

Co-Governance in Digital Transformation Initiatives: The Roles of Digital Culture and Employee Experience

Kaveh Abhari
San Diego State University
kabhari@sdsu.edu

Chloe Ostroff
San Diego State University
costroff@sdsu.edu

Bailey Barcellos
San Diego State University
bbarcellos@sdsu.edu

David Williams
San Diego State University
dwilliams8665@sdsu.edu

Abstract

Digital transformation (DT) is increasingly fundamental for organizations to not only implement, but thoroughly understand and dictate. Recent studies suggest that DT is not limited to the process of implementing digital technology to enhance business performance; it is the process of harmonizing organizational goals, values, and culture with employees by the mean of digital technologies. Therefore, it is critical to understand DT and determine its success from the perspective of the employee. To further understand the role of employees in DT, this paper theorizes and validates the relationships between digital culture, employee experience with DT, and DT co-governance. The findings guide theoretical and practical development in the field.

1 Introduction

Digital Transformation (DT) is described as the utilization of digital technologies to radically improve business models or processes in order to enhance business performance. However, this transformation is characterized by constant disruption, the repudiation of traditional norms, experimentation, and failure. In 2020, Forbes reported that the COVID-19 pandemic forced companies to transition to digital technologies and platforms to ensure that they could continue business operations [1]. Amidst the COVID-19 pandemic, face-to-face meetings have dropped immensely and digital communication platforms such as Zoom, Google, and Microsoft have competed for this increasingly imperative market. Forbes also noted that communication and collaboration, among other

traits, are critical as businesses hustle to implement various approaches during this massive shift in business processes [2]. However, not all DT initiatives—DT in the initial implementation phase—are successful [3]–[5]. Information Systems (IS) literature highlighted three hindering factors that are the focus of this study: organizational culture [6], [7], employees’ perception and participation [8], and digital governance [3], [9]. These studies collectively suggest DT neither starts with strategic planning nor technology deployment, but employee engagement.

Successful DT initiatives systematically engage employees in DT planning, implementation, and governance [10]. This high level of engagement fosters an environment where employees have more authority, control, and most importantly a sense of responsibility toward the DT results [11]. Akin to conventional business initiatives, DT affects how employees experience different values of digitalization [12]. Prior research indicates that positive employee engagement is one of the DT success-factors [13]. However, literature has yet to articulate the key attributes of digital culture, how they shape employees’ experiences, and why they are imperative to employees’ engagement in digital governance. Addressing these idiosyncrasies, this paper proposes a new model for supporting DT implementation after examining the role of digital culture and employee experience in DT and its governance.

2 Background

Organizations are traditionally governed in a top-down system that places frontline employees at lower levels, leaving them neglected in decision-making;

however, in recent years, it has become evident that this line of command is inefficient in contemporary organizational transformation [14]. Encouraging an employee's active involvement in strategic decisions increases productivity, job satisfaction, organizational commitment, and most importantly, helps achieve organizational goals [15]. Research has shown that companies with insufficient or ineffective employee participation in decision making suffer from a low level of employees' satisfaction, commitment, participation, trust and retention [16], [17].

Participatory or shared governance (co-governance in this paper) is thus a necessity when a company is attempting to reinvent itself using digital technologies [18], [19]. Employee engagement in DT co-governance gives confidence to employees to participate in the DT processes. Research also demonstrates that this engagement has a direct influence on employees' performance as well as the outcomes of DT [15], [20], [21].

In this paper, digital governance refers to the authoritative rules, policy and structures within a corporation that is governed using digital technology. This can describe an organization's roles, responsibilities, and accountability related to decision-making for digital technology applications, implementation, and evaluation [14]. This prescribes who can make decisions, what type of decisions they can make, and whether there are limitations to their authority. The lack of clarity in digital governance has an adverse effect on employees' performance that hinders their capabilities for innovation [17]. Organizations with restrictive digital governances characterized, for example, by the introduction of new technology without direct input from the end-users, negatively affect the employees' satisfaction and motivation [22]. The lack of trust stemmed from this approach increases the chance of DT failures [23]. Therefore, IS literature emphasizes co-governance as an alternative to encourage employee participation in IT governance and enhance DT outcomes [24].

2.1 Employee Experience and DT

Employees' reactions to organizational changes are constituted by their emotional or rational response to the gap between expectations and actual gain [25]. Experience theories suggest that positive experience associated with confirmation of expectations has a causal relationship with satisfaction and future behavior [26], [27]. Employees possess roles that are essential to the actualization of the organizational goals. With these roles, they perceive the changes imposed by DT. Moreover, DT affects how employees experience the work environment and job elements as these initiatives may redefine organizational forms,

structure, culture, and even priorities. Employee experience is thus shaped throughout the implementation of DT initiatives that can potentially satisfy their experiential needs. However, how DT shapes employees' experiences is a matter of debate. To examine this effect, we employ Dewey's Experience Theory and define *employee experience* as perception of experiential values offered by digitalization [28]. Dewey observed four groups of experiential values—*cognitive, emotional, social, and behavioral*—that we used in this study [29].

Cognitive experience occurs when employees use their minds and engage in some form of cognitive function such as learning. This engagement is often nuanced and more extensive than simply thinking about a task or using cognition to complete a task. Cognitive experience can be associated with knowledge creation, critical analysis, or successful problem-solving that require combining broader themes, linking ideas, and thinking holistically beyond individual job description [30], [31]. Digital initiatives can challenge employees to critically and creatively think about the application of digital tools outside of the box defined by job descriptions. For example, new business intelligence tools can create such experiences by offering employees new ways to make data-driven decisions [32]. New learning opportunities offered by new digital tools also directly contribute to employees' cognitive experiences, which in turn, leads to higher engagement and retention. Therefore, identifying and growing cognitive experience opportunities—for example, requiring them to think critically about the impact of digital tools on their work routines—will benefit total employee experience with DT initiatives.

