, the management of transformation guides the organization through the constantly evolving context of digital transformation (Cichosz, 2020). An iterative methodology and cooperation are fundamental in building an environment that is sensitive to innovations and changes at a rapid pace (Cichosz, 2020).

The development of talent and human resources skills play a key role in building the digital competencies needed to reach digitalization (Cichosz, 2020; Holotiuk & Beimborn, 2017;

Vogelsang et al., 2019). Organizations must establish training and development programs to ensure employees gain the necessary skills to operate effectively in a digital environment (Cichosz, 2020; Holotiuk & Beimborn, 2017; Vogelsang et al., 2019).

The application of data and analytics generates an environment for decision-making and innovation that is vital to digitalization (Cichosz, 2020; Holotiuk & Beimborn, 2017; Vogelsang et al., 2019). Companies need to leverage data-driven insights to create personalized customer experiences, optimize processes, and explore new opportunities for creating a value environment (Cichosz, 2020; Holotiuk & Beimborn, 2017; Vogelsang et al., 2019).

2.3. Organizational Culture and Digital Transformation

2.3.1. Organizational Culture Role in Digital Transformation

Digital transformation requires organizational change at the core. It affects structure, processes, strategy, and culture (Vial, 2021). Culture plays an important role in organizational change and transformation and is confirmed by different empirical studies (Hartl & Hess, 2017; Karimi & Walter, 2015). A BCG research showed that firms that consider culture in their digital transformation are five times more likely to report full or greater than full success than those who do not account for culture.

Many studies consistently show that company culture represents the main challenge for a successful digital transformation (Goran et al., 2016; Buvat et al., 2017). That is why culture change is a necessary condition and, at the same time, a possible limit to digital initiatives if improperly handled (Kolagar et al., 2022). Especially in today's turbulent business environment, with its continuous pressure to innovate, corporate culture must adapt and mutate to stay valuable (Sörensen, 2002).

This is the reason why a dynamic view of culture is important, a view in which culture is considered an adaptable quality that allows organizations to react to changes in the environment (Kotter, 2008). Along this line, Hartl and Hess (2017) observed that unlike the Competing Values Framework (CVF) (Cameron & Freeman, 1991), organizational cultures that embed the Clan and Adhocracy cultures are promoting digital transformation.

2.3.2. Cultural Values in Digital Transformation

The following cultural values have been identified in previous studies as being important in digitalization.

Openness toward change

Studies by Armenakis and Harris (2009) showed that organizational openness is critical for ensuring the success of change initiatives. Also, Armenakis, Harris, and Mossholder (1993) revealed that the Openness to change has a positive effect on employees' attitudes and commitment during organizational change.

Companies that are open to change are more likely to succeed in their digital transformation (Kane et al., 2015). However Researchers have pointed out several factors that contribute to employees' resistance and can prevent the adoption and success of newly implemented technologies in organizations (Cichosz et al., 2020). One of the reasons that have been emphasized in the literature as being a major obstacle to innovation is the so-called "innovation fatigue," in which employees are inundated or even demotivated by the constant introduction of new technologies and changes in the organization (Fitzgerald et al., 2014). Another important factor to consider is the way in which technologies are rolled out and their implementation speed, as they can determine the degree of employees' resistance (Singh & Hess, 2017).

Customer centricity

Lemon and Verhoef (2016) have examined the role of customer-centric organizational cultures and its importance to customer loyalty and business performance. Moreover, Rigby, Reichheld and Schefter (2002) argue that customer-centric strategies provide companies with sustainable competitive advantage in the digital Marketplace.

In the literature, customer centricity has been defined as an organization's propensity to be flexible in responding to customers' changing needs, and it has also been identified as an emerging value that promotes digital organizations' success (Hartl & Hess, 2017). Therefore, it can be argued that adopting a customer-centric perspective in an organization's digital transformation process will promote successful outcomes (Hartl & Hess, 2017).

Agility

It has been argued that digital transformation is heavily reliant on an agile culture to ensure the organization is able to respond quickly to changes and emerging customer needs (Cichosz et al., 2020). Hence, agility can be considered as essential for the organization to respond to the ever-changing nature of digital transformation (Hartl & Hess, 2017).

Sambamurthy et al. (2003) showed the relevance of agility to enable firms to respond swiftly to the changing business environment and information technology advances. Likewise, O'Reilly and Tushman (2008) spoke of the importance of organizational agility in promoting innovation and ensuring sustained competitiveness in the digital ecosystem. Therefore, agility can be considered as another key driver of digital transformation, as an agile culture helps employees to respond more adequately to the negative aspects of digital transformation (Burchardt & Maisch, 2019).

Innovation

Tidd and Bessant (2018) examined the need for an innovative culture to help organizations to grasp the opportunities offered by digitalization and to stimulate sustainable organizational growth. Moreover, West and Bogers (2014) discussed the importance of innovation in promoting organizational resilience and vulnerability to digitalization.

The value of innovation was emerged in the literature as another key driver of digital transformation, when it related to the organization's culture to stimulate entrepreneurial actions (Hartl & Hess, 2017). By adopting open innovation, organizations are able to better exploit external ideas, tools and digital services to support their digital transformation (Burchardt & Maisch, 2019).

Participation

Deci and Ryan (2000) showed the necessity of allowing employees to participate in decision making processes to boost their motivation and job satisfaction. Moreover, Bock et al. (2005) examined the role of participation culture in promoting organizational learning and knowledge sharing in the digital workplace.

It can be argued that one of the most important contributing factors for successful digital transformation projects is employee and partner engagement (Cichosz et al., 2020). Hence, employees should be encouraged to participate in digitalization projects on different levels of the organization (Cichosz et al., 2020). One of the major benefits of high levels of employee and partner engagement is the reduction of resistance to change, as they are able to voice their expectations and concerns effectively and thus transitions are smoother and people are more open to change (Cichosz et al., 2020).

Cooperation

Gulati (1998) examined the importance of cooperative relational rents in value creation and innovation in the digital ecosystem. The author spoke of cooperation in enabling knowledge flows and inter-firm collaboration among firms in the digital network.

It can be argued that cooperation among internal and external partners is vital to promote successful digital transformation (Hartl & Hess, 2017). Moreover, multidisciplinary collaboration has been identified as a key aspect of digital transformation, as Earley (2014) highlighted.

Communication

Effective communication is paramount in disseminating information, fostering collaboration, and aligning stakeholders around common goals throughout the digital transformation journey (Hartl & Hess, 2017).

Communication emerges as a fundamental cultural value in digital transformation due to its pivotal role in facilitating knowledge sharing (Hartl & Hess, 2017), which in turn fosters greater engagement and motivation among individuals toward the organization's digital transformation efforts (Cichosz et al., 2020). Furthermore, the sharing of the digital transformation vision and goals by management with all stakeholders is identified as a critical success factor for digital transformation initiatives (Cichosz et al., 2020).

Risk affinity

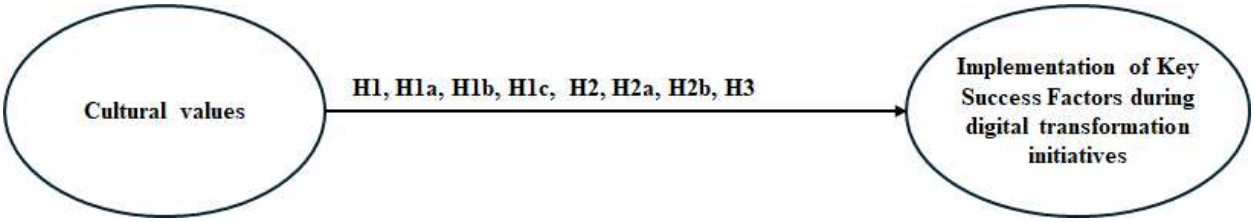
Studies showed that organizations that are more risk prone are likely to be more innovative and flexible in their digital transformation journey (Westerman et al., 2014).

Risk affinity refers to the organization's willingness to act under uncertainty (Hartl & Hess, 2017). The tendency to take risks is considered as a crucial driver of innovation push (Kane et al., 2015). Also, the concept of risk tolerance which includes the desire for experience, low fear of risk and patience with ambiguity, significantly influences employee involvement in organizational change process (Erwin & Garman, 2010).

3. Conceptual Model and Hypothesis

The theoretical framework for this research is to investigate the complex relationships between Organizational Cultural Values and the implementation of Key Success Factors in digital transformation as illustrated in figure 1 below. It is postulated that Organizational Cultural Values (independent variable) directly and significantly influence the implementation of Digital transformation Key Success Factors (dependent variable), and experts identified a particular rank of cultural values that might influence the dependent variable. Similarly, it is acknowledged that there exists a particular rank of Digital Transformation Key Success Factors (independent variable). Moreover, it is hypothesized that both Organizational Cultural Values and Key Success Factors are positively related to each other. More specifically, organizations that abide by and consider these cultural values are more likely to be successful in effectively implementing the Key Success Factors than those organizations that do not. This theoretical framework will be employed to investigate and understand the complex relationships of digital transformation initiatives in organizations, and to provide meaningful contributions to variables that could influence positive outcomes in this dynamic environment. The study model is presented below.

Figure 1 - Conceptual model



Hypothesis

Hartl and Hess (2017) identified Organizational Cultural Values that are presumed to have a relatively strong presence and influence in the context of digital transformation initiatives. These values likely capture core values or cultural norms that are considered important to manage the inherent in digital transformations. By recognizing the influence of these values, experts implicitly acknowledge their shape and impact on the course and effectiveness of digital initiatives. Furthermore, and in line with Hartl & Hess (2017) study, the Organizational Cultural Values that are situated in the Clan and Adhocracy cultural type of the Competing Values Framework (CVF)

are likely to stimulate the success of digital transformation initiatives. Therefore the following hypotheses were formulated:

H1: Experts recognize a set of Organizational Cultural Values as influential in shaping the outcomes of digital transformation initiatives.

H1a: The Organizational Cultural Values identified by Hartl and Hess (2017) are acknowledged by experts as influential in shaping the outcomes of digital transformation initiatives.

H1b: Experts recognize additional Organizational Cultural Values beyond those identified by Hartl and Hess (2017) as influential in shaping the outcomes of digital transformation initiatives.

H1c: The Organizational Cultural Values acknowledged by experts as influential in shaping the outcomes of digital transformation initiatives fall into the Clan and Adhocracy types of the Competing Values Framework (CVF).

Cichosz et al (2020) presented Key Success Factors that should be considered during the digital transformation journey of an organization. The authors conducted empirical and descriptive research as well as reviewed various literature on digital transformation to come up with these Key Success Factors. Recognizing Key Success Factors in relation to digital transformation suggests that these factors are hypotheses which ultimately drive or even determine the level of success achieved by a organization after its digital transformation. Thus, this hypothesis suggests that the Key Success Factors proposed by Cichosz et al. (2020) are recognized by experts to be hypotheses that shape the results obtained after a digital transformation effort.

H2: Experts recognize a set of Key Success Factors for the implementation of digital transformation initiatives.

H2a: The Key Success Factors identified by Cichosz et al. (2020), are recognized has having a substantial impact on the outcomes of digital transformation initiatives.

H2b: Experts recognize additional Key Success Factors beyond those identified by Cichosz et al. (2020) as influential in shaping the outcomes of digital transformation initiatives.

Furthermore, the relationship between Organizational Cultural Values and Key Success Factor implementation is considered to be highly relevant. Surprisingly, despite the increasing importance of digital transformation initiatives, there is a lack of existing literature that directly investigates

the relationship between organizational values and Key Success Factor implementation. Nevertheless, previous research provides some hints about the relationship between organizational culture and different digital transformation aspects. Academics have studied the influence of organizational culture on the successful execution of digital transformation strategies (Ross et al., 2016; Matt et al., 2015). For example, Ross et al. (2017) argue that organizational culture determines the form that successful digital transformation initiatives take. Matt et al. (2015) underline the influence of organizational culture on digital transformation initiatives. Despite the above-mentioned contributions, the direct relationship between Organizational Cultural Values and Key Success Factor implementation has not been thoroughly investigated. Thus, the following hypothesis was developed:

H3: Organizations that prioritize and embody cultural values aligned with the Clan and Adhocracy types of the Competing Values Framework (CVF), are more likely to effectively implement the Key Success Factors necessary for successful digital transformations.

