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Within the Time Machine: the Role of Organizational Temporalities in Shaping Digital Transformation Within Public Sector Organizations in Saudi Arabia

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WITHIN THE TIME MACHINE: THE ROLE OF ORGANIZATIONAL TEMPORALITIES IN SHAPING DIGITAL TRANSFORMATION WITHIN PUBLIC SECTOR ORGANIZATIONS IN SAUDI ARABIA

Research full-length paper

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Abstract

The Information systems (IS) literature has discussed time in some detail, including how IT enables the bridging of problems associated with temporal distance in IT-mediated teams, facilitating teams' decision-making process, speeding up business processes as well as stretching time through enabling actors to multitask by utilizing IT artefacts. However, there has been a tendency to focus only on time as a linear objective construct, thus neglecting its subjective and socially constructed ontology of time. In this paper, we argue that this temporal ontology deserves more attention in IS literature. To examine the interplay of objective and subjective views of time whilst undergoing digital transformation and its effects and outcomes, a qualitative, comparative case study approach is embraced here to understand how Saudi governmental organizations are implementing a new government initiative to digitally transforming with time. In this context, we explore how key actors act upon objective and subjective temporalities during the Saudi country-wide transformation of the digital economy, their conflicts, their mechanisms to go about the conflicts, and the role their different logics and underneath temporalities play in orchestrating the transformation. We take advantage of a countrywide imposed transformation of Saudi Vision2030 which is an underexplored context.

Keywords: Digital Transformation, Temporalities, public organizations, government.

1 Introduction:

Time and IS research have a long history. However, this history in the IS literature traditionally considered time as a linear objective construct. This ontology was evident in many influential examples of extant IS research. For example, IS research has focused mainly on how technology bridges the problems of temporal distance in IT-mediated teams (Dennis et al., 2008; Cummings et al., 2009; Espinosa et al., 2015), facilitates team decision-making (Dennis et al., 2010), extends time and enables multitasking (Fortunati, 2002), and speeds up business processes (Sarker & Sahay, 2004; Lee & Liebenau, 2000; Lee, 1999). However, the need in today's world to fully transform the way organizations used to work is becoming increasingly prominent in the IS research. As such, the simple "abstract, uniform and unitary time of the clock" (Fortunati 2002, p. 517) is no longer satisfactory because contemporary IT artifacts allow time to be stretched and provoke new time practices and processes (Horning et al., 1999; Shen et al., 2015) which implies the existence of another ontological account of time, which we refer to as *subjective time*, that is a socially constructed version of time assuming an active role of actors (Biesenthal et al., 2015, Shen et al., 2015; Hernes, 2014; Orlikowski & Yates, 2002). Therefore, in this research we want to uncover the distinction between these two opposing ontologies of time and

temporality where temporality is shaped by a range of factors and encompasses not only the linear and objective aspects of time but also the subjective and cultural dimensions of time.

The importance of uncovering and studying different ontological accounts of time is increasingly acknowledged in many fields, including medicine (Caldas and Berterö, 2012), organizational change (Dawson , 2014), project management (Biesenthal et al., 2015) and in information systems (O Connor et al., 2017; O Riordan et al., 2013; Lee and Liebenau, 2000). However, IS research still favours the aforementioned *objective view* of time (Shen et al., 2015) and few studies can be found on the interplay between objective and subjective time in organizations (Orlikowski and Yates, 2002; Saunders, 2007) and more importantly its effect on a significant phenomena such as digital transformation.

In response to this critical shortcoming in the extant literature, this research adopts a qualitative methodology and a grounded approach (Strauss and Corbin, 1990, 1994), to explore how organizational actors perceive and act upon the different temporalities within their organization when undergoing digital transformation. In our research, these key areas are examined in relation to intensive processes taking place as part of a country-wide imposed digital transformation processes. Digital transformation is not a one-time initiative but rather a continuous process that requires a cultural shift adopting the set of emerging of new technologies, innovative thinking, and ability and willingness to experiment and learn within the organization. Hence, this paper interrogates the complexities of how such temporalities interplay, how this interplay impacts the large-scale organizational transformation by the Government of Saudi Arabia, especially as the country moves towards a digitalized and more diversified economy, and one less reliant on oil. In 2021, digital transformation spending by Saudi Arabia reached SR12 billion ($3.19 billion), according to reports from Saudi Arabia's Digital Government Authority (ArabNews, 2022). Thus, we aim to expand our knowledge about a variety and interplay of multiple ontologies of time (i.e. different temporalities) in this governmental settings by focusing on the currently undertheorized role of the subjective view of time and the role of IT in orchestrating the interplay between objective and subjective ontologies of time.