Social experience is the interaction an employee has within the organization. Digital tools enable employees to communicate, network, and socialize more effectively. For example, social technologies provide digital communication tools such as enterprise social networks that enable employees to learn about their colleagues and network with them [33]. Employees develop socio-professional identity when interacting with each other which affects their perception of themselves (professional identity), their teams (team identity), and their organization (social identity) [34]. Since digital technologies are the common means of group work in modern organizations, they constitute a key role in shaping employees' social experiences. Digital tools help employees characterize themselves within a team, identify themselves as being members of that team, and compete and collaborate with other teams [35]. Hence, we argue that improving social experience can be considered as the opportunity provided by digital technologies.

Emotional experience in the context of our research refers to employees' feelings about the use or impact of digital technologies within an organization. These experiences can be the direct or indirect consequences of engagement with a technology [36], [37]. Emotional experiences such as joy, gratitude, interest, hope, pride, amusement, or inspiration can be the results of employees' subjective judgments of the process, leadership, and consequences of DT [38]. Emotional experiences are developed before, during and after the implementation of digital initiatives, and they directly affect the employees' perception of technologies and their reactions to them.

Behavioral experience is one of the important predictors of employee behavior and risk judgment [39], [40]. Behavioral experience, in this study, is associated with the benefits of acts or actions afforded by new technologies or their derivatives—in other words, digitally-enabled actions. For example, agile project management that can be facilitated by a new technology allows employees to experience teambuilding or project evaluation in a way that was not possible earlier. Experimental utilization of digital technologies is another example of behavioral experience that engages employees beyond their typical work in learning by doing. The formation of a behavioral experience in an organization depends on how the culture in that organization support such behavior. The culture can thus motivate the employees to further value that behavior.

2.2 Digital Culture and DT

To understand the effects of digitalization on employees' experience, previous studies proposed using organizational culture literature [41]. Organizational culture is imperative to the success of DT [42]. Having a congruent culture allows organizations to implement DT initiatives efficiently and effectively. A more inclusive culture sets a standard of employees' participation in the DT where employees feel they can express their opinions, make judgment calls, and on-the-spot decisions [43]. In this study, we focus on digital culture as a trait of organizational culture that is shaped while employees use digital tools or participate in digitally enabled or -facilitated business processes. Digital culture is not about technically advanced organizations per se; however, it is about digital mindset and digital habits shaped in an agile, dynamic, collaborative, and creative work environment. From this perspective, we define digital culture as a set of beliefs, values, and assumptions that are shared by employees of an organization regarding digital technologies (cf. [44]).

To holistically model digital culture, we identified five major categories: (a) collectivism, (b) power

distance, (c) uncertainty tolerance, (d) long term orientation, and (e) indulgence (e.g. [6], [41], [42], [45]). These dimensions are similar to Hofstede's widely accepted Cultural Dimension Theory [46], [47]. Under *collectivism*, we identified how the applications of digital technologies affect the culture of collaboration, communication, and participation across an organization. *Power distance* is the second dimension of digital culture that renders how digital technologies promote or hinder openness and trust among employees. Digital technologies can also, positively or negatively, affect an organization's *uncertainty tolerance* which can be observed in two forms of digital risk affinity and tolerance towards failure after adopting new technology. Moreover, digital technologies can change the culture of an organization in terms of *long-term orientation* that can be characterized by that organization's customer centricity, responsiveness, innovation, and willingness to learn after the introduction of new digital tools and technologies. The last dimension of digital culture is *indulgence*, which refers to the degree of freedom that digital technologies give to employees in fulfilling their goals. We recognize autonomy and empowerment as two sub-dimensions of indulgence allowed or enabled by digital technologies.

3 Model

We propose a conceptual model articulating the relationships between Digital Culture, Employee Experience, and Employee Intention to Participate in Digital Governance (as a proxy for digital co-governance). We propose to operationalize Digital Culture as the process whereby employees act or react in the relationships to five traits of organizational culture—collectivism, power distance, uncertainty tolerance, long term orientation, and indulgence—supported or hindered by digital technologies. We view digital culture as a higher-order construct because of the synergy between different traits of culture. We define Employee Experience as how employees perceive the experiential benefits of digitalization. We operationalize these benefits in terms of cognitive experience, social experience, emotional experience and behavioral experience that employees develop over the interaction with digital initiatives. Lastly, we define Employee Intention to Participate in Digital Governance as the employees' willingness to participate in establishing roles, accountability, authority for the organization's DT initiatives cf. [48]. Figure 1 illustrates the relationships between these key variables.

3.1 Hypotheses

An organization's digital culture positively affects employees' perception of the norms and values of the transformation initiative and thus shapes their cognitive, social, emotional, and behavioral experiences. For example, when digital initiatives emphasize openness to change and transparency, they can mentally prepare employees for a DT [49]. If the initiatives promote autonomy, they will encourage willingness to learn which in turn enhance the cognitive experience [50]. In this paper, we offer extensions to organizational culture models by theorizing the relationship between a digital culture and employee experience. All five of the cultural dimensions of a digital culture coalesce to affect the overall employee experience, which we argue is the driving factor shaping employee's intention to participate in digital governance.

A digital culture that accentuates collaboration and communication by utilizing digital technologies improves employees' social experiences [51], therefore, influencing their overall experience with DT initiatives that facilitate or enable meaningful interaction and exchange among employees. Digital culture encourages participation across an organization and shapes stronger communities beyond functional units [52]. Such interactions facilitate familiarity, transparency, and networking among employees that unite to build the trust required for a positive employee experience. Likewise, a healthy digital culture encourages employees to use technology to engage with their customers to create solutions [53], thus, promoting an employee-customer relationship. As a result, employee experience across an organization is enhanced. Therefore,

H1a: Digital culture in terms of Collectivism positively affects Employee Experience.