4. Methodology and Data Collection

4.1. Research Method

After the analysis of the secondary data presented in the literature review section, primary data was collected to accomplish the primary objectives of this research. To achieve a deep understanding of the research questions and unravel the intricacies of the phenomenon under study, two research studies were carried out.

The first study in this research was a Delphi study, aimed to determine the cultural values and the Key Success Factors that impact the results of digital transformation projects. This study was a modification of the study carried out by Hartl and Hess (2017), which only considered the organizational cultural values. The reason for choosing to modify the authors study was based on the scarcity of literature directed to this specific topic and the peculiarities of the Portuguese Market. While the study of Hartl and Hess (2017) only considered German experts, this research also considered Portuguese experts, allowing for the comparison of cultural influences in different contexts. Moreover, a significant improvement of this study when compared to Hartl and Hess (2017) was the inclusion of the Key Success Factors as an object of study. By expanding and detailing their study, a better understanding was sought, regarding the influence of cultural values on digital transformation results, in different cultural contexts.

The Delphi technique is based on experts' knowledge and aims to reach consensus on a specific question through an interactive process that involves the distribution of successive questionnaires with controlled feedback (Okoli and Pawlowski, 2004; Paré et al., 2013; Schmidt, 1997). From the numerous Delphi design variants that are available, the ranking-type Delphi method is the most commonly used in IS research and it is mainly used for the identification and prioritization of issues (Okoli and Pawlowski, 2004; Skinner et al., 2015). When compared to other research methods, the Delphi technique presents unique advantages, since it allows for effective communication through iterative rounds of feedback, all without direct interaction among experts, which may lead to biases (Okoli and Pawlowski, 2004; Skinner et al., 2015).

The second study was carried out by conducting a cross-sectional survey with the individuals responsible for the implementation of digital transformation projects in organizations. This study

was intended to grasp to what extent organizations that prioritize and practice influential cultural values to guide the results of digital transformation projects are more likely to successfully implement the Key Success Factors.

Cross-sectional surveys capture the variables of study at a given point in time, allowing researchers to gain a general view of what is happening in the target population, without the necessity of collecting longitudinal data (Rindfleisch et al., 2008). By collecting data from different groups or populations at the same time, cross-sectional surveys allow researchers to compare groups (Rindfleisch et al., 2008). This between-groups comparison may offer interesting insights into differences and similarities in various organizational characteristics.

The combination of these two research methods was intended to allow for an overall comprehension of the research topic, based on the experts' knowledge and grounded on empirical evidence from real contexts.

4.2. Research Instruments

Both studies employed online surveys. This method has several advantages, such as being cheaper than other survey methods and allowing the collection of data from many people in a relatively short period (Evans & Mathur, 2005). The online questionnaires were prepared in Portuguese and, for this, Qualtrics Survey Software was used. This is an easy-to-handle research tool that has some helpful tools, such as randomizing the presentation of questions or exporting data directly to SPSS, which saves time in data processing.

Questions were distributed through a link generated by the platform and sent by email. This procedure allows participants some comfort and flexibility since there are no time or place constraints to answer the questionnaire (Evans & Mathur, 2005). In addition, people can respond to questions in an environment with which they are familiar, which reduces possible uncertainties and pressures (Evans & Mathur, 2005).

4.3. Delphi Study

4.3.1. Sampling

Selecting the right experts and involving them in the panel is arguably the most critical aspect of the results of every Delphi study since the quality of the Delphi method depends on the quality and type of input from the panel members (Skinner et al., 2015). The Delphi panel of experts consisted of practitioners who are directly involved in daily digital transformation activities and have more than 10 years of experience in positions related to digital transformation projects or consulting engagements.

To identify the practitioners, the author's personal network was searched, and 18 practitioners were identified as potentially good fits for the study. All of them completed the study achieving the commonly recommended sample size of 18 (Okoli and Pawlowski, 2004).

4.3.2. Design and Procedure

The design and process of the Delphi study followed the recommended method put forth by Schmidt (Schmidt, 1997). The study consisted of three rounds: brainstorming, narrowing down, and ranking. The Delphi study was conducted from April 11 to May 7, 2024. Each round on average took 9 days.

Each of the studies listed above in the rounds was composed of a pilot study and the actual study. Before each main study, a pilot study was administered to ensure clarity of questions with the respondents as well as to test the flow of the experimental scenario. Each pilot study consisted of 5 participants who did not participate in the main study. Their feedback was used to modify the main survey as necessary.

Round 1 - Brainstorming phase

While Hartl and Hess (2017) used the brainstorming method to generate new cultural values based on the panelists, this research used a different approach during the brainstorming session. The Organizational Cultural Values and Key Success Factors were not solely based on the panelists' generation. Instead, a pre-existing list from the literature was used as a foundation to be validated by the panelists. The panelists were asked to agree or disagree with each of the organizational values and Key Success Factors and to add or remove items based on their own perspectives and

understanding. This combination of previous research and panelists' generation was used in order to refine and complete the list. The panelists' participation was essential to adapt the list to this study's context and to enrich it with their valuable insights and experiences.

Consequently, the study of the first round was divided in 3 sections (see Appendix 1 for more details). Section one included detailed definitions for the central constructs. In section two, the panelists reviewed and validated 12 organizational values previously identified as essential for supporting digital transformation and also proposed the necessary adaptations. Similarly, in section three, the panelists reviewed and validated 8 Key Success Factors dimensions.

Round 2 - Narrowing down phase

This phase aimed to reduce the list of Organizational Cultural Values and Key Success Factors to a practical size for the ranking phase advocated by Schmidt (1997). Therefore, the study consisted of two parts (see Appendix 2 for details).

For each section of this study, a random list of the variables generated from the brainstorming session was given to each panelist. They were asked to rank the 10 most important organizational cultural values and 6 Key Success Factors for the success of digital transformation. A brief description of each variable was given to ensure consensus among panelists. Only the values selected by more than half of the panelists were used for the ranking phase. In this way, the list of 18 organizational culture values was reduced to 10. The initial list of Key Success Factors was also refined to 7.

Round 3 - Ranking phase

The ranking phase was focused on ranking the 10 Organizational Cultural Values and the 7 Key Success Factors. Thus, the study consisted of three sections (see Appendix 3 for more details).

For the first two sections, the list of condensed variables, obtained from the previous rounds, was presented to the experts in random order. The last section, after the values were ranked, the experts were asked to rate each organizational cultural value on 7-point scales on the two dimensions of the Competing Values Framework (CVF): external-internal and flexibility-stability. This

additional part was aimed to provide further insights into the positioning of the Organizational Cultural Values on the dimensions of the Competing Values Framework (CVF). In doing so, a deeper understanding of their effects on the success of digital transformation measures could be obtained.

4.4. Cross-Sectional Survey

4.4.1. Sampling

The cross-sectional survey with a purposeful approach was used, based on the criteria sampling, according to Patton (1980). Thus, considering the general purpose of the research, namely, to study the interaction between the adoption of Key Success Factors and several cultural values in digital transformation projects, two selection criteria were defined for the organizations.

As a first step, only organizations based in Portugal were selected, because of the difficulties in identifying and accessing companies outside this region. As a second step organizations that adopt or are going to adopt several digital initiatives were selected. No limitation was made regarding the sector of activity or the size of the company, to promote the diversity of the sample.

After the application of the selection criteria, 25 organizations were selected to participate in the study but only 18 were interested in doing so. From the organizations that make up the sample, digital experts were selected, who in the majority of the cases are the ones that drive the digital transformation (DT) of the organization. Among these experts are IT Directors, Chief Financial Officers, Sales Directors, and Project Managers.

4.4.2. Design and Procedure

After analyzing the information gathered from the Delphi study, to answer the research question, the cross-sectional survey was conducted comprised of a single survey to all participants from the different organizations.

Before initiating the main study, a pilot study was conducted to evaluate respondents' comprehension of the questions and to validate the functionality of the experimental scenario flow. Each pilot study comprised 5 participants who were not part of the main study. Adjustments to the main survey were made based on their feedback as required.

The main study comprised 3 sections (see Appendix 4 for more details). In section 1 participants were presented with a concise introduction clarifying the scope and purpose of the survey.

Subsequently, participants were tasked with assessing the organizational culture using the Organizational Culture Assessment Instrument (OCAI) a well-established instrument based on the Competing Values Framework (CVF) for comprehending organizational culture (Cameron & Quinn, 2011). Therefore, participants were presented with six questions in which they were required to allocate 100 points across four types of statements.

The third section participants were requested to identify the Key Success Factors collected from the Delphi study that had been implemented in their organization's digital transformation initiatives. To achieve this, the study presented participants with seven dimensions of Key Success Factors, which were collected from the Delphi study. Participants were then required to evaluate whether the organization had implemented each key success factor within each dimension. The evaluation process was based on the Likert scale as the psychometric response format, rating the influence of each dimension on a scale from 1 to 5. The scale values corresponded to: 1-Totally disagree, 2-Disagree, 3-Neutral, 4-Agree, and 5-Totally agree.

5. Analysis

5.1. Delphi Study

5.1.1. Sampling Characterization

Before delving into the analysis, it's important to characterize the panelist's profile. The study was composed of 18 panelists solely from consulting firms, with expertise in digital transformation mainly in Portugal and an average of 17 years in the area.

Considering the functions occupied by the panelists, the following distribution was observed: 5 Partners (28%), 3 Directors (17%), 2 Senior Managers (11%), 7 Managers (39%) and 1 Freelancer (6%). As we can see, there is a good balance of seniority levels participating in the study, which will contribute to better assessing the strategies of digital transformation from diverse organizational viewpoints.

A high level of participation was achieved during the multiple rounds of the Delphi Study. The Brainstorming and Ranking phases achieved a percentage of participation of 100%, however during the Narrowing Down phase a small drop in the level of adherence was verified, with a rate of almost 89%.

Table 1- Overview of Delphi Study Data Collection Process

Phase	*Brainstorming*	*Narrowing down*	*Ranking*
Round	1	2	3
Responses	18	16	18
Response rate	100%	89%	100%

5.1.2. First Round

The aim of Delphi Study round 1 was to validate the Organizational Cultural Values identified in the literature. The panelists were asked to provide their consensus on whether the values are valid and reflect their experience and observations in organizational digital transformation contexts.

The average result obtained for the initial 12 Organizational Cultural Values was astonishingly good with 77% average agreement with the preliminary list of cultural values. This result demonstrates the strong validity of the values and the alignment with the experience and views of the panel members regarding organizational digital transformation. The panel members' comments and suggestions were, therefore, considered and integrated into the rephrased version. The 12 values were, thus, further extensively reformulated to ensure they are pertinent and applicable to organizations today.

Table 2- Delphi Study Round 1 Organizational Cultural Values Results

Organizational culture value	*Average degree of agreement*
Agility	83%
Communication	94%
Cooperation	67%
Customer centricity	67%
Innovation	78%
Openness toward change	78%
Participation	67%
Entrepreneurship	78%
Risk affinity	67%
Tolerance towards failure	78%
Trust	83%
Willingness to learn	94%

Additional to the validation of the initial 12 Organizational Cultural Values, panel members, 6 new values were proposed by the panelists. These additions complement and enhance the existing framework and its conceptual underpinning, enlarging the list of values to 18. The new values added to the framework are "continuous improvement", "operational excellence", "digital leadership", "data-driven organization", "digital culture" and "security culture".

Table 3- Delphi Study Round 1 Key Success Factors Results

Key Success Factors	*Average degree of agreement*
Leadership	94%

Supportive organizational culture	83%
Employee and partner engagement	83%
Aligning business and IT strategies	72%
Process standardization and data integration	61%
Employee training and skills development	83%
Agile transformation management	83%
Leveraging internal and external (technological) knowledge	72%

Besides the refinement of the initial 8 dimensions of Key Success Factors 5 new dimensions were added as suggested by the panelists. Which again enriched the existing framework and made it comprehensive to cater variety of programs. The 5 new dimensions added are "strengthening investment capacity", "definition of a governance and risk management model", "information security" data integration and "monitoring transformation initiatives".