The context of digital transformation of a public organisation in Saudi Arabia is particularly well-suited for this research as public sector as a specific context for change has been underexplored in research generally. Recently, a number of scholars have acknowledged this shortcoming and ignorance of the public sector in ICT research, with most studies focusing on the private sector (Plesner et al., 2018; Pick et al., 2015; Bejerot and Hasselbladh, 2013). Additionally, these kinds of transformation projects in public sector tend to be part of a bigger comprehensive reforms agenda (Ejersbo and Greve, 2017). In this regard, Plesner et al. (2018, p. 1180) precisely state that digital transformation in the public sector "is not just a question of implementing new digital technologies, but implies political ideas, ambitions and interventions aimed at fundamentally rethinking and reshaping the organisations.".

The research is structured as follows. First, we review literature on views of time and temporality in organizations, Digital transformation (DT) as a continuous process and in public sector, and we have a look on how the orchestration of the opposing views of time within DT has been handled in the literature. Second, we provide details and specificities of this research setting in the research method section followed by a thorough description of our data collection and analysis. Then, we introduce findings combined with the discussion. Finally, we conclude with the intended contributions and implications of this study.

2 Theoretical Background:

2.1 Views of time and temporality in organizations.

Research in Organization studies has discussed a variety of time forms that are co-existing and taking place within organizations. Historically, Heidegger (1982) suggested that the objective and subjective

views of time are two distinct ontologies that could meet at some point. To extend this history, we review some dichotomies of time in the organization literature.

Term	Definition	Main Reference(s)
Objective (Chronos), planned	Linear component that can be measured quantitatively by specific units	Orlikowski & Yates, 2002 ; Biesenthal et al., 2015, Shen et al., 2015
Subjective (Kairos), experienced	Socially constructed measured by the human activities and goals achieved	
Clock time	Allows the present to be isolated from its past and future.	Reinecke & Ansari, 2017
Process or Event time	Identifies social events and views present, past and future as one single construct.	
Periodic temporality	Events are perceived as static and "discrete" from each other.	Hernes , 2014
Ongoing temporality	Assumes an active role of the actors in the present and that the past and future are "dimensions" of it.	

Table 1. Views on time in organizations

As *Table 1* demonstrates, the objective view conceptualizes time as very linear where past, present, and future are separate from each other and not related. In the subjective view, however, the individual is linking the past, present, and future and draws a comprehensive image from the three (Vesa & Franck, 2013; Dodd et al., 2013). Time as conceptualized by the objective view is independent of the actors or any other influencers. Clocks and calendars therefore are considered essential components in measuring time objectively. Blount and Janicik (2001) emphasized how culture (among other factors) affect the process by which people choose their temporal referents. For example, the objective (clock) time is valued more strongly in the North American and Northern European nations while the Latin Americans, Native Americans, and Southern European nations value event-based time. Hence, and as stressed by Durkheim (1915), social rhythms impact how people collectively experience time and highlight the intersubjective nature of time where individuals share a similar sense of experiencing time due to their involvement in common events and activities.

2.2 Digital transformation (DT) as a continuous process.

In the IS research, the connection between IT and time was mainly created by looking at IT as a way to bridge temporal distance in organizations, especially in IT-mediated teams. However, this perception is changing now. Fortunati (2002), for example, discusses how mobile phones, which form one type of IT, produce and reproduce time in organization by stretching time and offering a double or even triple life for those who utilize IT by allowing them to perform multiple actions using the same objective time and hence redefining the social conception of time. Digitization, digitalization, and digital transformation are all related terms that are often used interchangeably in the management and IS literature when discussing organizational changes related to or empowered by the use of IT (Alenezi, 2021; Bloomberg, 2018; Gobble, 2018). However, they do not precisely mean the same thing. Although both digitization and digitalization can be considered as helpful steps that aims at increasing efficiency and reducing human involvement and errors, these steps are still not enough to achieve the true purpose of utilizing IT in business (Gobble, 2018). This purpose lies in transforming the way business is conducted or in other words, in changing the business model and delivering value is what digital transformation all about. Therefore, it can be said that digital transformation has a more disrup-

tive and holistic organizational change over the other steps that lead to it. DT often involves changes in the organization's structure, strategy, culture, and so on.