An organization's digital culture contributes to the degree by which employees experience freedom during DT. The *indulgence* dimension is imperative to the study of DT and employee experience because it can measure the extent of freedom that digital technologies can provide employees in accomplishing their objectives, which affects cognitive experience [30]. By encouraging the autonomy of its employees, an organization that implements DT initiatives enables them to be independent problem solvers, thus enhancing their cognitive experience [49]. By not requiring its employees to adhere to strict norms that totally dictate their work environment, organizations that successfully employ DT instill a sense of empowerment that positively influences employee's emotional experience. A digital culture can empower employees to experience self-efficacy and autonomy

as digital tools that have the potential to help employees reinvent various processes and personalize work routines. Therefore,

H1b: Digital culture in terms of Indulgence positively affects Employee Experience.

Digital technologies can advance the culture of an organization regarding long-term orientation. This dimension can be described by that organization's responsiveness, customer centricity, innovation, and willingness to learn after new digital tools and technologies are introduced. A customer-centric organization that has successfully transformed is characterized by the orientation of its activities to align with the needs of the customer using digital technologies. Openness and willingness to learn also motivate employees to share their voice through the development and implementation of digital initiatives [54]. Furthermore, the organization's pursuit of improvement and growth through the development of digital innovations as well as its search of continuous advancement through the acquisition of new skills and knowledge regarding new digital technologies indicate that a positive relationship exists between the long-term orientation of an organization's digital culture and employee experience. Therefore,

H1c: Digital culture in terms of Long-term Orientation positively affects Employee Experience.

The power distance of an organization can promote or hinder openness and trust among employees [55]. This dimension is also useful in determining the degree of an organization's openness towards new digital initiatives and its readiness to accept, implement, and promote change enforced by them. Power distance can also suggest how an organization's trust in digital technologies and their advocates effects employee experience. Trust (in digitalization) is an emotional experience [56]. We suggest that the process that an organization uses to carry out its power relations with openness and trust through the utilization of digital technologies positively influences employee experience with DT; therefore,

H1d: Digital culture in terms of Power Distance positively affects Employee Experience.

A culture's uncertainty tolerance can indicate how an organization and its employees adjust to uncertainty and ambiguity [57]. Measuring this dimension with respect to an organization that is in the process of DT can reveal its relationship with employee experience after the implementation of digital technologies to enhance business performances. In this study, an organization's willingness to take risks with the use of

digital technologies and make decisions under uncertainty is denoted as risk affinity. The organization's tolerant attitude towards risks associated with the use of digital technologies and support of learning from failure is identified as failure tolerance. We argue that the level of uncertainty tolerance in an organization in terms of risk affinity and failure tolerance positively affects employee experience with DT. Therefore,

Hypothesis 1e: *Digital culture in terms of Uncertainty Tolerance positively affects Employee Experience.*

Employees who perceive DT as a source of positive social, emotional, behavioral, and cognitive experiences are more likely to be involved in DT and its governance [58]. For example, cognitive experience provides employees learning opportunities about the potential benefits and risks of digital

initiatives, and therefore encourage participation in digital governance to actualize benefits and mitigate the risks. Cognitive experience during the development and implementation of digital initiatives can also help employees realize their role in the transformation process or how the job would be affected by their participation [59]. Building a social network with colleagues in support of a digital initiative can create a positive attitude and thereby positive intention toward participation in governing that initiative if implemented [19], [60]. Likewise, if the emotional experience with DT is positive, the employee can develop a positive attitude toward the initiative which drives their willingness to engage with its governance [5]. Therefore,

H2: *Employee Experience positively affects the Employees' Intention to Participate in Digital Governance.*

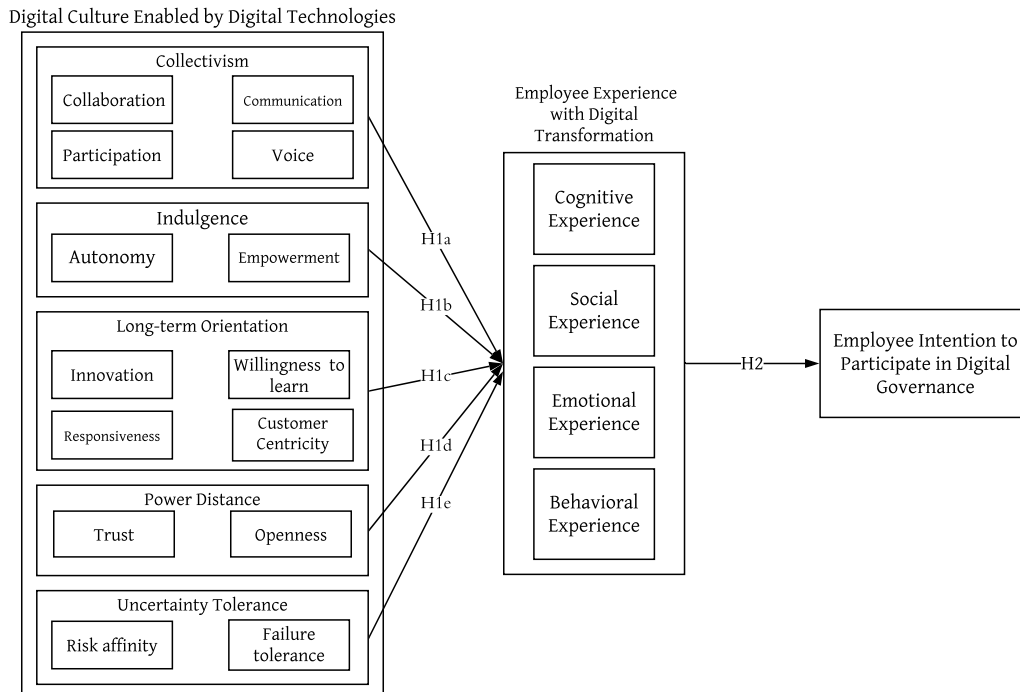


Figure 1. Model of third order symbiosis in DT

4 Model Specification and Method

Our literature review and initial exploratory study helped us to develop our theoretical model (Figure 1) that was then validated through two survey studies (pilot study and filed study). For model specification, we used experience co-creation literature to develop the initial list of items for employee experience construct [61], [62]. Digital culture measurement model was informed by previous findings on the cultural values of digital transformation [41], [63]. The

intention measurement was also adapted from previous studies [17], [48], [64]. The final items are reported in Appendix A.