5.1.3. Second Round

The second round of the Delphi consisted of re-evaluating the selection of Organizational Cultural Values and Key Success Factors that have a direct impact on digital transformation initiatives. The results from round 1 were provided to panelists along with the cumulative results and additional information to reconsider their selections.

The frequency distribution offers insights into the preferences and priorities of panelists regarding organizational culture values and Key Success Factors. Even though the panelists were asked to select only 8 cultural values, 2 additional cultural values showed a frequency distribution above 50% (see Table 4 for more details) and were thus taken into consideration for round 3.

Table 4- Deplhi Study Round 2 Organizational Cultural Values Results

Organizational Cultural Values	*Round 2 – Percentage of Frequency*	*Round 2 – Frequency*
Innovation	69%	11.00
Multidisciplinary collaboration	69%	11.00
Risk affinity	63%	10.00
Digital culture	56%	9.00

Data driven organization	56%	9.00
Digital leadership	50%	8.00
Openness toward change	50%	8.00
Agility	50%	8.00
Knowledge sharing	50%	8.00
Tolerance towards failure	50%	8.00
Collaborative decision-making	44%	7
Customer centricity	38%	6
Proactivity	38%	6
Continuous improvement	31%	5
Operational excelence	31%	5
Trust	25%	4
Knowledge organization	19%	3
Security Culture	13%	2

Similarly, with the Key Success Factors dimensions, where panelists were required to select only 6, 2 additional key success factor was considered since it's percentage of frequency was above 50% (see Table 5 for more details).

Table 5- Delphi Study Round 2 Key Success Factors Results

Key Success Factor Dimension	*Round 2 – Percentage of Frequency*	*Round 2 – Frequency*
Alignment of Business and IT Strategies	81%	13.00
Monitoring of transformation initiatives	69%	11.00
Definition of a governance and risk management model	63%	10.00
Agile transformation management	56%	8.96
Supportive organizational culture	56%	9.00
Multidisciplinary collaboration	50%	8.00
Employee training and skills development	50%	8.00

Data Integration	44%	7.00
Leveraging internal and external knowledge	38%	6.00
Strengthening Investment Capacity	38%	6.00
Leadership	31%	5.00
Process Standardization	13%	2.00
Information Security	13%	2.00

5.1.4. Third Round

In round 3 of our Delphi study, the panel of experts gave their opinions on the relative importance of Organizational Cultural Values and Key Success Factors when implementing successful digital transformation projects in organizations. The experts evaluated and revised their responses from previous rounds and a pattern of what are the most important cultural values and Key Success Factors emerged.

The relative ranking of the cultural values and Key Success Factors was determined by calculating the mean number of times each of the named factors was selected, combining all the selections, and then ranking them by importance. This enabled the researcher to gain an appreciation of the relative importance of each of the factors evaluated in facilitating successful digital transformation initiatives in organizations.

The results (see Table 6 for more details) indicate that digital leadership, digital culture, and innovation were considered the paramount cultural values in driving digital transformation by the panelists. Tolerance toward failure, data-driven organization, and risk affinity were considered while still significant, saw decreases in ranking, suggesting a nuanced shift in emphasis toward other factors deemed more crucial in driving successful digital transformation endeavors.

Table 6- Delphi Study Round 3 Organizational Cultural Values Results

Organizational Cultural Values	*Round 2 – Percentage of Selection frequency*	*Round 3 - Mean ranking*	*Ranking*

Digital leadership	50%	2.89	1
Digital culture	56%	3.61	2
Innovation	69%	4.22	3
Openness toward change	69%	4.56	4
Agility	50%	5.33	5
Multidisciplinary collaboration	50%	6.17	6
Knowledge Sharing	50%	6.44	7
Risk affinity	63%	7.00	8
Data-Driven organization	56%	7.17	9
Tolerance towards failure	50%	7.61	10

The Key Success Factors according to the Delphi round 3 results show a definite Hierarchy of factors that would drive successful digital transformation initiatives in an organization. The top tier of the Key Success Factors dimensions is related to the alignment of business and IT and multidisciplinary collaboration which was deemed the most relevant Key Success Factors dimensions for digital transformation. At the bottom of the tier both defining a governance and risk management model and a supportive organization culture were seen as the least impactful Key Success Factor for digital transformation from the provided list.

Table 7- Delphi Study Round 3 Key Success Factors Results

Key Success Factors	*Round 2 – Percentage of Selection frequency*	*Round 3 - Mean ranking*	*Ranking*
Aligning business and IT strategies	81%	1.94	1
Multidisciplinary collaboration	50%	3.39	2
Agile transformation management	56%	3.61	3
Employee training and skills development	50%	3.94	4
Monitoring of transformation initiatives	69%	4.61	5
Definition of a governance and risk management model	63%	5.00	6
Supportive organizational culture	56%	5.50	7

Kendall's W was calculated to determine the degree of agreement among the 18 raters on the dimensions of Organizational Cultural Values and Key Success Factors. The calculated Kendalls' W statistics were 0.288 for the Organizational Cultural Values dimension and 0.299 for the Key Success Factors dimension. As interpreted in practice, Kendall's W values indicate that the agreement among the raters was moderate. This means that the raters tended to agree on the ranking of the Organizational Cultural Values and Key Success Factors but there was also considerable divergence in the ratings given by the participants (Schmidt, 1997). The moderate degree of agreement among the raters suggests that the raters may have had different points of view and or interpretations as to the relative importance and ranking of the items pertaining to the dimensions of Organizational Cultural Values and Key Success Factors as they relate to the digital transformation initiatives.

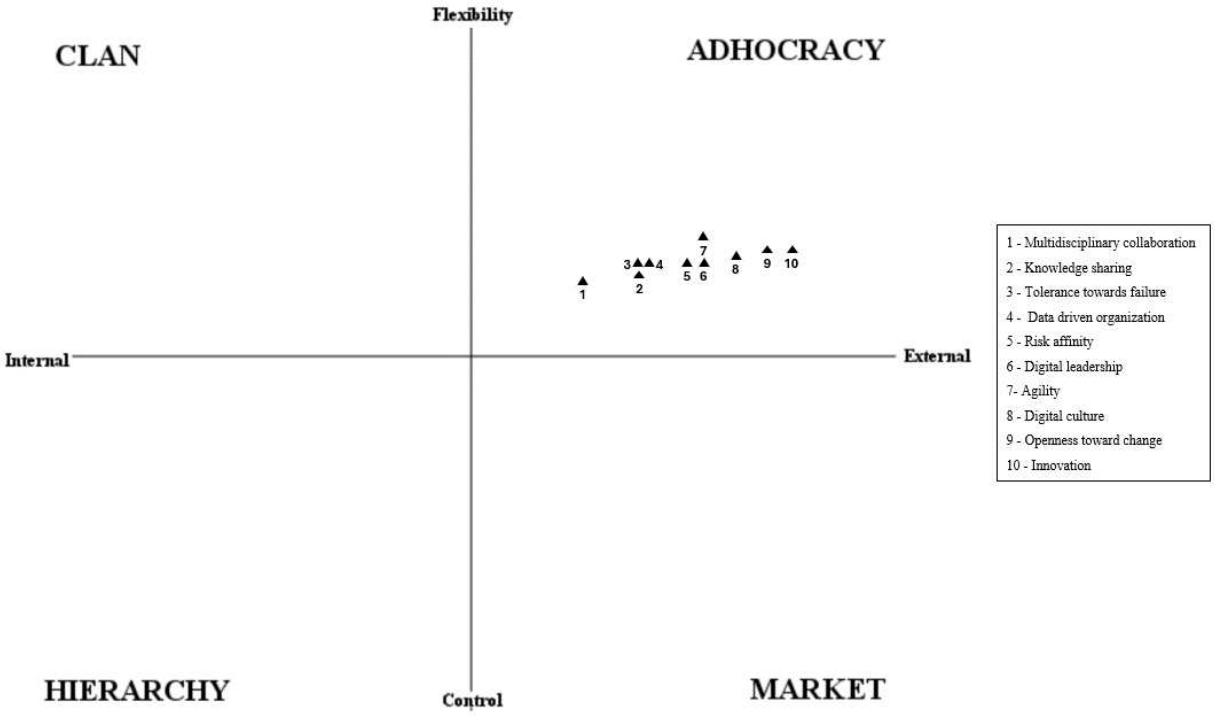
Table 8- Delphi Study Round 3 Degree of Consensus

Component	*Kendalls' W*	*Chi-Square*
Organizational Cultural Values	0.288	46.655*
Key Success Factors dimensions	0.299	32.310*

Note: *p < .001

To examine each cultural value in the context of the Competing Values Framework (CVF), two key dimensions were used; external-internal orientation and flexibility-control. The organizational values identified in the Delphi were plotted on the Competing Values Framework (CVF) dimensions based on their mean values. As shown in Figure 2, it was clear that all organizational values were located in the Adhocracy culture type.

Figure 2- Delphi Study Results in the Competing Values Framework (CVF)



5.2. Cross-Sectional Survey

5.2.1. Sampling Characterization

Before diving into the analysis, it's essential to provide an overview of the participants in the cross-sectional study. The 18 researchers all have led or heavily been involved in digital transformation initiatives in their organizations in Portugal (please see Appendix 5 for more details).

In terms of the respondents' functions, the distribution is as follows: 12 IT Directors (67%), 3 Project Managers (17%), 1 CFO/Board member (6%), 1 Digital Transformation Manager (6%) and 1 Sales Manager (6%).

The respondents represented different sectors of the industry, so the distribution was as follows: Manufacturing (28%), Tourism & Hospitality (17%), Utilities (17%), Healthcare (11%), Banking & Insurance (6%), Construction & Engineering (6%), Government institutions (6%), Technology (6%) and Retail Chain (6%).

5.2.2. OCAI Assessment

The first section of the Cross-Sectional Survey allowed to grasp the types of culture present in the participant's organizations. Therefore, the average score was determined on each of the dimensions of the OCAI Assessment (see Appendix 6 for more details). The result shows that of the 18 organizations that participated in the study, 39% were dominated essentially by the Clan culture, 22% by the Adhocracy culture, 22% by the Market Culture, and 17% by the Hierarchical culture.

5.2.3. Scales Reliability

As the assessment scales used in the Key Success Factors implementation assessment were adapted from existing literature via the Delphi Study it is reasonable to examine the scales' reliability in order to ensure the results are as accurate as possible.

So in order to ensure internal consistency of the scales with 3 or more items, Cronbach's alpha was calculated (see Table 9 for more details).

Table 9 - Key Success Factor's Dimensions Cronbach's Alpha

Key Success Factor Dimension	*Initial number of items*	*Cronbach's alpha*

Supportive Organizational Culture	6.00	0.76
Multidisciplinary collaboration	6.00	0.82
Alignment of Business and IT Strategies	4.00	0.77
Monitoring of Transformation Initiatives	5.00	0.87
Employee Training and Skills Development	6.00	0.80
Agile Transformation Management	6.00	0.69
Definition of a Governance and Risk Management Model	4.00	0.62

For most variables, the Cronbach alpha is higher than 0.70 which Nunnally & Bernstein (1984) define as acceptable. Dimensions "Agile Transformation Management" and "Definition of a Governance and Risk Management Model" are below 0.70 but no items were deleted since Cronbach's alpha is highly dependent on the sample size.

5.2.4. Explanatory analysis

One-Way Multivariate Analysis

The one-way multivariate analysis of variance (MANOVA) was conducted to assess the overall effect of cultural dimensions on the combined Key Success Factors dimensions (see Table 10 for more details).