2.3 DT in Public Sector.

Extant research on DT in the public sector has largely focused on the non-human factors that hinder the transition of the organization, such as inconsistent maturity levels of ICT between different public organizations and the lack of required integration between them (Alghamdi et al., 2014). Despite the ever-growing number of studies on DT, studies have only recently started exploring how time and IT-related processes and practices might relate to and influence each other (Shen et al., 2015). Organizations undergoing digital transformation finds themselves nowadays in a problematic situation as a result of the existence of the above discussed temporalities (Cunha, 2004). This situation occurs when the actions these organizations take in everyday work life are associated with and depend on linear time (objective) while planning for those activities tends to revisit and review the past (subjective). In this case study of public organizations context in particularly, such change process comes with its own complexities and intertwined situation by taking place within a profoundly bureaucratic setting, which is forced to change according to a larger agenda of country-wide reforms aiming at developments and cultural change. In societies usually labelled as traditional and conservative, like Saudi Arabia (Al-Turki and Tang, 1998), individuals in the workplace tend to follow established norms and routines without questioning them (Hofstede, 1997). When a contemporary organization undergoes DT that alters the environment to a more hybrid one "that combine[s] institutional logics in unprecedented ways" (Battilana and Dorado, 2010, p. 1419) and finds itself in a situation of ambitemporality – that is, one where the organization needs to "accommodate seemingly contradictory temporal orientations" (Reinecke and Ansari, 2015, p. 620) – it can be said that the organization is facing institutional complexity.

2.4 The orchestration of the opposing views of time within DT.

The literature on time and temporality in organizations highlights two dominant ontologies of time (i.e. temporalities) or temporal orientations: objective and subjective. While objective temporality builds on an understanding of time through events that are perceived as static and "discrete" from each other, subjective temporality builds on an understanding of time by assuming an active role played by the actors in the present and by assuming that the past and future are "dimensions" of the present (Hernes, 2014). Recent research has established that the temporality according to which organizations operate provides critical implications for strategy, for decision-making and for the ability to change. Such organizational activities and processes commonly imply a future-oriented direction for organizations (Wenzel et al., 2020). Hence, this future orientation requires actions to be made in the present which are built on the past, emphasizing temporality as a suitable lens to examine these actions and processes. However, the link between the coexisting ontologies of time (i.e. temporalities) and IT in the context of organizational change is still ambiguous. Horning et al. (1999) say, "Time, as we know it, does not exist as such. It must be continuously made in the production and reproduction of society, of which technology is a part" (p. 305). As in organizational studies, it is noticeable that IS research favors the objective view of time. Shen et al. (2015) state that the IS research in most cases neglects the subjective experience of time although the time experience varies from one team to another in the context of IT-mediated teams, for example. This oversimplification in dealing with the different ontologies of time (i.e. different temporalities) that could exist within IT-mediated teams makes it difficult to assess the real implications and complexities of having coexisting temporalities functioning at the same time.

3 Research Questions:

To obtain a better picture of how organizations change when undergoing digital transformation and operating according to multiple institutional logics and temporalities, the research problem can be divided into two research questions. These are as follows:

• ***How do different temporalities coexist and interplay in organizations undergoing digital transformation and institutional complexity?***

• ***What types of conflicts and resolution processes are used in organizations undergoing digital transformation and institutional complexity?***

The first question will allow us to describe the situation of institutional complexity in public organizations undergoing digital transformation and ambitemporality, illustrating how technology/ digital transformation, combined with different temporalities and multiple logics, leads to specific organizational states. The second question will allow us to understand the types of conflicts that arise from the different logics coexisting according to different temporalities and the underlying processes used to organize and orchestrate the transition from one temporality to another and from one logic to another, in a situation characterized by ambitemporality and institutional complexity in public organizations undergoing digital transformation.

4 Research Method:

We adopted a research approach appropriate for examining a complex and emerging phenomenon like digital transformation and temporality. Subsequently, this research had to adopt an interpretive approach to allow for an examination of the subjective meaning that actors attach to IT. A vital consideration in this approach is that there is no single cause for a particular result. Rather, it is the interplay between IT artefacts and the human agency dealing with them (Markus and Robey, 1988). Sahay (1997) indicates that interpretive research projects aim particularly to study the subjectivity of different problems. When actors interact with IT within a specific organizational context, they attach a particular shared meaning to the technology away from technology's technical properties (Walsham, 1993; Orlikowski and Gash, 1994; Robey and Azevedo, 1994). Butler (1995) tried to develop a model of organizational time based upon the socially constructed notion of a "timeframe." However, Sahay (1997) thinks that he failed because he still viewed time as unproblematic and a measurable concept only. This view hinders a deeper and more complex analysis relating to the social construction of time. Therefore, it seems to us that any other approach would result in an unnecessarily rigid external meaning and a theory that is disconnected from the lived experience. Hence, the interpretive approach gives voice to those directly involved, and the researcher's interpretation of events (Myers, 2013).