We modeled employee experience as a reflective second order construct measured by reflective first-order dimensions and digital culture traits as formative second order construct measured by reflective first order dimensions (cf. [65], [66]). This hierarchical view reduces the number of path model relationships, thereby achieving model parsimony [67]. The bandwidth-fidelity dilemma can be addressed by higher-order constructs [68]. At the same time, our

approach provides a comprehensive measurement by drawing items from multiple domains and demonstrating construct dimensionality and nomological validity without increasing collinearity among items.

Before the field test, we conducted a pilot study with 64 professionals to refine our measurement model. The data were normally distributed, which indicates that we obtained a reasonable sample size for the test of dimensionality [69]. We tested the measurement model in two steps: 1) first-order reflective construct examination and latent variables estimation and 2) formative second-order constructs [70]. The pilot-test helped us to split, remove or adjust the problematic items before the field study. Then, for our field study, we used LinkedIn to distribute the survey and collect data. We extended an open call to the members of eight professional groups related to DT training and supports, each with more than 1000 members to participate in our survey.

We used SmartPLS [71] to validate both the measurement and structural properties of our model. In our study, PLS analysis is preferred over other analytical techniques because it simultaneously assesses the psychometric properties of the measurement items and the structural model. PLS also facilitates the modeling of formative constructs [72] and it is recommended for the hierarchical model evaluation used in this study [70], [74].

5 Results

We received 260 responses from around the globe, including those from different business domains, experience-levels, and seniority. The response rate was about 5% that is common for open call surveys on social networking site but less than 20% response rate for direct invitation on the same platforms. The majority of participants had more than five years of experience (67%) and hold post-secondary degrees (82%). They held upper management (7%), middle management (40%), junior management (15%), and non-management (38%) roles. About 39% of participants were from Asia, 36% from North America, 13% from South America, 10% from Europe, and 2% from other regions. About 70% of participants employed by companies with more than 50 employees and went through at least one form of DT in the past three years: process (41%), business model (39%), organizational structure (37%), or business domain transformation (35%).

After screening out the invalid responses, we evaluated the measurement model by assessing construct reliability (item reliability and internal consistency), construct factorability, and construct

validity. Cronbach's alpha [0.74—0.84] and composite reliability [0.84—0.88] of all the constructs are higher than 0.7, indicating good internal consistency among the items measuring each construct [73]. Then, three criteria were adopted to assess convergent validity and discriminant validity: (1) all Average Variance Extracted (AVE) are higher than 0.50 [0.58—0.70][73]; (2) the square root of the AVE of each construct is larger than the correlations of this construct with the other constructs [75]; and (3) the correlations among all constructs (i.e., inter-construct correlations) are all well below the 0.90 threshold [73]. The results of these tests suggest adequate convergent and discriminant validity. Lastly, we tested for common method bias using full collinearity. All the VIFs resulting from a full collinearity test were lower than the 3.3 threshold, suggesting the absence of common method bias [76].

The evaluation of second-order formative constructs—digital culture—involved an assessment of the formative indicators' (predictive) validity and multicollinearity. Indicator validity, which gauges the strength and significance of the path from the indicator to the construct, was estimated using the PLS algorithm method with a bootstrapping to calculate the weight (relative importance) and loading (absolute importance) of each indicator. The weights [0.27—0.57, $p < 0.001$], and loadings [0.88—0.95, $p < 0.001$] of all the indicators are significant, suggesting satisfactory indicator validity [73]. Multicollinearity was tested by computing the Variance Inflation Factor (VIF) of each indicator. All computed VIF values are well below the conservative threshold of 3.3, suggesting that multicollinearity is not a threat to the validity of the study's findings [73].

We modelled Employee Experience as the second order reflective construct. The loadings for this higher-order construct are higher than 0.7. Cronbach's alpha and composite reliability of this constructs are 0.92 and 0.94 respectively, indicating good internal consistency among the lower-order sub-constructs measuring Employee Experience [73]. The AVE is 0.80 higher than 0.50 threshold. The structural model was tested following the two-step procedure accounted for control variables suggested by Wetzels for hierarchical model. In the first step, the latent variable scores for the second-order constructs were obtained by specifying a latent variable that represents all the manifest variables of the underlying first-order latent variables [74]. In the second step, the hypotheses were tested. As shown in Table 1, our model accounts for 84%, and 33% of variance respectively in Employee Experience and Employee Intention. Collectivism ($\beta = 0.20, p < 0.05$), Indulgence ($\beta = 0.21, p < 0.01$), Power Distance ($\beta = 0.25, p <$

0.01), and Uncertainty Tolerance ($\beta = 0.18, p < 0.001$) significantly influence Employee Experience. However, Long-term Orientation exert no significant impact on Employee Experience ($t = 1.48$). Our data also provide support for the positive relationship between Employee Experience and Employee

Intention ($\beta = 0.58, p < 0.001$). Comparison of path coefficients using Cohen's f^2 effect size [77] reveals that: (a) Power Distance ($f^2 = 0.058$) have greater predictive power on Employee Experience when compared to Collectivism ($f^2 = 0.044$), Indulgence ($f^2 = 0.050$), and Uncertainty Tolerance ($f^2 = 0.055$).