Table 10 - One-way multivariate analysis of variance (MANOVA)

Culture Type	*F-Value*
Clan	21.6409***
Adhocracy	19.9558***
Market	8.4661***
Hierarchy	6.0802***
Note: ***p < .001, **p < .01, *p < .05	

The interpretation of the MANOVA indicates that the independent cultural dimensions have a large influence on the dependent dimensions of Key Success Factors. Examination of the results in Table 10 indicates that all four cultural dimensions are significantly related to the dependent dimensions. However, the highest multivariate effects were found for Clan and Adhocracy.

Correlation Analysis

The correlation analysis was performed to gather an overview of the relationships between the organizational culture types and the Key Success Factors dimensions for digital transformation (see Table 11 for more details).

Table 11 - Correlation Analysis

Culture Type	*Clan*	*Adhocracy*	*Market*	*Hierarchy*
Supportive Organizational Culture	0.161	.731**	-0.096	-.686**
Multidisciplinary Collaboration	0.248	.753**	-0.251	-.642**
Alignment of Business and IT Strategies	0.389	.547*	-0.101	-.688**
Monitoring of Transformation Initiatives	0.212	.717**	-0.158	-.660**
Employee Training and Skills Development	0.436	.569*	-0.098	-.744**
Agile Transformation Management	0.306	0.446	-0.062	-.569*
Definition of a Governance and Risk Management Model	0.091	.479*	-0.202	-0.323
Note: ***p < .001, **p < .01, *p < .05				

As shown above, both Clan and Adhocracy cultures correlate strongly with all the dimensions of Key Success Factors in a positive way. However, while the positive correlations of Clan are not statistically significant, those of Adhocracy are. Conversely, both Market and Hierarchy cultures correlate strongly with all the dimensions of Key Success Factors in a negative way. However, while the negative correlations of the Market are not statistically significant, those of Hierarchy are. This means that while Market and Clan have a neutral impact on Key Success Factors, Adhocracy enhances them strongly and Hierarchy inhibits them strongly.

Multiple Regression Analysis

Multiple regression analysis was conducted to explore the prediction of the implementation of Key Success Factors by culture types.

Table 12 - Multiple Regression Analysis

Culture Type	*Clan*	*Adhocracy*	*Market*	*Hierarchy*

Supportive Organizational Culture	0.038***	0.0554***	0.0309***	0.0184**
Multidisciplinary Collaboration	0.0411***	0.0566***	0.0249***	0.0189***
Alignment of Business and IT Strategies	0.0548***	0.0553***	0.0279*	0.0062
Monitoring of Transformation Initiatives	0.0429***	0.0601***	0.0300***	0.0188**
Employee Training and Skills Development	0.0454***	0.0454***	0.0290***	0.0185***
Agile Transformation Management	0.0453***	0.0459***	0.0323**	0.019**
Definition of a Governance and Risk Management Model	0.038***	0.0505***	0.0296**	0.0299***
Note: ***p < .001, **p < .01, *p < .05				

As shown in the above results, Clan has a positive effect on the implementation of Key Success Factors in all dimensions, and the p-value ($p < 0.001$) in multiple dimensions ensures the reliability of this result.

Adhocracy is the most dominant culture type and has positive coefficients in all dimensions of Key Success Factors. This suggests that the presence of Adhocracy culture in an organization ensures or enhances the implementation of Key Success Factors. The p-values ($p < 0.001$) suggest very high statistical significance in this case and highlight the importance of this culture type.

Market culture also has a positive effect on the implementation of Key Success Factors. This supports the argument that goal-oriented and competitive cultures promote and ensure successful digital transformation. The p-values ($p < 0.01$) in multiple dimensions ensure the reliability of this result.

However, Hierarchy culture negatively affects the implementation of Key Success Factors. The negative coefficients in all dimensions and significant p-values ($p < 0.05$) in multiple dimensions ensure the reliability of this result. This suggests that the presence of control culture hampers and prevents the flexibility needed for digital transformation.

6. Discussion

6.1. Organizational Cultural Values that influence the outcomes of digital transformation initiatives

H1: *Experts recognize a set of Organizational Cultural Values as influential in shaping the outcomes of digital transformation initiatives.*

To test Hypothesis 1, Delphi Study data was used. The rankings from the multiple rounds of the Delphi Study provide a quantitative ranking of the importance of each cultural value as perceived by these groups of participants in digital transformations.

The most influential of the digital cultural values is digital leadership. The literature on this subject asserts the critical nature of leadership to the outcome of digital transformation initiatives. (Kane et al., 2019; Klein, 2020; Petry, 2018). Digital leaders create the vision, priorities, and culture that make innovation and change possible which translates in a profound effect on the success of transformation efforts.

Following closely behind digital leadership is the cultural value of digital culture. There is a significant focus on developing a digital mindset throughout the organization to highlight the importance of cultural alignment and practice adjustment to accommodate digital transformation (Buvat et al., 2017; Hermeling et al., 2018; Teichert, 2019).

Innovation and, Openness toward change, follow in respectively third and fourth place emphasizing the role of these factors in organizational agility and adaptiveness. Innovation, or the capacity to create new ideas and solutions, propels the adoption of new technologies and business models that competitors leverage for a competitive edge in the digital era (Hartl & Hess, 2017; Tidd & Bessant, 2018). Openness to change represents the organizational capacity to accept the necessity of change and the willingness to leave behind old ways of working. (Hartl & Hess, 2017; Kane et al., 2015)

Agility, multidisciplinary collaboration, and knowledge sharing are described as impactful cultural values on digital transformation initiatives. These three values point of the necessity of establishing and maintaining an ecosystem with many different actors, who contribute to one integrated value

chain (Buchwald & Rudolph, 2018). Moreover, the value of agility points to the necessity of organizations to be flexible and agile in the given environment (Burchardt & Maisch, 2019).

Lastly, the analysis confirms that risk affinity and data-driven decision making are impactful cultural values related to digital transformation. Risk affinity is about acknowledging that uncertainty is inevitable and, thus, experimenting in a controlled manner, while data-drivenness underlines the importance of using insights from data analytics for making digital transformation strategies and avoiding risks (Korherr et al., 2022).

The findings of this study provide empirical support for the hypothesis that experts recognize a set of Organizational Cultural Values as influential in shaping the outcomes of digital transformation initiatives.

H1a: *The Organizational Cultural Values identified by Hartl and Hess (2017) are acknowledged by experts as influential in shaping the outcomes of digital transformation initiatives.*

The values identified by Hartl and Hess (2017) are deemed important for managing digital business transformation. Among these values, innovation, openness toward change, agility, multidisciplinary collaboration, knowledge sharing, and risk affinity are considered by the experts as having a stronger impact compared to the others. In essence, these cultural values are considered to be at the very heart of organizational resilience and adaptability in the face of digitalization.

However, the experts did not consider collaborative decision-making, entrepreneurship (proactivity), trust, and knowledge organization as influential cultural values as the cultural values that influence digital transformation. These are, of course, important cultural values in general in an organization, but their absence from the list of most influential cultural values suggests that there is a particular and unique logic to the priorities and challenges that digital transformation leads to.

The analysis of expert opinions provides empirical support for hypothesis H1a that the Organizational Cultural Values identified by Hartl and Hess (2017) are acknowledged as influential in shaping the outcomes of digital transformation initiatives.

H1b: *Experts recognize additional Organizational Cultural Values beyond those identified by Hartl and Hess (2017) as influential in shaping the outcomes of digital transformation initiatives.*

The Delphi Study's findings support H1b empirically, experts identified more Organizational Cultural Values than those identified by Hartl and Hess (2017) as drivers of digital initiative outcomes. Digital leadership, digital culture, and data-driven organization appear as key drivers of successful digital transformation. This supports the argument for developing an organizational culture to drive technological innovation, increase digital fluency, and utilize data analytics for decision making. As organizations grapple with digital disruption, these organizational cultural values and behaviors must become hard-wired as activities in pursuit of sustainable growth, digital transformation, and competitive advantage in the digital age.

H1c: *The Organizational Cultural Values acknowledged by experts as influential in shaping the outcomes of digital transformation initiatives fall into the Clan and Adhocracy types of the Competing Values Framework (CVF).*

The results of this study support hypothesis H1c, that the Organizational Cultural Values identified by the experts as having an impact on the outcomes of digital transformation initiatives are predominantly of the Clan and Adhocracy type of the Competing Values Framework (CVF). The Delphi Study showed that the cultural values perceived as having the strongest impact on the success of digital transformation initiatives did correspond to the typical characteristics of the Adhocracy type.

The results for values such as innovation, risk-taking propensity, and multidisciplinary collaboration, which are typical of the Adhocracy cultural type, are consistent with the study by Hartl & Hess (2017). The values of openness to change, agility, knowledge exchange, and acceptance of failure were mapped to the Clan cultural type in the study by Hartl & Hess (2017).

Overall, the results support hypothesis H1c and indicate the importance of Organizational Cultural Values that are typical of the Adhocracy type of the CVF to facilitate successful digital transformation initiatives.

6.2. Key Success Factors of Digital Transformation Initiatives

H2: *Experts recognize a set of Key Success Factors for the implementation of digital transformation initiatives.*

The Delphi Study delivers interesting insights into what factors and characteristics the experts consider important for reaching the desired outcomes of digital transformation initiatives. Among these factors, the most important one is the alignment of business and IT strategies. This underlines the relevance of integrating and aligning business and IT capabilities. By establishing a strategic alignment between business and technology, organizations can increase the chances that digital transformation adds value and contributes to sustainable business growth (Coltman et al., 2015).

Second, ranked was multidisciplinary collaboration. This point stresses the importance of collaboration across business and IT functions to enable the convergence of diverse perspectives, expertise, and resources to work towards common transformation goals. By removing silos and encouraging innovation and increased agility, organizations can respond more effectively to Market pressures and leverage emerging technologies.

The third-ranked factor for success was managing agile transformation. This emphasizes the need to leverage agile methods and practices to handle the complexity and uncertainty that are characteristic of most digital transformation initiatives. Agile methodologies encourage iterative development, fast experimentation and continuous feedback which help organizations to learn in a rapid and flexible manner by allowing course correction as the transformation journey proceeds (Fuchs & Hess, 2018).

Employee training and skills development rank fourth, emphasizing the significance of investing in human capital to build digital capabilities and competencies necessary for driving successful digital transformations. Upskilling and reskilling initiatives enable employees to embrace new technologies, adapt to changing roles and responsibilities, and contribute meaningfully to transformational efforts (Trenery et al., 2021).

Monitoring of transformation initiatives ranks fifth, highlighting the importance of establishing robust monitoring and evaluation mechanisms to track progress, identify challenges, and ensure alignment with strategic objectives. Monitoring enables organizations to proactively identify issues, adjust strategies, and optimize resource allocation, thereby enhancing the likelihood of successful implementation and desired outcomes.

The sixth factor – definition of a governance and risk management model, highlights the need for clearly established organizational structures and processes that will govern the direction and scope

of digital transformation initiatives, as well as decision-making, resource allocation and associated risks. An appropriate level of governance assists in ensuring accountability, transparency and effective risk management in relation to digital transformation activities (Tannou et al., 2012)

The seventh factor – supportive organizational culture, is highlighted by many researchers as a key success factor of digital transformation initiatives. Organizational culture refers to the way of thinking, communicating, working, and acting in a particular environment (Cichosz, 2020). Therefore, a supportive culture for digital transformation encourages creativity, innovation and experimentation, while empowering employees to take ownership for change, and effectively driving transformational initiatives as a collective.

Based on the above analysis of Key Success Factors for the implementation of digital transformation, empirical evidence supports hypothesis H2, that experts are aware of certain critical success factors that need to be adequately managed to ensure favorable outcomes of digital transformation initiatives.

H2a: *The Key Success Factors identified by Cichosz et al. (2020), are recognized has having a substantial impact on the outcomes of digital transformation initiatives.*

The success factors that Cichosz et al. (2020) identified include several organizational considerations that may be relevant when managing digital transformation. Business and IT alignment, multidisciplinary cooperation, agile management of transformation, training and competencies as well as organizational support are factors that the experts indicated have a high impact on the outcome of digital transformation.