This research paper is based on GovOrg organization (a pseudonym), a public organization owned and run by the government of Saudi Arabia "Public sector consists of governments, and all publicly controlled or publicly funded agencies, enterprises, and other entities that deliver public programs, goods, or services." (The Institute of Internal Auditors, 2011). GovOrg is a typical bureaucratic public organization in a Middle Eastern country, employing around 10,000 employees spread over 13 regions in the country, with the organization's headquarters in the capital city of Riyadh. It has existed for more than 60 years now (since 1960). Its main decisions are made, and its procedures and policies are established in the Riyadh headquarters, and these are followed and implemented by the branches in the 13 regions as per official circulars. The case organization was selected based on purposeful sampling strategies (Patton, 2002) based on its relevance to the phenomenon to provide a rich overview of organizational change practices in the process of digital transformation. In looking for a suitable case to carry out this research, several predetermined criteria were considered. The case organization had to be part of a bigger comprehensive country-wide reforms program; the transformation of the organiza-

tion had to be an ICT-driven process, i.e., the organization had to be undergoing a digital transformation process; and finally, it was essential for this study to secure a gatekeeper who believed in the importance and usefulness of this study and its outcomes for the organization.

4.1 Data Collection and analysis.

The data collection and analysis comprised mainly of two episodes combining several data collection methods. First, we collected and analyzed the organizational documents to understand the digital transformation initiative goals and main logics in relation to the bigger country-wide reform. Second, we employed semi-structured interviews with members of the organization whose work had been influenced by or interrupted by the phenomenon at hand. The goal was "to understand the meaning of central themes of the subjects' lived world" (Kvale and Brinkmann, 2009, p. 29). This was achieved through asking the participants questions that focused on events, changes in everyday work life, changes in used language, and time interpretations within the organization and by the other actors. Although, in semi-structured interviews, there is an interview protocol that contains a list of themes and questions that are prepared beforehand, the questions are composed as open-ended questions (Creswell, 2014), in such a way that allows participants some room to explain, elaborate and interpret the events and changes they have experienced. The interview protocol was developed around broad themes based on a review of the literature and initial analysis of organizational documents, such as official announcements and published reports and documents that were available online. In developing the protocol, the work of Myers and Newman (2007) was used as a guide. Meanwhile, new questions are constructed during the interviews based on the interview context and the participants' conversation flow. The interview protocol was revised based on the emerging data collected from participants during the initial interviews and early analysis phase as part of the iterative process of actively engaging with the data.

In total, 24 semi-structured interviews were conducted with members of the case organization as well as with some external participants from other governmental organizations who have an important role in this transformation. Interviews ranged from 30 to 120 minutes with an average of 45 minutes per interview. The reason for this variation in interview duration is that some interviews included some sort of presentation by the participant, in the form of showing the researcher some data on their computer screen that could not be shared or extracted because of its sensitivity. Interviews were recorded and transcribed according to the interviewees' agreement (not all interviews were recorded; almost 45% of interviews were recorded due to individual participants' desire for privacy and their sensitivity to the use of a voice recorder). In the case of unrecorded interviews, I took notes. Being aware of this sensitivity, a salient issue in Middle Eastern culture, I took detailed notes, including quotes, and did so as accurately as possible in an interactive way with the participants.

Selecting interviewees was based on purposeful sampling strategy that focuses on identifying participants who the researcher identified as would have valuable insights about the investigation, which is very common practice in qualitative research in general. The participants' inclusion criteria contained a variety pool of measures which sometimes were contrasting but at the same time necessary for the purpose of this research. This is because this research tries to understand the transformation journey through the eyes of two groups of actors in the organization. For example, there was a need to interview participants who worked in the organization before the transformation program began and also to interview participants who were recruited and joined after the program. The varying perspectives of these two contrasting groups were essential to understand how the transformation was perceived differently among them. Additionally, not everyone's work was affected by the transformation to the same degree. Therefore, the researcher focused on participants who were in direct contact with the transformation program through their daily work activities. Also, it was essential of course to interview participants from different organizational levels but who work relatively within the same project

or at least have acceptable knowledge about it to be able to offer insight into the research investigation.

Interviews were transcribed word-for-word and anonymised to protect the privacy of the participants. These transcripts were then analysed to detect the general preliminary themes, and then they were organised according to the identified themes. This step was essential in understanding the emerging phenomena (Basit, 2003). The next step was coding the data, which also included coding the secondary documents. Special emphasis was placed on the words actors used to talk about time and experience. The data from interviews and documents was coded and analysed until data saturation was reached and no new themes appeared (Boeije, 2002). The main analysis technique built on the grounded theory-building approach, which is "a general methodology for developing a theory that is grounded in data systematically gathered and analysed" (Strauss and Corbin, 1994, p. 273).