Table 1. Results of the structural model assessment

HYPOTHESIS	SUPPORT	β	t	R ²	Q ²
H1a: Collectivism → Employee Experience	Supported	0.199*	2.290		
H1b: Indulgence → Employee Experience	Supported	0.213**	2.794		
H1c: Long-term Orientation → Employee Experience	Not supported	0.136 ^{ns}	1.482	0.816	0.636
H1d: Power Distance → Employee Experience	Supported	0.251**	3.014		
H1e: Uncertainty Tolerance → Employee Experience	Supported	0.184***	3.345		
H2: Employee Experience → Intention	Supported	0.577***	9.080	0.333	0.191

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; ns = no significant; β = path coefficients; R² = determination coefficient; Q² = predictive relevance (calculated by Blindfolding).

6 Discussion

Participatory form of digital governance is critical to the success of DT initiatives [78]. We argue that, in order to realize the full potential of DT, business organizations need to identify better ways to engage and motivate their employees to actively and effectively participate in the planning, developing and evaluating of these initiatives. Addressing this necessity, we conceptualized and operationalize the concepts of digital culture as well as employee experience as the drivers of employee intention to participate in digital governance. Then, we empirically tested the relationship between these variables as a mechanism to encourage employee participation in digital governance. Our study revealed the pertinence of digital culture and employee experience, two variables that guide future studies on digital governance. The findings emphasize employee-orientation as the foundation of successful transformation and, its influence on employees' participation in digital governance.

We reported positive relationships between different aspects of digital culture except long-term orientation. While this finding needs further examination, we believe the nature of experience formation (gain and test) is the reason behind this unsupported relationship. The consequences of innovation and customer-orientation are not readily available to be experienced by the employees. Therefore, the effect sizes of the other four cultural traits on employee experience overpower the effect size of long-term orientation. This idea could be tested with a larger sample size.

This study has multiple theoretical contributions. Firstly, this paper contributes a better understanding of organizational culture in digital context. This study expands upon the five common dimensions, breaking them down further in order to conceptualize digital culture. Our contribution is the operationalization of

(1) collectivism as collaboration, communication, and participation, (2) power distance as openness and trust, (3) uncertainty tolerance as risk affinity and tolerance to fail, (4) long-term orientation as agility, customer centricity, innovation, and willingness to learn, and (5) indulgence as engagement and entrepreneurship.

Secondly, we conceptualized and operationalized employee experience with digitalization using Dewey's experience theory [29] in terms of cognitive, social, emotional and behavioral experiences and empirically validate that as a higher-order construct capturing employee experience with digitalization. This instrument can not only be used to understand how employees perceive the experiential values of DT but also help organizations to evaluate the impact of digitalization from a more practical perspective. This paper also suggests that digital culture is one of the factors determining how employees experience digitalization.

Lastly, this study contributes to digital governance literature and provides a foundation for DT co-governance with employees. Our findings, which have accounted for a gap in the literature, suggest that employee engagement by the mean of experiential values is a possible way to improve employees' willingness to participate in DT initiatives—that is vital in undergoing a successful transformation. This offer new ways to understand and plan human-centered DT. In particular, we argue that employee participation in DT initiatives is the key to the success of these initiatives. We conceptualize this high level of participation as DT co-governance. DT co-governance theoretically allows all DT stakeholders to participate in planning, implementation and evaluation of DT initiatives. However, the admissibility of such procedural possibility depends on how employees perceive the value of their participation. This study empirically shows that employees' experiences with past DT forms the employees' perception. Thus, it can predicate the behavioral intention toward DT co-

governance. We also argue the way employees internalized these perceptual values depends on several factors, but mainly the organization's digital culture. This implies the same employee may have different experience with the same DT initiative depending on the organization's digital culture.

This study also offers several implications for practice. Among them, we suggest that investment in healthy digital culture is as important as investment in digital tools and processes. We define a healthy digital culture as an organization culture with four traits—collectivism spirit, indulgence, optimum power distance long-term orientation, and reasonable uncertainty tolerance—supported by digital tools. However, our study could not support the importance of long-term orientation in driving positive employee experiences. By evaluating these traits, businesses can easily understand their shortcomings in introducing and employing digital tools (and digitally enabled processes) and plan to improve accordingly. Businesses that support innovation, autonomy, agility, and transparency, among other traits of digital culture, can deliver a positive experience for employees during the transformation initiatives. This includes how employees feel about the new digital initiatives, creatively engaging in high-order problem-solving and learning, exploring new ways of accomplishing their goals, and interacting with their colleagues beyond their formal departmental boundaries.

7 Conclusion and Future Work

Our research has improved the understanding of what impacts and plays a role in a successful DT and its governance. Our results indicate that, without understanding the drivers of digital governance, organizations may fail to unleash the full potential of DT. It is imperative to improve employee participation in digital governance in order to improve the success rate of any DT. DT is more than implementing new technologies, they are about the people it affects. No matter how expensive or ground-breaking a new technology is, without considering the human side, the transformation is irrelevant.

Future research can examine how new digital technologies should supply experiential opportunities for employees to enhance the outcome of DT initiatives. In addition to providing future research with direct access of the definitions, relationships, and importance between Digital Governance, Employee Experience, and digital culture, we have created an instrument to validate these dimensions in different DT context from business process and model to business domain and strategy. Although this paper did not address employees' attitude towards DT, this limitation can be addressed by future research studies

following our conceptual model. Future researchers can also investigate the conceptual and operational relevancy of Employee Experience and digital culture in the examination and optimization of DT related processes, technologies and strategies.