Leadership, leveraging internal and external knowledge, process standardization, and data integration were not seen by the experts to have a high impact on the outcome of digital transformation. While leadership is certainly an important aspect of any transformational change, it is interesting that the experts did not single it out as something that has a major impact on the success of digital transformation. Perhaps this is a very nuanced observation and acknowledgment that digital transformation is different from more traditional changes that organizations have undertaken over the years. Process standardization and data integration are also aspects that organizations need to consider but perhaps not in the context of directly influencing the outcome of transformational change in the same way as the success factors identified by the experts.

The results of this discussion chapter are empirically related to hypothesis H2a. The Key Success Factors presented by Cichosz et al. (2020) were recognized by experts as having high impact on the outcome of digital transformation.

H2b: *Experts recognize additional Key Success Factors beyond those identified by Cichosz et al. (2020) as influential in shaping the outcomes of digital transformation initiatives.*

The Delphi Study results present evidence supporting H2b, that there are additional Key Success Factors, besides those presented by Cichosz et al. (2020) that impact the outcomes of digital transformation initiatives. Monitoring of digital transformation initiatives and Defining governance and risk management model are statements that reflect the need for management awareness, proactive activity and risk mitigation. By acknowledging and addressing additional success factors and incorporating them into their digital transformation strategy, organizations can increase their level of readiness and resilience needed to survive digital disruption and achieve desired digital outcomes.

6.3. The relationship between Organizational Cultural Values and the Key Success Factors of digital transformation initiatives

H3: *Organizations that prioritize and embody cultural values aligned with the Clan and Adhocracy types of the Competing Values Framework (CVF), are more likely to effectively implement the Key Success Factors necessary for successful digital transformations.*

The Cross-Sectional survey provides robust support for this hypothesis. The correlation matrix, multiple regression, and MANOVA, working together provide strong evidence that cultural dimensions aligned to Clan and Adhocracy are strongly associated with the effective deployment of Key Success Factors for digital transformation.

- Correlation analysis: The correlations of Adhocracy to all dimensions of Key Success Factors are positive correlations, as such, they are inversely related to Hierarchy. This suggests that a strong culture of Adhocracy may create an environment where the dimensions of Key Success Factors can be successfully implemented. The p-values in the correlation matrix are statistically significant, adding robustness to the correlations.

- Multiple Regression Analysis: Across multiple dimensions of Key Success Factors, Adhocracy consistently emerges as a significant positive predictor while Hierarchy is a negative predictor. This supports the notion that a flexible and innovative culture (Adhocracy) is conducive to digital transformation while a rigid and structured culture (Hierarchy) is not. The low p-values indicate the findings are statistically significant.
- MANOVA: The Wilks' lambda are significant for Clan and Adhocracy suggesting that these cultural types have an overall significant effect on the dependent variables (implementing Key Success Factors). This emphasizes the importance of these cultural types in driving effective Key Success Factors for digital transformation. The p-values again suggest the findings are statistically significant.

These findings are consistent with the Competing Values Framework, which suggests that Clan and Adhocracy cultures are more flexible and adaptable to change and innovation. In the case of digital transformation, these cultural attributes play a key role in addressing the complexities and uncertainties of such an initiative.

Organizations that develop Clan and Adhocracy cultures will most likely reap the benefits of collaboration, innovation, and agility required to put into practice the Key Success Factors of digital transformation. This research suggests that understanding the type of culture your organization has, and how this is aligned with the demands of digital transformation, is critical to achieving desired results.

Finally, the evidence clearly supports the hypothesis, showing that the prioritization and embodiment of Clan and Adhocracy cultural values greatly increase the probability of successful implementation of the Key Success Factors needed for digital transformation. Organizations looking to embark on digital transformation initiatives should consider the development of such cultural attributes to maximize their chances of success.

7. Conclusions and Implications

This research aimed to investigate the impact of Organizational Cultural Values on the implementation of Key Success Factors in digital transformation. The results showed that some cultural values had significant effects on the successful implementation of digital transformations in organizations, which were in line with the Competing Values Framework (CVF). This chapter presents the summary of the findings and the theoretical and managerial contributions.

This study's results suggested that the organizational cultures with Clan and Adhocracy values are more appropriate for the successful implementation of digital transformation. Clan culture which focuses on collaboration, trust, and support; and Adhocracy culture which focuses on innovation, flexibility, and risk-taking, both had positive effects on the implementation of Key Success Factors including business and IT alignment, multi-disciplinary collaboration, agile transformation management, and training and skills development of employees.

On the other hand, Hierarchical cultures which are more formalized and controlled had negative effects on these success factors, which meant that the rigidity and the lack of flexibility in organizations hinder the digital transformations in organizations. Market culture which focuses on competition and goal-oriented context also had positive effects, but smaller than the Clan and Adhocracy cultures.

7.1. Theoretical Implications

This study contributes to the digital transformation and organizational culture growing body of knowledge by empirically examining and adding to the literature the specific organizational culture values of organizations that have successfully transformed digitally. The study further extends the Competing Values Framework (CVF) by suggesting, empirically, that Clan and Adhocracy cultures represent the best culture composition for digitally transformed success.

The study also provides evidence for digital leadership, digital culture, and innovation as cultural values that should be nurtured for successful digital transformations. This reiterates the importance of the digital mindset and the need for an innovative and agile working environment.

7.2. Managerial Implications

Digital transformation strategies must look at the organizational cultural characteristics and ensure that agility, flexibility, and an appetite for change are addressed in the strategic agenda. An element of this agenda should be to develop digital leaders who can articulate the digital agenda and create enthusiasm for a digital-first approach. Leadership development programs should include digital skills and managing digital change to support this.

The multidiscipline collaboration will release knowledge and expertise from across the organization. Silos and functional barriers stop cross-functional working. Collaboration platforms and integrated workstations can help to tackle this.

Finally, investment in learning and development should be included when creating the digital capability of the workforce. Learning and development must be made available on a regular basis to help staff adjust to new digital processes and workflows.

8. Limitations and Future Research

Although this research gives some valuable insights into the impact of Organizational Cultural Values and Key Success Factors on digital transformation initiatives, it's important to consider some limitations.

Firstly, the research instruments used were online surveys. Online surveys have a limited degree of control over respondents and their responses as well as the survey context in which they participate (Ilieva et al., 2002). In addition to this, it's difficult to ensure that respondents are properly interested, focused, attentive, and honest with their responses.

Also, sometimes respondents are affected by social desirability when answering surveys. This can lead to changes in responses to fit societal norms or to present themselves positively. Consequently, the study might have been subject to this bias.

Moreover, this research was conducted mainly with Portuguese experts and Portuguese companies. Therefore, it has limitations in terms of the generalization of results. It might be that in different cultural contexts, organizational values might behave differently and even interact differently with digital transformation initiatives. Future research should then consider cross-cultural comparative studies to unveil how cultural dimensions impact digital transformation results in different regions and organizational contexts.

Methodological limitations encountered during the Delphi study should also be considered. Organizational Cultural Values and Key Success Factors were relied upon in a pre-listed way instead of an open list as suggested by Schmidt (1997). This might have limited the insights achieved. This limitation then might have an impact on the completeness and accuracy of the success factors achieved. Furthermore, the low level of consensus achieved and the limited number of participants in the second Delphi round might affect the reliability and validity of the results. These problems suggest the need for future research to strengthen methodological techniques in order to provide more robust and comprehensive results.

Finally, another important limitation is the assessment of organizational culture in the multiple case study. This study relied on only one respondent per company to assess organizational culture. This might introduce some bias and subjectivity on the part of the respondent (Klein and

Kozlowski, 2000). Organizational culture is usually complex and it's shaped by the behaviors, beliefs, and interactions of all members within the organization. Assessing organizational culture based on only one respondent might ignore other existing viewpoints and interactions within that same organizational context thus limiting the comprehensiveness achieved.

As a way to contribute to the mitigation of these limitations, some future research avenues are proposed. Firstly, methodological improvements such as open-list techniques in Delphi studies and stronger consensus-building methods can be considered. Researchers should then aim at achieving a higher level of reliability and comprehensiveness of results by encouraging more participants to engage in the study and by building iterative feedback mechanisms.

Also, a thorough assessment of organizational culture in case study research can be accomplished through triangulation techniques, mixed methods, and longitudinal research. Triangulation of data from various sources such as interviews, surveys, and secondary data or observable facts can provide deeper insights into the impact of organizational culture on digital transformation results. Longitudinal research can follow organizational cultural shifts over time and help to unveil cultural change dynamics and their consequences on digital transformation initiatives.

Finally, despite some limitations encountered in this research, this study calls for methodological improvements and robust research designs in future investigations. By considering interdisciplinary viewpoints and various methodological techniques, researchers can achieve a better understanding of the complex relationship between organizational culture and digital transformation success factors in different organizational and cultural contexts.

9. Appendices

Appendix 1 – Delphi Study Round 1 Survey Script

Section	*List of Questions*	*List of options to answer*
Organizational Cultural Values	Q1. Please indicate your level of agreement with the following Organizational Cultural Value. - **Q1.1. Agility:** The organization's willingness to work, act and re-structure and be flexible and adaptable in order to react to change. - **Q1.2. Communication:** The organization's intention is to build internal and external networks for knowledge and information sharing. - **Q1.3. Cooperation:** The organization's positive stance towards teamwork, cross functional collaboration, and readiness for cooperation with external partners (e.g. customers). - **Q1.4. Customer centricity:** The organization's orientation of all activities to meet customer needs: products and processes are designed with a focus on customer needs and continuously adapted to changes thereof. - **Q1.5. Innovation:** The organization's pursuit of improvement and growth through the development of innovations. - **Q1.6. Openness toward change:** The organization's openness towards new ideas and its readiness to accept, implement and promote change. - **Q1.7. Participation:** The organization's support of open, non-hierarchical discussion and democratization of decision processes. - **Q1.8. Entrepreneurship:** The organization's intention to promote the empowerment of its members to act proactively and independently and take responsibility. - **Q1.9. Risk affinity:** The organization's willingness to take risks and make decisions under uncertainty.	-Agree with the concept -The concept needs to be restructured* -Don’t agree with the concept* *An open justification field was available for justification

	- **Q1.10. Tolerance towards failure:** The organization's tolerant attitude towards reasonable mistakes and support of learning from failure. - **Q.11.Trust:** Refers to the mutual trust between the organization, its leadership, and members, as well as the organization's trust in its external partners. - **Q.12. Willingness to learn:** The organization's pursuit of continuous advancement through the acquisition of new skills and knowledge.	
	Q2. Please indicate other cultural values that you consider relevant in the implementation of digital transformation initiatives. If you have none, please respond 'N/A'.	Open field
Key Success Factors	Q3. Please indicate your level of agreement with the following Key Success Factors dimensions. - **Q3.1. Leadership:** o Leaders monitor Market trends, seize technological opportunities, and translate them into business opportunities. o Leaders monitor Market trends, seize technological opportunities, and translate them into business opportunities. o Leaders develop and communicate the digital transformation vision. o Leaders inspire and motivate employees to be part of the digital transformation. o Leaders shape supportive organizational culture for the digital transformation. o Leaders empower employees and cascade digital transformation decisions down. o Leaders, supported by system and procedures, execute and govern the digital transformation. - **Q3.2. Supportive organizational culture:** o Communicating and sharing company's norms, values, beliefs and attitudes via meetings, presentations, and workshops	-Agree with the concept -The concept needs to be restructured* -Don't agree with the concept* *An open justification field was available for justification

	○ Creating a supportive work environment with trust, empowerment ○ Building agile organization structure via project management, fluid teams, flexible processes, people's openness to collaboration and change ○ Bottom-up initiatives proactively improving processes and services. ○ "Questioning attitude" of employees. ○ Acceptance for mistakes - **Q3.3. Employee and partner engagement:** ○ Programs communicating digital transformation vison and goals. ○ Programs to get the right level of management sponsorship. ○ Programs to bring-in new ideas. ○ Programs encouraging cross-boundaries collaboration. ○ Workshops building strengthening "growth mindset." - **Q3.4. Aligning business and IT strategies:** ○ DT vision and goals as a part of digital business strategy. ○ Pursuing aligning actions to reconfigure resources and redefine the strategy. ○ "Dynamic synchronization" of business and IT strategies and resources. ○ Building agile organization for fast adaptation to changing environment. ○ Communicating aligned strategy to the public in a comprehensive way. - **Q3.5. Process standardization and data integration:** ○ PMO – Project Management and Organization. ○ Lean management. ○ Simplification and standardization programs. ○ Best Practice Library. ○ Establishing KPIs.	