Given the exploratory nature of this research, adopting the inductive qualitative approach seemed the most appropriate choice in that it allows theories to emerge from the data (see, for example, Orlikowski, 1991; Walsham, 1993) and gives the researcher deep insights about the investigated phenomenon (Walsham et al., 2007). Hence, the data analysis was heavily iterative, meaning that we kept moving back and forth between data and emerging theory and revisiting the relevant literature. The use of relevant literature during the data analysis stage was essential as suggested by Silverman (2005, p. 152), who advises qualitative researchers to "analyse your own data as you gather it." This iterative process is also essential to understanding emerging concepts as suggested by grounded theory, which was utilised for this research (Strauss and Corbin, 1994).

In the data analysis stage, we started by developing a chronological summary of the main events related to the change program, starting with events that took place before the official commencement of the program, which began in 2015. In doing so, we included events shaped by narrative provided by all levels and categories of actors, including narrative by change agents, employees, and senior managers, who at the beginning were in the foreground as initiators, but who later fell into the background of the developing story by diffusing their power to the change agents, who became some of the major actors in the story. Second, the analysis focused on evaluating whether there was any serious inconsistency in existing temporal structures between the two main conflicting actors who we believed held opposing ontologies of time (the change agents and the employees), and how such inconsistencies, if any, impacted the change program, either by advancing the change process or slowing it down. Third, the attention of the analysis moved to how the change agents dealt with temporal inconsistency. In doing this, three categories of orchestration processes were identified, which sometimes overlapped. However, during their overlap, their intensity was not maintained over time. Some processes were stronger at the beginning, and gradually lost this intensity. Others might have the opposite, that is, they were used lightly at the beginning but then became denser over time. The reasons behind this variation were also considered in the analysis. To maintain validity and reliability of the outcomes of this research, we ensured that triangulation was observed for the data collected and analysed through the embrace of multiple stages and multiple researchers in coding (Guba and Lincoln, 1985).

5 Findings and Discussion:

Through the analysis of the documents and our informants' interviews, we tried to follow back and forth the focal events that preceded and succeeded the launch of the DT program in GovOrg which resulted in a simple timeline for the transformation process as appears in Figure 1 below:

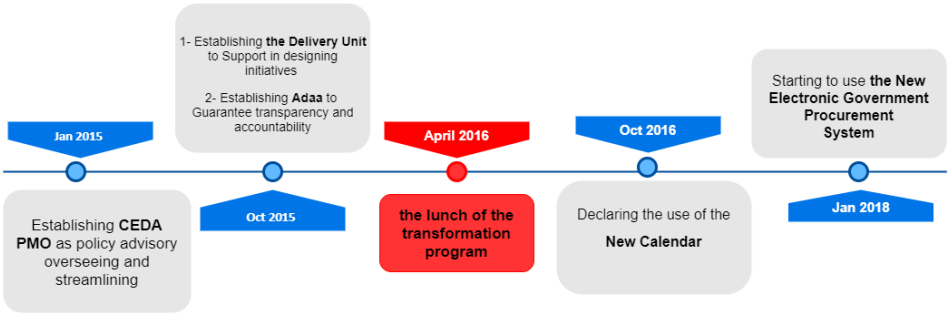

Figure 1. Timeline of the Focal Events Preceding and Succeeding Launch of the GovOrg DT Program

5.1 Restructuring through the Establishment of new units and the VRO.

We noticed that before launching the DT program in GovOrg, the Council of Economic and Development Affairs established a Project Management Office (PMO), a central delivery unit, and National Center for Performance Measurement (Adaa). These three agencies seem to have an essential role in following up on the DT process of GovOrg. This could be traced back to the fact that the DT program was not an internal initiative by GovOrg. In contrast, it was imposed on them. This was revealed several times explicitly and implicitly by our informants. As mentioned in the method section, we interviewed individuals from different levels in GovOrg which allowed us to capture varying perspectives on the DT process.

However, the more interesting part is that we discovered through the data collection that not all of GovOrg employees are internal employees. There were employees who were brought from outside the organization in order to mainly pursue the role of change agents. Those were hired mainly to work in a special office that was established shortly after the launch of the DT program known as Vision Realization Office (VRO). This office was established as an administrative unit that directly reports to the CEO of GovOrg with the aim of support the organization transformation through planning, following up and removal of all possible obstacles that might hinder the organization from achieving its initiatives, and to ensure the implementation and integration of all the initiatives of the DT. They work internally with the organization's employees and externally with relative agencies and organizations that either have shared responsibilities in some initiatives and goals (such as other ministries) or that monitor the organization's progress in their achievement of the planned goals that serve the Vision (such as CEDA PMO, Adaa, the delivery unit).