Appendix: Measurement Items

Employee Experience with DT

Cognitive Experience

- Improve skills
- Gain new knowledge
- Analyze possibilities/capabilities
- Keep up with innovations
- Come up with new ideas

Emotional Experience

- Pleasure
- Fun
- Enjoyment
- Less stress

Behavioral Experience

- Share knowledge
- Represent own's work
- Make a good impression
- Have an impact

Social Experience

- Pleasant interactions
- Expand network
- Meet others
- Strengthen affiliation
- Sense of belongingness

Digital Culture

Agility

- Willingness to work with agility
- Willingness to react with agility
- Willingness to restructure with agility
- Agile flexibility and adaptability

Collaboration

- Positive stance towards teamwork
- Cross-functional collaboration
- Readiness to work with external partners

Communication

- Internal networks of communication
- External networks of communication
- Ability to share knowledge and information

Customer Centricity

- Orientation of activities to meet customer needs
- Processes designed with a focus on customer needs
- Ability to adapt to changes in the market

Autonomy

- The empowerment to act proactively
- The empowerment to act independently
- The empowerment to take responsibility

Innovation

- Pursuit of improvement
- Believe in growth from innovations
- Innovation to achieve competitive advantage

Openness towards change

- Openness towards new ideas
- Readiness to accept new ideas

Participation

- Support of open discussion
- Support of non-hierarchical discussion
- Support of the democratization of decision processes

Risk affinity

- Ability to calculate risks

- Willingness to take risks
- Willingness to make decisions under uncertainty

Tolerance towards failure

- Attitude towards reasonable mistakes
- Support of learning from failure
- Support in moving forward after failure

Trust

- Trust in leadership
- Trust in members
- Trust in external partners

Willingness to learn

- Pursuit of continuous advancement
- Acquisition of new skills
- Acquisition of knowledge

References

- [1] S. Adeni, "Why You Need To Accelerate Your Digital Transformation Right Now," *Forbes*, 2020.
- [2] B. Morgan, "40 Stats On Digital Transformation And Customer Experience," *Forbes Media LLC*, Dec-2019. .
- [3] R. W. Gregory, E. Kaganer, O. Henfridsson, and T. J. Ruch, "It consumerization and the transformation of it governance," *MIS Q.*, vol. 42, no. 4, pp. 1225–1253, 2018.
- [4] B. Libert, M. Beck, and Y. Wind, "7 Questions to Ask Before Your Next Digital Transformation," *Harv. Bus. Rev.*, vol. 60, no. 12, pp. 11–13, 2016.
- [5] M. Kozak-Holland, C. Procter, M. Kozak-Holland, and C. Procter, "The Challenge of Digital Transformation," in *Managing Transformation Projects*, Springer International Publishing, 2020, pp. 1–11.
- [6] G. Wokurka, Y. Banschbach, D. Houlder, and R. Jolly, "Digital culture: Why strategy and culture should eat breakfast together," in *Shaping the Digital Enterprise: Trends and Use Cases in Digital Innovation and Transformation*, Springer, 2016, pp. 109–120.
- [7] A. Fadjar and K. N. Sardjudin, "Factors that Influence Decision Making through the Application of Management Accounting Information Systems.," *Int. J. Psychosoc. Rehabil.*, vol. 24, no. 2, 2020.
- [8] B. Mueller and U. Renken, "Helping Employees to be Digital Transformers – the Olympus.connect Case," in *International Conference on Information Systems*, 2018, pp. 1–10.
- [9] L. S. Barbosa, "Digital governance for sustainable development," in *Lecture Notes in Computer Science*, 2017, vol. 10595, pp. 85–93.
- [10] M. Brito, *Participation Marketing, Unleashing Employees to Participate and Become Brand Storytellers*, no. Participation Marketing, 2018.
- [11] L. Welchman, *Managing Chaos Digital Governance By Design*, vol. 53. Rosenfeld Media, LLC, 2015.
- [12] R. Narasimhan, J. P. Vazhayil, and S. Narayanaswami, "Employees' provident fund organization: Empowering members by digital transformation," *J. Public Aff.*, vol. 18, no. 4, p. e1844, Nov. 2018.
- [13] T. Bhuvanaiah and R. P. Raya, "Employee Engagement: Key to Organizational Success.," *SCMS J. Indian Manag.*, vol. 11, no. 4, pp. 61–71, 2014.
- [14] D. Arkhipova, G. Vaia, W. DeLone, and C. Braghin, "IT Governance in the Digital Era," *SSRN Electron. J.*, vol. 12, 2016.