	○ Real-time data and applications integration. - **Q3.6. Employee training and skills development:** ○ Workshops building digital awareness and enhancing digital skills. ○ Workshops strengthening "growth mindset." ○ "Training the trainer" programs. ○ Developing business cases to present reference practices. ○ Creating environment for "on-the-job" learning. - **Q3.7. Agile transformation management:** ○ Building agile organization for fast adaptation to changing environment. ○ Small cross-functional teams ○ Iteration during innovation development process. ○ Communication and collaboration with clients. ○ Pilot projects for checking barriers and gaining know-how in Innovation. ○ Mixing methods if applying only agile method is impossible. - **Q3.8. Leveraging internal and external (technological) knowledge:** ○ Using big data repositories as a source of knowledge. ○ Programs stimulating collaboration with technological suppliers. ○ Programs stimulating collaboration with startups, e.g. corporate accelerators, speed-dating summits. ○ Pilot projects for checking barriers and gaining know-how in innovation.	
	Q4. Please indicate other Key Success Factors that you consider relevant in the implementation of digital transformation initiatives. If you have none, please respond 'N/A'.	Open field.

Characteristics	Q5. Please indicate your name.	Open field.
	Q7. Please indicate the number of years of experience in the field of digital transformation.	Open field.

Appendix 2 – Delphi Study Round 2 Survey Script

Section	*List of Questions*	*List of options to answer*
Organizational Cultural Values	Q1. Please indicate the 8 Organizational Cultural Values that you consider to have the greatest influence on digital transformation initiatives. - Agility: The organization's disposition to execute processes and transform itself with flexibility, scalability, and total internal and external collaboration towards objectives. - Knowledge Sharing: The organization's intention to build internal and external networks for the sharing of knowledge and information. - Multidisciplinary collaboration: The organization's positive attitude towards teamwork, interfunctional collaboration, and readiness to cooperate with external partners (e.g., clients, support service partners, and business service partners). - Customer centricity: The orientation of all organization activities towards satisfying customer needs: objectives, products, and processes are designed and monitored with a focus on customer needs and continually adapted. - Innovation: The organization's pursuit of continuous improvement through fostering innovation. - Openness toward change: The organization's openness to new ideas and readiness to accept, implement, and promote changes. - Collaborative decision-making: A culture that encourages employees to actively contribute to	Select 8 organizational values from the list

	decisions, valuing their perspectives and promoting inclusive involvement. - Proactivity: A culture that encourages employees to act with initiative and responsibility aligned with the organization's guidelines, anticipating challenges and opportunities for organizational progress. - Risk affinity: The organization's willingness to assume short-term costs in pursuit of potential long-term efficiency gains, even in the face of uncertainty. - Tolerance towards failure: The organization's tolerant attitude towards mistakes and support for learning from them. - Trust: Refers to mutual trust between the organization, its leadership, and its members, as well as the organization's trust in its partners and clients. - Knowledge organization: The organization's commitment to continuous improvement through the acquisition of new competencies and knowledge. - Continuous improvement: Constant pursuit of operational excellence and improvement of offerings/products through innovation and continuous learning. - Operational excellence: The pursuit of the highest efficiency and effectiveness in the organization's operational processes. - Digital leadership: A culture emphasizing leaders oriented towards digital transformation, promoting the company's values through the adoption and encouragement of digital technologies. - Data-Driven organization: The organization's commitment to data-driven decision-making, valuing information as a strategic resource to drive innovation and achieve better organizational results.	

	- Digital culture: A mindset that promotes the integration of digital technology in all aspects of the organization, encouraging innovation, collaboration, and agility in adapting to changes in the digital world. - Security culture: The organization's commitment to prioritizing awareness and proactive practices to protect digital assets, ensuring information security and mitigating cyber risks.	
Key Success Factors	Q2. Please indicate the 6 Key Success Factors that you consider to have the greatest influence on digital transformation initiatives. - Leadership: o Leaders monitor Market trends, leverage technological opportunities, and translate them into business opportunities. o Leaders develop and communicate the vision for digital transformation. o Leaders inspire and motivate employees to be part of the digital transformation. o Leaders shape an organizational culture supportive of digital transformation. o Leaders empower employees and distribute digital transformation decisions. o Leaders, supported by systems and procedures, execute and govern digital transformation. - Supportive Organizational Culture: o Communicating and sharing company norms, values, beliefs, and attitudes through meetings, presentations, and workshops. o Creating a supportive work environment with trust and empowerment. o Building an agile organizational structure through project management, flexible teams, flexible processes, people's openness to collaboration and change.	Select 8 organizational values from the list

	○ Improving proactive processes and services at the grassroots level. ○ Promoting an employee questioning attitude. ○ Encouraging risk-taking and analyzing and evaluating errors. - Multidisciplinary collaboration: ○ Communication programs for the vision and goals of digital transformation. ○ Developing programs to obtain appropriate management sponsorship. ○ Developing programs to bring in new ideas. ○ Developing programs that encourage collaboration across boundaries. ○ Developing workshops to strengthen the "growth mindset". ○ Involving functional areas in digital transformation initiatives. - Alignment of Business and IT Strategies: ○ Integrating vision and goals of digital transformation as part of the organizational strategy. ○ Pursuing aligned actions to reconfigure resources and redefine strategy. ○ Developing "dynamic synchronization" of business and IT strategies and resources. ○ Developing comprehensive communication of aligned strategy with internal stakeholders. - Process Standardization: ○ Defining PMO (Project Management Office). ○ Simplifying n and standardizing programs. ○ Developing best practices library. ○ Developing process mapping and documentation. ○ Developing digital workflows. ○ Using BPM (Business Process Management) tools.	

	○ Measuring process performance (e.g., process mining). - Monitoring of Transformation Initiatives: ○ Establishing Key Performance Indicators (KPIs). ○ Using Analytics and Business Intelligence (BI) platforms. ○ Creating monitoring dashboards ○ Implementing alert systems. ○ Performing periodic performance evaluations. - Data Integration: ○ Defining DMO (Data Management Office). ○ Defining policies and procedures for data governance. ○ Integrating data and applications in real-time. - Employee Training and Skills Development: ○ Developing workshops to increase digital awareness and enhance digital skills. ○ Developing workshops to strengthen the "growth mindset". ○ Developing "Train the trainer" programs. ○ Developing business cases to present best practices. ○ Creating an on-the-job training environment. ○ Prototyping or training in design thinking. - Agile Transformation Management: ○ Building an agile organization for rapid adaptation to the changing environment. ○ Defining Small cross-functional teams. ○ Enforcing iteration during the innovation development process. ○ Promoting communication and collaboration with customers. ○ Developing pilot projects to test barriers and acquire innovation know-how.	

	○ Gathering feedback and measuring results to anticipate problems. - Leveraging Internal and External Knowledge: ○ Using knowledge repositories as a source of knowledge. ○ Developing programs that encourage collaboration with technology suppliers. ○ Developing programs that promote collaboration with startups. ○ Developing pilot projects to test barriers and acquire innovation know-how. - Strengthening Investment Capacity: ○ Aligning digital transformation objectives with the organization's overall financial strategy. ○ Prioritizing financial resources for initiatives. ○ Developing a clear and realistic budget for initiatives. ○ Implementing efficient cost management practices for initiatives. ○ Establishing robust monitoring and financial evaluation systems for initiatives. ○ Maintaining flexibility to adjust the budget as needed. - Definition of a Governance and Risk Management Model: ○ Establishing a clear and effective governance model for initiatives. ○ Conducting a comprehensive analysis of risks associated with digital transformation initiatives. ○ Ensuring that the governance model and risk management are aligned with the organization's strategic objectives. ○ Developing and implementing effective internal controls to mitigate identified risks. - Information Security:	

	○ Conducting a comprehensive assessment of information security risks associated with digital transformation initiatives. ○ Implementing robust information protection measures. ○ Developing and implementing clear policies and procedures for information security.	
Characteristics	Q3. Please indicate your name.	Open field.

Appendix 3 – Delphi Study Round 3 Survey Script

Section	*List of Questions*	*List of options to answer*
Organizational Cultural Values	Q1. Please prioritize the 10 Organizational Cultural Values that you consider having the greatest influence on digital transformation initiatives, with (1) being the most influential cultural value and (10) being the least influential cultural value." - Agility: The organization's disposition to execute processes and transform itself with flexibility, scalability, and total internal and external collaboration towards objectives. - Knowledge Sharing: The organization's intention to build internal and external networks for the sharing of knowledge and information. - Multidisciplinary collaboration: The organization's positive attitude towards teamwork, interfunctional collaboration, and readiness to cooperate with external partners (e.g., clients, support service partners, and business service partners). - Innovation: The organization's pursuit of continuous improvement through fostering innovation. - Openness toward change: The organization's openness to new ideas and readiness to accept, implement, and promote changes.	Re-order the Organizational Cultural Values from 1 (most influential) to 10 (least influential)

	- Risk affinity: The organization's willingness to assume short-term costs in pursuit of potential long-term efficiency gains, even in the face of uncertainty. - Tolerance towards failure: The organization's tolerant attitude towards mistakes and support for learning from them. - Knowledge organization: The organization's commitment to continuous improvement through the acquisition of new competencies and knowledge. - Digital leadership: A culture emphasizing leaders oriented towards digital transformation, promoting the company's values through the adoption and encouragement of digital technologies. - Data-Driven organization: The organization's commitment to data-driven decision-making, valuing information as a strategic resource to drive innovation and achieve better organizational results. - Digital culture: A mindset that promotes the integration of digital technology in all aspects of the organization, encouraging innovation, collaboration, and agility in adapting to changes in the digital world.	
	Q2. Please rate each organizational cultural value on a scale from (1) Very stable to (7) Very flexible. - Agility - Knowledge Sharing - Multidisciplinary collaboration - Innovation - Openness toward change - Risk affinity - Tolerance towards failure - Knowledge organization - Digital leadership - Data-Driven organization - Digital culture	- Very stable - Moderately stable - Slightly stable - Balance stability and flexibility - Slightly flexible - Moderately flexible - Very flexible

	Q3. Please rate each organizational cultural value on a scale from (1) Very stable to (7) Very flexible. - Agility - Knowledge Sharing - Multidisciplinary collaboration - Innovation - Openness toward change - Risk affinity - Tolerance towards failure - Knowledge organization - Digital leadership - Data-Driven organization Digital culture	-Strongly Internal Orientation -Moderately Internal Orientation -Slightly Internal Orientation - Balanced External-Internal Orientation - Slightly External Orientation - Moderately External Orientation - Strongly External Orientation
Key Success Factors	Q4. Please prioritize the 8 Key Success Factors that you consider having the greatest influence on digital transformation initiatives, with (1) being the most influential cultural value and (8) being the least influential cultural value." - Supportive Organizational Culture: o Communicating and sharing company norms, values, beliefs, and attitudes through meetings, presentations, and workshops. o Creating a supportive work environment with trust and empowerment. o Building an agile organizational structure through project management, flexible teams, flexible processes, people's openness to collaboration and change. o Improving proactive processes and services at the grassroots level. o Promoting an employee questioning attitude. o Encouraging risk-taking and analyzing and evaluating errors. - Multidisciplinary collaboration: o Communication programs for the vision and goals of digital transformation.	Re-order the Organizational Cultural Values from 1 (most influential) to 8 (least influential)

	○ Developing programs to obtain appropriate management sponsorship. ○ Developing programs to bring in new ideas. ○ Developing programs that encourage collaboration across boundaries. ○ Developing workshops to strengthen the "growth mindset". ○ Involving functional areas in digital transformation initiatives. - Alignment of Business and IT Strategies: ○ Integrating vision and goals of digital transformation as part of the organizational strategy. ○ Pursuing aligned actions to reconfigure resources and redefine strategy. ○ Developing "dynamic synchronization" of business and IT strategies and resources. ○ Developing comprehensive communication of aligned strategy with internal stakeholders. - Monitoring of Transformation Initiatives: ○ Establishing Key Performance Indicators (KPIs). ○ Using Analytics and Business Intelligence (BI) platforms. ○ Creating monitoring dashboards ○ Implementing alert systems. ○ Performing periodic performance evaluations. - Employee Training and Skills Development: ○ Developing workshops to increase digital awareness and enhance digital skills. ○ Developing workshops to strengthen the "growth mindset". ○ Developing "Train the trainer" programs. ○ Developing business cases to present best practices. ○ Creating an on-the-job training environment.	