We noticed that the VRO office deliberately recruited individuals from the private sector, and, more specifically, from multinational corporations such as Oracle and Microsoft, with extensive background and vast experience in IT fields. Such a step of selectively recruiting individuals with similar sets of qualifications and prior experience implies that those individuals differed from individuals who had already existed in the organization for many years and offered a missing attribute. This could be an indication of the necessity of different forces in the organization who had the ability to push forward the implementation of initiatives of the DT. The need to hire those special types of individuals, and possibly the need to employ their special IT skills, was highlighted in the transformation program policy document (2016):

> ***We will partner with the private sector to develop the telecommunications and information technology infrastructure (p. 57).***

5.2 Implications for the restructuring: A new Temporal Framing.

Soon after the VRO recruited the staff they needed, the office started to bring to the organization work practices and work modes that were completely new to the typical government employees. Main two examples that relates to both time and technology were *adopting Project-based approach* and *adopting new calendar system*.

5.2.1 Project-based approach

One evident practice was the adoption of a more projects-based approach to synchronize the internal structure of GovOrg with requirements of external agencies such as CEDA PMO. Change Agent 1 explained this urgency to shift to this work practice and divergent work mode because of the tight timeframe and deadlines they had:

> ***The government, as you see, is moving toward a more project culture now, part of that is because we have the Vision kind of deadline you can say. So, we have a commitment, and everyone knows about it. By everyone I mean the citizens and also, I would say, the outside world. This creates pressure of course because we are responsible, and we will be held accountable. Also, we don't want to fail the others, I mean other ministries.***

The distinctive nature of the Change Office in GovOrg as an integral part of the organization with internal power and at the same time with official external connections with the related agencies such as CEDA PMO added to the office's legitimacy in the organization. This loose coupling between the change agents and the organization secured them the appropriate legitimacy to implement government policy directives, rules and regulations, but in their own way and with room for flexibility in the implementation that had not previously been available to GovOrg. This powerful position and its privileges were implied by Change Agent 2, who stated:

> ***Of course, power and positions is something to be considered. Here [in government] we cannot enforce directly, which is different to the private sector, where decisions are taken faster, but we've got other tools to bring these up.***

The change agents themselves implied the existence of such distance between the two logics they and the rest of GovOrg employees held by distancing themselves from the employees and emphasizing their mission to change the organizing logic of GovOrg. Underlying these two distinct logics, we can find the two opposing temporal ontologies through which we see the change agents pushing toward a more objective temporality while employees are still linked to the subjective temporality. This is clearly evident in Change Agent 1's description:

> ***We are changing into a corporate mindset; this has never been done in the government. So, people who are still using the past old mentality… and… cannot cope with change… will have to be replaced because we do not have time to stop and convince them.***

Similarly, the employees continuously recognized this distance that existed between them and the change agents. Employee 1 said:

> ***They brought people from the private sector, got over high positions, they gave them attractive packages.***

He added:

> ***I feel like they want us to be more of a private sector mindset. The government sector used to be a service provider, regardless of the cost. Now it is not. Every project has to generate profit or return, which forces you to prioritize the projects.***

It was clear that those special change agents were faster and more present-oriented than employees. For GovOrg, as a governmental organization that strictly follows state rules and regulations, the change had to occur in a top-down manner. In such state logic organizations, actors tend to be past-

oriented, which means they are slow in responding to change and can easily find reasons for not coping with it. For example, employees kept problematizing the change by questioning why they had to abandon their work practices, which to them had proven effective and had worked just fine for many years. Such problematization was clear in Employee 2's statement:

> ***This has been the way for doing work and everything works just fine before even most of the VROs were born and now suddenly they become the wrong way? I mean how?***

Other employees, including those who were generally enthusiastic about the idea of the transformation, were still reluctant about the amount of work needed to get it done. Employee 3 said:

> ***I think the Vision idea is brilliant, but the implementation is not, because the infrastructure is not ready, and we don't have the capabilities… I need tools that I don't have but I have to find a way because it is imposed by the top, so we have to implement; we have no other choice.***

At the same time, they felt that there was no hiding from it anymore because it had been imposed as a top-down change. Employee 3 added:

> ***But the thing is I feel the train is moving either we ride or not, they will still move with whatever we have. No time for falling behind because everyone else is moving too.***

They distanced themselves from this approach and somehow linked the fast-paced rhythm to weak and delicate outcomes that represented an opposing organizing logic to their sober and robust one. As explained by Employee 1:

> ***The problem is that those people coming from the private sector […] want rapid change, they want to see rapid results, focusing on quick wins, and they want that to get the credit and to show off in front of the officials.***

5.2.2 New calendar

Following adopting the projects-based approach, an issue appeared with the official calendar, the Hijri calendar, which was used in all governmental organizations. This calendar is less precise and could create problems with scheduling GovOrg activities and setting deadlines for the tasks. This is due to that the Hijri calendar is based on the monthly cycles of the moon's phases, yielding months with 29 days and months with 30 days, but most importantly, without having a precise fixed specific duration for the month. To resolve this issue, from October 2016, the official calendar was changed from the Hijri calendar to the Gregorian calendar, the most widely used calendar around the globe, in a step towards aligning government organizations with the outside world. With this temporal shift, change agents were relieved as they were able to schedule GovOrg activities and tasks according to the new precise calendar.

On the other hand, the other employees were still attached to the old calendar. There were many reasons behind this attachment, perhaps most importantly that the new calendar reinforced the imposed western change agenda on them. This included imposing the outsiders as well as importing the outsiders' digital transformation tools, their calendar, and to add to the tension, their own ways of reinforcing their new temporal structure. Employee 4, who had been appointed as an initiative owner and was directly responsible to the change agents, explained this tension as follows:

> ***The problem is if I am behind schedule by 10% only, their system still shows my initiative with yellow color, and if it is 20%, it will turn to red, which is the worst.***

He added and showed his anger towards, and rejection of, this new imposed IT-enabled temporal shift in accomplishing tasks as follows:

> ***Everyone can see this with my name in red next to it. All of this pressure for nothing; I am not paid more money for being an owner. Unlike those who got recruited [change agents], they were paid very competitive packages, so honestly I have decided not to accept any initiative assignments now and they can't force me to.***

As part of describing the situation of institutional complexity in public organizations undergoing DT with its opposing temporal ontologies, Figure 2 depicts the new temporality framing that was instantiated by the change agents and its possible implications.

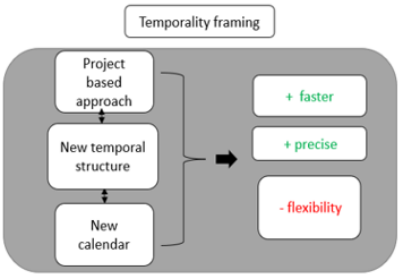

Figure 2. Temporality Framing Instantiated by GovOrg Change Agents

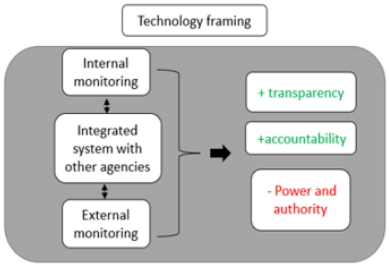

Figure 3. Technology Framing Instantiated by GovOrg Change Agents

The change agents came to GovOrg with the goal of transforming the way the organization worked. In order to do so, they utilized what they are best at, which is technology and digital tools. The new technology framing they instantiated in the organization was designed to change the business model entirely, which goes beyond reducing the use of paper and automating processes. It focused primarily on the integration between the GovOrg system and other related agencies. In order to make this move workable, the element of continuous monitoring was essential in both directions, both inside and outside the organization, to allow rapid intervention when needed. This integration of systems was necessary to allow the flow of information between GovOrg and related agencies. Figure 3 depicts the technology framing that was instantiated by the change agents and its possible implications.

5.3 Organising Processes Enabling the Coexistence of Different Logics and Temporalities.

It was evident to us that the change agents utilized technology to emphasize their new temporal objective view while employees declared a different perception on the new rule and the accompanying changes in their organizational routines. Therefore, employees introduced workarounds to maintain their usual subjective temporal view perceived in their flexible time concept. They knew how the monitoring system worked and found a way to pass their subjective temporality when faced with the rigor of objective temporality through its static temporal boundaries. They knew that having less power in influencing the change process meant they needed to develop an alternative approach to beat this rigorousness while avoiding further conflict. So, for example, when they finished more tasks than had been determined by a specific deadline, they only submitted what was required. The main reason for this was related to the reward and punishment system empowered by the traffic light system of the dashboard for the following up of project milestones.