- [15] H. Sarar, "Job Empowerment and Participative Decision Making Concerns at Abu Dhabi Group : A Qualitative Case Study," vol. 4, no. 5, pp. 91–101, 2016.
- [16] J. Ghorpade, J. Lackritz, and G. Singh, "Work values and preferences for employee involvement in the management of organizations," *Empl. Responsib. Rights J.*, vol. 13, no. 4, pp. 191–203, 2001.
- [17] S. H. Appelbaum, D. Louis, D. Makarenko, J. Saluja, O. Meleshko, and S. Kulbashian, "Participation in decision making: A case study of job satisfaction and commitment," *Ind. Commer. Train.*, vol. 45, no. 4, pp. 222–229, 2013.
- [18] A. Horlacher, P. Klarner, and T. Hess, "Crossing Boundaries: Organization Design Parameters Surrounding CDOs and Their Digital Transformation Activities," Aug. 2016.
- [19] W. DeLone, D. Migliorati, and G. Vaia, "Digital IT governance," in *CIOs and the Digital Transformation: A New Leadership Role*, Springer International Publishing, 2017, pp. 205–230.
- [20] L. Style and E. Performance, "Arabian Journal of Business and," *Arab. J. Bus. Manag. Rev.*, vol. 5, no. 5, pp. 1–6, 2015.
- [21] W. H. Macey and B. Schneider, "The Meaning of Employee Engagement," *Ind. Organ. Psychol.*, vol. 1, no. 1, pp. 3–30, 2008.
- [22] Y. Peng, "Affective networks: how WeChat enhances Tencent's digital business governance," *Chinese J. Commun.*, vol. 10, no. 3, pp. 264–278, Jul. 2017.
- [23] H. Jiang, M. Siponen, and A. Tsohou, "A Field Experiment for Understanding the Unintended Impact of Internet Monitoring on Employees: Policy Satisfaction , Organizational Citizenship Behaviour and Motivation," in *European Conference on Information Systems (ECIS)*, 2019, pp. 0–16.
- [24] S. Klotz, A. Kopper, M. Westner, and S. Strahinger, "Causing factors, outcomes, and governance of shadow IT and business-managed IT: A systematic literature review," *Int. J. Inf. Syst. Proj. Manag.*, vol. 7, no. 1, pp. 15–43, 2019.
- [25] A. Bhattacharjee, G. P. Logistics, and M. Operations, "Understanding Changes in Belief and Attitude Toward Information Technology Usage: A Theoretical Model and Logitudinal Test," *MIS Q.*, vol. 28, no. 2, pp. 229–254, 2004.
- [26] E. L.-C. Law, P. Van Schaik, and V. Roto, "Attitudes towards user experience (UX) measurement," *Int. J. Hum. Comput. Stud.*, vol. 72, no. 6, pp. 526–541, Jun. 2014.
- [27] F. Köbler, S. Goswami, P. Koene, J. M. Leimeister, and H. Krcmar, "NFriendConnector: Design and Evaluation of An Application for Integrating Offline and Online Social Networking," *ALS Trans. Human-Computer Interact.*, vol. 3, no. 4, pp. 214–235, 2011.
- [28] K. Abhari, N. M. Saad, and M. S. Haron, "Enhancing Service Experience through Understanding: Employee Experience Management," in *International Seminar on Optimizing Business Research and Information, Binus University, Jakarta, Indonesia*, 2008.
- [29] J. Dewey, *Experience and Nature*. Dover Publications, 1958.
- [30] B. Marr, O. Gupta, S. Pike, and G. Roos, "Intellectual capital and knowledge management effectiveness," *Manag. Decis.*, vol. 41, no. 8, pp. 771–781, Oct. 2003.
- [31] D. L. Finkel and G. S. Monk, "The Design of Intellectual Experience," *J. Exp. Educ.*, vol. 2, no. 2, pp. 31–38, 1979.
- [32] K. Abhari, A. Vomero, and E. Davidson, "Psychology of Business Intelligence Tools: Needs-Affordances-Features Perspective," in *Proceedings of the 53rd Hawaii International Conference on System Sciences*, 2020.
- [33] E. Karahanna, S. X. Xu, Y. Xu, and N. Zhang, "The needs-affordances-features perspective for the use of social media," *MIS Q. Manag. Inf. Syst.*, vol. 42, no. 3, pp. 737–756, 2018.
- [34] K. Abhari, B. Xiao, and E. Davidson, "Communication in co-innovation networks: A moderated mediation model of social affordances, social experience, and desire for learning," in *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 2017, vol. 10293 LNCS, pp. 139–153.
- [35] L. David, "Social Identity Theory (Tajfel, Turner) - Learning Theories," *Learning-Theories.com*, 2015.
- [36] F. Pucillo, G. Cascini, P. Milano, V. Giuseppe, and L. Masa, "A framework for user experience, needs and affordances," *Des. Stud.*, vol. 35, no. 2, pp. 160–179, 2014.
- [37] K. Abhari, E. Davidson, and B. S. Xiao, "'Experience First': Investigating Co-creation Experience in Social Product