	○ Prototyping or training in design thinking. - Agile Transformation Management: ○ Building an agile organization for rapid adaptation to the changing environment. ○ Defining Small cross-functional teams. ○ Enforcing iteration during the innovation development process. ○ Promoting communication and collaboration with customers. ○ Developing pilot projects to test barriers and acquire innovation know-how. ○ Gathering feedback and measuring results to anticipate problems. - Definition of a Governance and Risk Management Model: ○ Establishing a clear and effective governance model for initiatives. ○ Conducting a comprehensive analysis of risks associated with digital transformation initiatives. ○ Ensuring that the governance model and risk management are aligned with the organization's strategic objectives. ○ Developing and implementing effective internal controls to mitigate identified risks.	
Characteristics	Q5. Please indicate your name.	Open field.

Appendix 4 – Cross-Sectional Survey Script

Section	*List of Questions*	*List of options to answer*
OCAI Assessment	**Q1.** Please distribute a total of 100 points among the given statements. - My organization is a very personal place, resembling an extended family, where people share a lot of personal information and characteristics.	- Distribute 100 points among given statements

	- In my organization, there is a dynamic and entrepreneurial atmosphere where employees are willing to take risks and stand out. - In my organization, the main focus is on results, with a strong emphasis on task completion. People are highly competitive and success-oriented. - My organization is characterized by a highly controlled and structured environment, where formal procedures govern employee activities.	
	Q2. Please distribute a total of 100 points among the given statements. - Leadership in my organization is generally seen as an example of mentoring, facilitation, or support. - Leadership in my organization is often characterized by entrepreneurship, innovation, or a willingness to take risks. - Leadership in my organization is frequently associated with a direct and results-oriented focus. - Leadership in my organization is associated with coordination, organization, or operational efficiency.	- Distribute 100 points among given statements
	Q3. Please distribute a total of 100 points among the given statements. - The management style in my organization is characterized by teamwork, consensus, and participation. - The management style in my organization is characterized by individual risk-taking, innovation, freedom, and uniqueness. - The management style in my organization is characterized by intense competitiveness, high demands, and a focus on achievement. - The management style in my organization is characterized by job security, compliance, predictability, and stability in relationships.	- Distribute 100 points among given statements
	Q4. Please distribute a total of 100 points among the given statements.	- Distribute 100 points among

	- The element of cohesion that keeps my organization united is loyalty and mutual trust. The commitment to this organization is high. - What keeps my organization cohesive is the commitment to innovation and development, with an emphasis on being at the forefront. - What keeps my organization united is the focus on achieving goals and objectives. Competitiveness and the pursuit of success are recurring themes. - The element of cohesion that keeps my organization united is formal rules and policies. Maintaining an efficient organization is important.	given statements
	Q5. Please distribute a total of 100 points among the given statements. - In my organization, there is an emphasis on human development. High trust, openness, and participation are constants. - My organization values the acquisition of new resources and the creation of new challenges. Experimenting with new things and prospecting for opportunities are considered important. - My organization emphasizes competitive actions and achievement. Achieving goals and gaining strategic competitiveness in the Market are predominant. - My organization emphasizes permanence and stability. Efficiency, control, and smooth operations are important.	- Distribute 100 points among given statements
	Q6. Please distribute a total of 100 points among the given statements. - My organization defines success based on the development of human resources, teamwork, employee commitment, and concern for people. - My organization defines success based on having the most unique or latest products. It is a product leader and innovator. - My organization defines success based on gaining strategic competitiveness in the Market	- Distribute 100 points among given statements

	and surpassing the competition. Competitive Market leadership is fundamental. - My organization considers success based on efficiency. Consistent delivery, smooth planning, and low production costs are fundamental.	
Key Success Factors	**Q7.** Please rate each of the Key Success Factors on a scale of 1 to 5, indicating whether they have been implemented in the digital transformation initiatives of the organization or not. - Supportive Organizational Culture: o Communicating and sharing company norms, values, beliefs, and attitudes through meetings, presentations, and workshops. o Creating a supportive work environment with trust and empowerment. o Building an agile organizational structure through project management, flexible teams, flexible processes, and people's openness to collaboration and change. o Improving proactive processes and services at the grassroots level. o Promoting an employee questioning attitude. o Encouraging risk-taking and analyzing and evaluating errors. - Multidisciplinary collaboration: o Communication programs for the vision and goals of digital transformation. o Developing programs to obtain appropriate management sponsorship. o Developing programs to bring in new ideas. o Developing programs that encourage collaboration across boundaries. o Developing workshops to strengthen the "growth mindset". o Involving functional areas in digital transformation initiatives.	-Totally agree - Partially agree - Neither agree or disagree - Partially disagree - Totally disagree

	- Alignment of Business and IT Strategies:
	  o Integrating vision and goals of digital transformation as part of the organizational strategy.
	  o Pursuing aligned actions to reconfigure resources and redefine strategy.
	  o Developing "dynamic synchronization" of business and IT strategies and resources.
	  o Developing comprehensive communication of aligned strategy with internal stakeholders.
	- Monitoring of Transformation Initiatives:
	  o Establishing Key Performance Indicators (KPIs).
	  o Using Analytics and Business Intelligence (BI) platforms.
	  o Creating monitoring dashboards
	  o Implementing alert systems.
	  o Performing periodic performance evaluations.
	- Employee Training and Skills Development:
	  o Developing workshops to increase digital awareness and enhance digital skills.
	  o Developing workshops to strengthen the "growth mindset".
	  o Developing "Train the trainer" programs.
	  o Developing business cases to present best practices.
	  o Creating an on-the-job training environment.
	  o Prototyping or training in design thinking.
	- Agile Transformation Management:
	  o Building an agile organization for rapid adaptation to the changing environment.
	  o Defining Small cross-functional teams.
	  o Enforcing iteration during the innovation development process.
	  o Promoting communication and collaboration with customers.	

	○ Developing pilot projects to test barriers and acquire innovation know-how. ○ Gathering feedback and measuring results to anticipate problems. - Definition of a Governance and Risk Management Model: ○ Establishing a clear and effective governance model for initiatives. ○ Conducting a comprehensive analysis of risks associated with digital transformation initiatives. ○ Ensuring that the governance model and risk management are aligned with the organization's strategic objectives. ○ Developing and implementing effective internal controls to mitigate identified risks.	
Characteristics	Q8. Please indicate your name.	Open field.
	Q9. Please indicate the organization you work for.	Open field.

Appendix 5 – Cross-Sectional Survey Participants Profiles

Organization	*Industry*	*Participant Role*
Company A	Construction and engineering	Digital transformation manager
Company B	Government institution	IT Director
Company C	Healthcare	CFO - Boardmember
Company D	Manufactoring	IT Director
Company E	Healthcare	IT Director
Company F	Tourism & Hospitality	Sales Director
Company G	Technology	Project Manager
Company H	Tourism & Hospitality	IT Director
Company I	Utilities	IT Director
Company J	Banking & Insurance	IT Director
Company K	Manufactoring	IT Director
Company L	Manufactoring	IT Director

Company M	Retail Chain	Project Manager
Company N	Manufactoring	IT Director
Company O	Tourism & Hospitality	IT Director
Company P	Utilities	IT Director
Company Q	Utilities	Project Manager
Company R	Manufactoring	IT Director

Appendix 5 – Cross-Sectional Survey OCAI Assessment Results

Organization	*Clan culture*	*Adhocracy culture*	*Market culture*	*Hierarchical culture*
Company A	52.67*	20.00	15.67	11.67
Company B	30.00*	25.00	21.67	23.33
Company C	26.67	16.67	32.50*	24.17
Company D	20.83	12.50	10.83	55.83*
Company E	43.33*	19.17	14.17	23.33
Company F	42.50*	20.00	18.33	19.17
Company G	27.50	47.50*	12.50	12.50
Company H	45.00*	18.33	16.67	20.00
Company I	25.00	50.00*	11.67	13.33
Company J	20.83	19.17	44.17*	15.83
Company K	20.83	11.67	13.33	54.17*
Company L	45.83*	15.83	17.50	20.83
Company M	19.17	20.00	45.83*	15.00
Company N	21.67	13.33	10.83	54.17*
Company O	44.17*	17.50	20.00	18.33
Company P	27.50	44.17*	13.33	15.00
Company Q	26.67	49.17*	12.50	11.67
Company R	20.83	19.17	46.67*	13.33

Note: *Predominant culture

10. References

Agarwal, R., Gao, G., DesRoches, C., & Jha, A. K. (2010). Research commentary—The digital transformation of healthcare: Current status and the road ahead. Information systems research, 21(4), 796-809.

Alvesson, M., & Sveningsson, S. (2015). Changing organizational culture: Cultural change work in progress. Routledge.

Armenakis, A. A., Harris, S. G., & Mossholder, K. W. (1993). Creating readiness for organizational change. Human relations, 46(6), 681-703.

Belias, D., & Koustelios, A. (2014). Organizational culture and job satisfaction: A review. International review of management and Marketing, 4(2), 132-149.

Berman, S., & Marshall, A. (2014). The next digital transformation: from an individual-centered to an everyone-to-everyone economy. Strategy & Leadership, 42(5), 9-17.

Berman, S. J. (2012). Digital transformation: opportunities to create new business models. Strategy & leadership, 40(2), 16-24.

Balthazard, P. A., & Cooke, R. A. (2004, January). Organizational culture and knowledge management success: assessing the behavior-performance continuum. In 37th Annual Hawaii International Conference on System Sciences, 2004. Proceedings of the (pp. 10-pp). IEEE.

Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. V. (2013). Digital business strategy: toward a next generation of insights. MIS quarterly, 471-482.

Bock, G. W., Zmud, R. W., Kim, Y. G., & Lee, J. N. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. MIS quarterly, 87-111.

Burchardt, C., & Maisch, B. (2019). Digitalization needs a cultural change–examples of applying Agility and Open Innovation to drive the digital transformation. Procedia Cirp, 84, 112-117.

Buvat, J., Crummernel, C., Kar, K., et al. (2017). The digital culture challenge: closing the employee-leadership gap. Capgemini Digital Transformation Institute Survey. Paris: Capgemini Digital Transformation Institute.

Boyce, A. S., Nieminen, L. R., Gillespie, M. A., Ryan, A. M., & Denison, D. R. (2015). Which comes first, organizational culture or performance? A longitudinal study of causal priority with automobile dealerships. Journal of Organizational Behavior, 36(3), 339-359.

Cameron, K. S., Freeman, S. J., & Mishra, A. K. (1991). Best practices in white-collar downsizing: Managing contradictions. Academy of management perspectives, 5(3), 57-73.

Cameron, K. S., Quinn, R. E., DeGraff, J., & Thakor, A. V. (2022). Competing values leadership. Edward Elgar Publishing.

Cichosz, M., Wallenburg, C. M., & Knemeyer, A. M. (2020). Digital transformation at logistics service providers: barriers, success factors and leading practices. The International Journal of Logistics Management, 31(2), 209-238.

Chatman, J. A., Caldwell, D. F., O'Reilly, C. A., & Doerr, B. (2014). Parsing organizational culture: How the norm for adaptability influences the relationship between culture consensus and financial performance in high-technology firms. Journal of Organizational Behavior, 35(6), 785-808.