Key Layers of Interruptions	Description
Strategic	The more general factor that constitutes the umbrella of the program under which the other factors fall
Technical	The tools in which the program can be monitored and restricted
Sociocultural	Where all these factors meet and the chaos and conflicts resulting from them occur

Table 2. Key Layers of Interruptions and Their Description

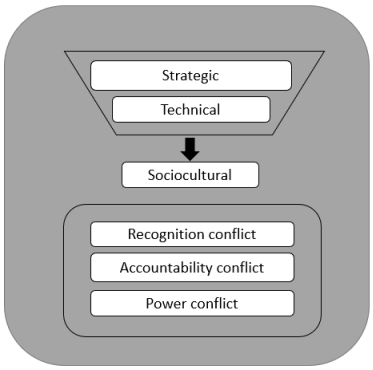

Figure 4. Key Layers of Interruptions and the Conflicts Resulting from Them

6 Conclusion:

6.1 Intended Contributions.

This research is expected to make significant theoretical contributions to IS; particularly related to digital transformation and opposing ontologies of time (i.e. temporalities). Specifically, we intend to better understand how the interplay between objective and subjective time unfolds during major organizational digital transformation and affects new aspects of implementation and change. By theorizing technological mediation in the context of digital transformation and opposing temporalities this research will contribute to a better understanding of the role of technology in mediating change and orchestrating aspects of time interplay. Much research effort in the IS field, and also in organizational studies, denoted the existence of both objective and subjective ontologies of time within the organization and we can observe the increased calls to take time seriously in IS of organizations. Nevertheless, the interplay between these two remains under-theorized and thus seriously undermines our knowledge regarding the role of time during digital transformation. Furthermore, the role of technology and DT in effecting this interplay has been missing especially within an imposed organizational change context where time plays a crucial role due to the fact of the change being forced and monitored instead of an optional one.

In sum, we argue here that our research provides a great opportunity to acknowledge and address the above gaps. Additionally, this research is expected to contribute to practice by providing insights for organizations on how to deal with aspects of opposing ontologies of time interplay and improve the implementation of complex organizational and inter-organizational designs of large initiatives, development and IT-mediated changes and digital transformation ones.

6.2 Limitations and Future directions.

Several limitations can be recognised in this research. First, although studying the change as it is occurring can be an advantage in capturing lived phenomena, it also constitutes a major limitation for this study. This is because the studied phenomenon is still ongoing, and some events could carry different meanings when studied retrospectively. Additionally, this study explored a governmental organization in Saudi Arabia, specifically with a National Transformation Program that has distinct characteristics. As with any other specific characteristics, this might affect the generalisation of the findings to other kinds of organizations and other change programs that have different characteristics. Finally, because of the above-mentioned limitations, this research took a very narrowed down perspective of the whole story of the transformation which is more holistic and comprehensive. Hence, the focus was more on the interaction between the employees and the change agents purposely disregarding the other factors and other actors from associated agencies and other concerned organizations who might have a significant impact on the process due to their involvement.

To counter these limitations, future studies should include longitudinal approaches that allow the researcher to capture the change phenomenon as it occurs, as well as in a retrospective manner. Future studies would also benefit from an ethnographical approach, which allows extended observations of the change and the events from inside the organization in addition to capturing the phenomenon through the eyes and perspectives of the organization members. Future research should also examine the findings of different types of organizations and contexts, which might encounter different logics from those found in this study. Additionally, future research should examine other actors who are involved in the transformation process but are external to the organization. There is a need for future research agenda that explore all those involved in the transformation individually and then combined together. This will allow the research to be more valuable and discover arenas that cannot be seen from only one perspective.

6.3 Implications for Practice.

Although the main purpose of this study was to navigate the institutional complexity situation the organisation was forced into because of the time bounded digital transformation program through the temporality lens as discussed above, there are also implications for practice that could be useful for the organization and practitioners. This research will hopefully contribute to practice by informing the institutional entrepreneurs (i.e. change agents) about the potential subcultures they are about to create when introducing the organization with a new logic that confront the existing one. Organizations can leverage from being aware of the potential conflicts that arise in the three layers revealed through this study: sociocultural layer, strategic and technological by designating a team or department that is solely responsible for promoting collaboration within the subcultures that follow different logics. This could be regarded as a necessary proactive step rather than waiting conflicts to take place and complicate the transformation agenda. This research also would inform organizations moving toward digital transformation about the existence of a digital dilemma that is created as a result of the misconception different actors of different organizational logics hold. They need to understand that the digital transformation cannot be solely dependent on the technology part with ignoring the human agency and how they understand and value these technologies. The technology alone would be a passive part without the active part of humans and the processes they engage in to make these technologies work in the proper way. Without fully understanding this combination, it would be a great the loss of efforts and investment. The whole world witnessed the importance of digital transformation recently during the COVID-19 pandemic. This would be a great opportunity for practitioners in this field to show their opposing actors in the organization the value of such transformation.

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