- Development Networks,” *AIS Trans. Human-Computer Interact.*, vol. 11, no. 1, pp. 1–32, 2019.
- [38] R. C. Solomon, “Emotional Experience (‘Feelings’),” in *True to Our Feelings*, R. C. Solomon, Ed. Oxford University Press, 2011, pp. 232–244.
- [39] M.-C. Wu and F.-Y. Kuo, “An empirical investigation of habitual usage and past usage on technology acceptance evaluations and continuance intention,” *ACM SIGMIS Database*, vol. 39, no. 4, pp. 48–73, 2008.
- [40] B. L. Halpern-Felsher, S. G. Millstein, J. M. Ellen, N. E. Adler, J. M. Tschann, and M. Biehl, “The role of behavioral experience in judging risks,” *Heal. Psychol.*, vol. 20, no. 2, pp. 120–126, 2001.
- [41] E. Hartl and T. Hess, “The role of cultural values for digital transformation: Insights from a delphi study,” in *America’s Conference on Information Systems*, 2017, pp. 1–10.
- [42] J. Hemerling, J. Kilmann, M. Danoesastro, L. Stutts, and C. Ahern, “It’s Not a Digital Transformation Without a Digital Culture,” *Bost. Consult. Gr.*, pp. 1–11, 2018.
- [43] F. Shahzad, G. Y. Xiu, and M. Shahbaz, “Organizational culture and innovation performance in Pakistan’s software industry,” *Technol. Soc.*, vol. 51, pp. 66–73, Nov. 2017.
- [44] B. T. Gregory, S. G. Harris, A. A. Armenakis, and C. L. Shook, “Organizational culture and effectiveness: A study of values, attitudes, and organizational outcomes,” *J. Bus. Res.*, vol. 62, no. 7, pp. 673–679, 2009.
- [45] V. Gurbaxani and D. Dunkle, “Gearing Up For Successful Digital Transformation,” *MIS Q. Exec.*, vol. 18, no. 3, pp. 209–220, 2019.
- [46] G. Hofstede, G. J. Hofstede, and M. Minkov, *Cultures and organizations: Software of the mind, Third Edition*. 2010.
- [47] G. Hofstede, *Culture’s consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage publications, 2001.
- [48] D. Jurburg, E. Viles, M. Tanco, R. Mateo, and Á. Lleó, “Understanding the main organisational antecedents of employee participation in continuous improvement,” *TQM J.*, vol. 31, no. 3, pp. 359–376, May 2019.
- [49] M. Farrell, “Transparency,” *J. Libr. Adm.*, vol. 56, no. 4, pp. 444–452, 2016.
- [50] S. Hotho and K. Champion, “‘We are always after that balance’ - Managing innovation in the new digital media industries,” *J. Technol. Manag. Innov.*, vol. 5, no. 3, pp. 36–50, 2010.
- [51] H. Koch, D. E. Leidner, and E. S. Gonzalez, “Digitally enabling social networks: Resolving IT-culture conflict,” *Inf. Syst. J.*, vol. 23, no. 6, pp. 501–523, Nov. 2013.
- [52] E. Berggren and R. Bernshteyn, “Organizational transparency drives company performance,” *J. Manag. Dev.*, vol. 26, no. 5, pp. 411–417, 2007.
- [53] T. P. Liang and M. Tanniru, “Special section: Customer-centric information systems,” *J. Manag. Inf. Syst.*, vol. 23, no. 3, pp. 9–15, 2006.
- [54] M. Darban and G. L. Polites, “Do emotions matter in technology training? Exploring their effects on individual perceptions and willingness to learn,” *Comput. Human Behav.*, vol. 62, pp. 644–657, 2016.
- [55] F. Zhou, R. Jianxin Jiao, and J. S. Linsey, “Latent Customer Needs Elicitation by Use Case Analogical Reasoning From Sentiment Analysis of Online Product Reviews,” *J. Mech. Des.*, vol. 137, no. 7, p. 071401, Jul. 2015.
- [56] A. Alharbi, K. Kang, and I. Hawryszkiewicz, “The influence of trust and subjective norms on citizens’ intentions to engage in E-participation on E-government websites,” in *Australasian Conference on Information Systems*, 2015.
- [57] P. Rujirawanich, R. Addison, and C. Smallman, “The effects of cultural factors on innovation in a Thai SME,” *Manag. Res. Rev.*, vol. 34, no. 12, pp. 1264–1279, 2011.
- [58] M. Deuze, “Participation, remediation, bricolage: Considering principal components of a digital culture,” *Inf. Soc.*, vol. 22, no. 2, pp. 63–75, 2006.
- [59] D. N. Rapp, H. A. Taylor, and G. R. Crane, “The impact of digital libraries on cognitive processes: Psychological issues of hypermedia,” *Comput. Human Behav.*, vol. 19, no. 5, pp. 609–628, Sep. 2003.
- [60] E. Zinder and I. Yunatova, “Synergy for digital transformation: Person’s multiple roles and subject domains integration,” in *Communications in Computer and Information Science*, 2016, vol. 674, pp. 155–168.
- [61] T. Leclercq, W. Hammedi, and I. Poncin, “The Boundaries of Gamification for Engaging Customers: Effects of Losing a Contest in Online Co-creation Communities,” *J. Interact. Mark.*, vol. 44, no. November, pp. 82–101, 2018.
- [62] K. Verleye, “The co-creation experience from the customer perspective: Its measurement and determinants,” *J. Serv. Manag.*, vol. 26, no. 2, pp. 321–342, 2015.
- [63] E. Hartl, “A Characterization of Culture Change in the Context of Digital Transformation,” in *Twenty-fifth Americas Conference on Information Systems*, 2019, pp. 1–10.
- [64] D. Jurburg, E. Viles, M. Tanco, and R. Mateo, “What motivates employees to participate in continuous improvement activities?,” *Total Qual. Manag. Bus. Excell.*, vol. 28, no. 13–14, pp. 1469–1488, Nov. 2017.
- [65] R. T. Cenfetelli and G. Bassellier, “Interpretation of Formative Measurement in Information Systems Research,” *MIS Q.*, vol. 33, no. 4, pp. 689–707, 2009.
- [66] S. Petter, D. Straub, and A. Rai, “Specifying Formative Constructs in Information Systems Research,” *MIS Q.*, vol. 31, no. 4, pp. 623–656, 2007.
- [67] G. L. Polites, N. Roberts, and J. Thatcher, “Conceptualizing models using multidimensional constructs: a review and guidelines for their use,” *Eur. J. Inf. Syst.*, vol. 21, no. 1, pp. 22–48, 2011.
- [68] D. J. Cooke and C. Michie, “Refining the construct of psychopathy: Towards a hierarchical model,” *Psychol. Assess.*, vol. 13, no. 2, pp. 171–188, 2001.
- [69] J. Hair, W. Black, B. Babin, and R. Anderson, “Multivariate Data Analysis: A Global Perspective,” in *Multivariate Data Analysis: A Global Perspective*, vol. 7th, Pearson, 2010.
- [70] J. F. Hair, C. M. Ringle, and M. Sarstedt, “PLS-SEM: Indeed a Silver Bullet,” *J. Mark. Theory Pract.*, vol. 19, no. 2, pp. 139–152, Apr. 2011.
- [71] C. Ringle, S. Wende, and J. Becker, “SmartPLS 3,” *Boenningstedt: SmartPLS GmbH*. 2015.
- [72] W. W. Chin, “The partial least squares approach to structural equation modeling,” in *Modern Methods for Business Research*, vol. 295, 1998, pp. 295–336.
- [73] J. F. Hair, G. T. M. Hult, C. M. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Thousand Oaks: SAGE, 2013.
- [74] M. Wetzels, G. Odekerken-Schröder, and C. Van Oppen, “Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration,” *MIS Q. Manag. Inf. Syst.*, vol. 33, no. 1, pp. 177–196, 2009.
- [75] C. Fornell and D. F. Larcker, “Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics,” *J. Mark. Res.*, vol. 18, no. 3, pp. 382–388, 2006.
- [76] N. Kock, “Common method bias in PLS-SEM: A full collinearity assessment approach,” *Int. J. e-Collaboration*, vol. 11, no. 4, pp. 1–10, 2015.
- [77] A. S. Selya, J. S. Rose, L. C. Dierker, D. Hedeker, and R. J. Mermelstein, “A practical guide to calculating Cohen’s f^2 , a measure of local effect size, from PROC MIXED,” *Front. Psychol.*, vol. 3, no. 1, p. 111, 2012.
- [78] A. M. Hansen, P. Kraemmergaard, and L. Mathiasen, “Rapid adaptation in digital transformation: A participatory process for engaging is and business leaders,” *MIS Q. Exec.*, vol. 10, no. 4, pp. 175–185, 2011.