Chatman, J. A., & O'Reilly, C. A. (2016). Paradigm lost: Reinvigorating the study of organizational culture. Research in Organizational Behavior, 36, 199-224.

Coltman, T., Tallon, P., Sharma, R., & Queiroz, M. (2015). Strategic IT alignment: twenty-five years on. Journal of Information Technology, 30, 91-100.

Cooke, R. A., & Szumal, J. L. (2000). Using the organizational culture inventory to understand the operating cultures of organizations. Handbook of organizational culture and climate, 4, 1032-1045.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. Psychological inquiry, 11(4), 227-268.

Denison, D. (1990). Corporate culture and organizational. New York: Wiley. Dike, P.(2013). The impact of workplace diversity on organizations. Dobbin, F., & Jung, J.(2010). Corporate board gender diversity and stock performance: The competence gap or institutional investor bias. NCL Rev, 89, 809.

Denison, D., Nieminen, L., & Kotrba, L. (2014). Diagnosing organizational cultures: A conceptual and empirical review of culture effectiveness surveys. European Journal of Work and Organizational Psychology, 23(1), 145-161.

Earley, S. (2014). The digital transformation: Staying competitive. It Professional, 16(2), 58-60.

Erwin, D. G., & Garman, A. N. (2010). Resistance to organizational change: linking research and practice. Leadership & Organization Development Journal, 31(1), 39-56.

Evans, J. R., & Mathur, A. (2005). The value of online surveys. Internet research, 15(2), 195-219.

Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2014). Embracing digital technology: A new strategic imperative. MIT sloan management review, 55(2), 1.

Fuchs, C., & Hess, T. (2018). Becoming agile in the digital transformation: The process of a large-scale agile transformation.

Goran, J., Srinivasan, R., & La Berge, L. (2016). Culture for a digital age. McKinsey Quarterly, July 2017. New York: McKinsey.

Gregory, B. T., Harris, S. G., Armenakis, A. A., & Shook, C. L. (2009). Organizational culture and effectiveness: A study of values, attitudes, and organizational outcomes. Journal of business research, 62(7), 673-679.

Gulati, R. (1998). Alliances and networks. Strategic management journal, 19(4), 293-317.

Ilieva, J., Baron, S., & Healey, N. M. (2002). Online Surveys in Marketing Research. International Journal of Market Research, 44(3), 1–14.

Janowski, T. (2015). Digital government evolution: From transformation to contextualization. Government information quarterly, 32(3), 221-236.

Jung, T., Scott, T., Davies, H. T., Bower, P., Whalley, D., McNally, R., & Mannion, R. (2009). Instruments for exploring organizational culture: A review of the literature. Public administration review, 69(6), 1087-1096.

Kane, G. C., Palmer, D., & Phillips, A. N. (2017). Achieving digital maturity. MIT Sloan Management Review.

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. MIT Sloan Management Review.

Kane, G. C., Phillips, A. N., Copulsky, J., & Andrus, G. (2019). How digital leadership is (n't) different. MIT Sloan Management Review, 60(3), 34-39.

Karimi, J., & Walter, Z. (2015). The role of dynamic capabilities in responding to digital disruption: A factor-based study of the newspaper industry. Journal of Management Information Systems, 32(1), 39-81.

Klein, K. J., & Kozlowski, S. W. (2000). Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions. Jossey-Bass/Wiley.

Klein, M. (2020). Leadership characteristics in the era of digital transformation.

Kolagar, M., Parida, V., & Sjödin, D. (2022). Ecosystem transformation for digital servitization: A systematic review, integrative framework, and future research agenda. Journal of Business Research, 146, 176-200.

Korherr, P., Kanbach, D. K., Kraus, S., & Mikalef, P. (2022). From intuitive to data-driven decision-making in digital transformation: A framework of prevalent managerial archetypes. Digital Business, 2(2), 100045.

Kotter, J. P. (2008). Corporate culture and performance. Simon and Schuster.

Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2021). A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change. Journal of Management Studies, 58(5), 1159-1197.

Hansen, A. M., Kraemmergaard, P., & Mathiassen, L. (2011). Rapid adaptation in digital transformation: A participatory process for engaging IS and business leaders. MIS Quarterly Executive, 10(4).

Hansen, R., & Sia, S. K. (2015). Hummel's digital transformation toward omnichannel retailing: key lessons learned. MIS Quarterly Executive, 14(2).

Hartl, E., & Hess, T. (2017). The role of cultural values for digital transformation: Insights from a Delphi study.

Hartnell, C. A., Ou, A. Y., & Kinicki, A. (2011). Organizational culture and organizational effectiveness: a meta-analytic investigation of the competing values framework's theoretical suppositions. Journal of applied psychology, 96(4), 677.

Hemerling, J., Kilmann, J., Danoesastro, M., Stutts, L., & Ahern, C. (2018). It’s not a digital transformation without a digital culture. Boston Consulting Group, 1-11.

Henriette, E., Feki, M., & Boughzala, I. (2015). The shape of digital transformation: A systematic literature review.

Hofstede, G., Neuijen, B., Ohayv, D. D., & Sanders, G. (1990). Measuring organizational cultures: A qualitative and quantitative study across twenty cases. Administrative science quarterly, 286-316.

Holotiuk, F., & Beimborn, D. (2017). Critical success factors of digital business strategy.

Homburg, C., & Pflesser, C. (2000). A multiple-layer model of Market-oriented organizational culture: Measurement issues and performance outcomes. Journal of Marketing research, 37(4), 449-462.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. Journal of Marketing, 80(6), 69-96.

Loebbecke, C., & Picot, A. (2015). Reflections on societal and business model transformation arising from digitization and big data analytics: A research agenda. The Journal of Strategic Information Systems, 24(3), 149-157.

Lucas Jr, H., Agarwal, R., Clemons, E. K., El Sawy, O. A., & Weber, B. (2013). Impactful research on transformational information technology: An opportunity to inform new audiences. Mis Quarterly, 371-382.

Luna-Reyes, L. F., & Gil-Garcia, J. R. (2014). Digital government transformation and internet portals: The co-evolution of technology, organizations, and institutions. Government information quarterly, 31(4), 545-555.

Matt, C., Hess, T., & Benlian, A. (2015). Digital transformation strategies. Business & information systems engineering, 57, 339-343.

Mithas, S., Tafti, A., & Mitchell, W. (2013). How a firm's competitive environment and digital strategic posture influence digital business strategy. MIS quarterly, 511-536.

Morakanyane, R., Grace, A. A., & O'reilly, P. (2017). Conceptualizing digital transformation in business organizations: A systematic review of literature.

Nunnally, J., & Bernstein, I. (1994). Psychometric Theory 3rd edition (MacGraw-Hill, New York).

Okoli, C., & Pawlowski, S. D. (2004). The Delphi method as a research tool: an example, design considerations and applications. Information & management, 42(1), 15-29.

O'Reilly III, C. A., Chatman, J., & Caldwell, D. F. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. Academy of management journal, 34(3), 487-516.

O'reilly III, C. A., & Tushman, M. L. (2008). Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. Research in organizational behavior, 28, 185-206.

Paré, G., Cameron, A. F., Poba-Nzaou, P., & Templier, M. (2013). A systematic assessment of rigor in information systems ranking-type Delphi studies. Information & management, 50(5), 207-217.

Patton, M. Q. (1980). Qualitative evaluation methods.

Petry, T. (2018). Digital leadership. Knowledge management in digital change: New findings and practical cases, 209-218.

Piccinini, E., Hanelt, A., Gregory, R., & Kolbe, L. (2015). Transforming industrial business: The impact of digital transformation on automotive organizations.

Prajogo, D. I., & McDermott, C. M. (2011). The relationship between multidimensional organizational culture and performance. International Journal of Operations & Production Management, 31(7), 712-735.

Ravichandran, T., Lertwongsatien, C., & Lertwongsatien, C. (2005). Effect of information systems resources and capabilities on firm performance: A resource-based perspective. Journal of management information systems, 21(4), 237-276.

Rigby, D. K., Reichheld, F. F., & Schefter, P. (2002). Avoid the four perils of CRM. Harvard business review, 80(2), 101-6.

Rindfleisch, A., Malter, A. J., Ganesan, S., & Moorman, C. (2008). Cross-sectional versus longitudinal survey research: Concepts, findings, and guidelines. Journal of Marketing research, 45(3), 261-279.

Ross, J., Sebastian, I., Beath, C., Mocker, M., Moloney, K., & Fonstad, N. (2016). Designing and executing digital strategies: completed research paper. In Digital innovation at the crossroads: ICIS 2016, International Conference on Information Systems, December 11-14, 2016, Dublin, Ireland: practice-oriented research (pp. 1-17). Association for Information Systems.

Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003). Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms. MIS quarterly, 237-263.

Schein, E. H. (2010). Organizational culture and leadership (Vol. 2). John Wiley & Sons.

Schuchmann, D., & Seufert, S. (2015). Corporate learning in times of digital transformation: A conceptual framework and service portfolio for the learning function in banking organisations. International Journal of Advanced Corporate Learning, 8(1).

Schmidt, R.C. 1997. "Managing Delphi Surveys Using Nonparametric Statistical Techniques," Decision Sciences (28:3), pp. 763-774.

Singh, A., & Hess, T. (2020). How chief digital officers promote the digital transformation of their companies. In Strategic information management (pp. 202-220). Routledge.

Singh, R., Keil, M., & Kasi, V. (2009). Identifying and overcoming the challenges of implementing a project management office. European journal of information systems, 18, 409-427.

Skinner, R., Nelson, R. R., Chin, W. W., & Land, L. (2015). The Delphi method research strategy in studies of information systems.

Sorensen, J. B. (2002). The strength of corporate culture and the reliability of firm performance. Administrative science quarterly, 47(1), 70-91.

Tannou, M., Westerman, G., Bonnet, D., & Ferraris, P. (2012). Governance: a central component of successful digital transformation. Digital Transformation Review, 3, 14-21.

Teichert, R. (2019). Digital transformation maturity: A systematic review of literature. Acta universitatis agriculturae et silviculturae mendelianae brunensis.

Tidd, J., & Bessant, J. (2018). Innovation management challenges: From fads to fundamentals. International Journal of Innovation Management, 22(05), 1840007.

Tidd, J., & Bessant, J. R. (2020). Managing innovation: integrating technological, Market and organizational change. John Wiley & Sons.

Trenerry, B., Chng, S., Wang, Y., Suhaila, Z. S., Lim, S. S., Lu, H. Y., & Oh, P. H. (2021). Preparing workplaces for digital transformation: An integrative review and framework of multi-level factors. Frontiers in psychology, 12, 620766.

Van den Berg, P. T., & Wilderom, C. P. (2004). Defining, measuring, and comparing organisational cultures. Applied psychology, 53(4), 570-582.

Vial, G. (2021). Understanding digital transformation: A review and a research agenda. Managing digital transformation, 13-66.

Vogelsang, K., Liere-Netheler, K., Packmohr, S., & Hoppe, U. (2019). Barriers to digital transformation in manufacturing: development of a research agenda.

Wang, Y., Kung, L., & Byrd, T. A. (2018). Big data analytics: Understanding its capabilities and potential benefits for healthcare organizations. Technological forecasting and social change, 126, 3-13.

Westerman, G., Calméjane, C., Bonnet, D., Ferraris, P., & McAfee, A. (2011). Digital Transformation: A roadmap for billion-dollar organizations. MIT Center for digital business and capgemini consulting, 1, 1-68.

Westerman, G., Bonnet, D., & McAfee, A. (2014). Leading digital: Turning technology into business transformation. Harvard Business Press.

West, J., & Bogers, M. (2014). Leveraging external sources of innovation: A review of research on open innovation. Journal of product innovation management, 31(4), 814-831.

Zheng, W., Yang, B., & McLean, G. N. (2010). Linking organizational culture, structure, strategy, and organizational effectiveness: Mediating role of knowledge management. Journal of Business research, 63(7), 763-771.