

# Accountability in The Digital Era between Space and Time: Some Empirical Evidence from Brazilian Museums

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## INTRODUCTION

"The National Museum lives!" is the motto of the accountability movement embracing the National Museum's supporters in Rio de Janeiro as a strategy toward a challenging future due to the fire that happened in 2018. The fire engulfed a significant part of the historical building owned by the Federal University of Rio de Janeiro, and large amounts of the collections formed for 200 years, forcing the Museum to shift its digital space activity.

This paper investigates the amplification of an "accountability forum" (Bovens, 2007) used to engage, drive, and sensitize visitors and patrons of the Museum on recovering measures, specifically, how it happens in a digital space. This study enters the current debate on the implications of digital technologies in the public sector, (e.g. Song and Lee 2016; Rogge, 2017), posing emphasis on the accountability trajectory. More specifically, this paper explores the implications of an accountability forum in the digital environment, by addressing two main questions (i) *When* accountability take place in the digital environment? (ii) *Where* accountability take place in the digital environment?

These two questions pushed our reflections on accountability in terms of time and space. Time and space are here considered as two distinct dimensions of the accountability trajectory. Our paper acknowledges that time and space are affected in a digital environment, like that of digital platforms, which blur the concept of time (that becomes every time) and space (that becomes a unique digital space to establish relationships with different stakeholders). The possibility to access to data and information of an accountability forum from everywhere, by every stakeholder and at every time poses some challenges on how the accountability of public institutions is constructed in the online environment.

This paper investigates the National Museum's empirical case in Brazil devastated by a fire in 2018, moving online to ensure presence at the accountability forum at the first moment and following starting to deliver cultural service. Through an in-depth case study and the content analysis of social media posts (2018-2020), some insights have been derived concerning how accountability is constructed and sustained in a flow (not periodically, but continuously) embracing digital and non-digital spaces.

Our inductive approach presents preliminary evidence on how the Museum expanded the accountability forum as converted its presence online, diversifying the audience and the dynamics of reporting activities and engaging stakeholders. Despite the Museum went online in 2016 (with Facebook and Google Arts & Culture), from the fire incident in

2018 the demand and need for accountability changed significantly. From the incident, society and external stakeholders were invited to join them to support, justify, and explain the reconstruction project. The accountability, rather than explain the fire, was about a place that will come back to exist physically in the future. Still, such a future strongly depends on donations and support from society.

Results show the dynamics of the accountability forum, which evolved into an ongoing movement, always in construction and iterative. This accountability forum in the digital environment brings new temporal and space configurations to accountability strategies. From a temporal perspective, digital accountability resulted into atomic moments of data production always “in the making”. From a spatial dimension, digital accountability resulted into an open, networked and many-to-many interaction with multiple stakeholders.

These issues are discussed along the paper that is structured as follows. First, previous literature on digital transformation and public sector accountability is presented alongside with previous studies about time and space in accounting literature. The methodology of research is then described, detailing data sources and introducing the empirical setting of the museum. The result section presents findings from the empirical case, while the last section discusses these results in terms of time and space boundaries in digital accountability.

## **DIGITAL TRANSFORMATION AND PUBLIC SECTOR ACCOUNTABILITY**

This paper is grounded in the current literature on implications of digital transformation on public sector accountability. The digital transformation of the public sector has become a recurrent debated topic receiving increasing attention in the public sector literature (e.g. Rodriguez Bòlivar et al, 2015; Porumbescu 2017). Several studies explore empirical applications of digital transformation projects (e.g. Lecy, & Thornton, 2016; Ju et al, 2018) or offer conceptual viewpoints on the main challenges digital transformation brings on public administration (e.g. Mergel et al., 2019).

Alongside this continuously growing literature, a smaller group of studies focuses on the implications of digital transformation on public sector accountability, giving rise to a more puzzled view.

On the one hand, some studies emphasize *transparency* as the main implication of digital transformation on accountability. Studies in this field (e.g. Heald, 2012) points to the amount of data available on government websites, with authors acknowledging that transparency allows citizens to better assess how governments are performing and, in turn, holding them to account (Piotrowski, 2007). The relationship between transparency and accountability in the digital environment is complex, and, sometimes, optimistic views clash with more critical positions. The presence of public data on the government websites is considered a way to increase information transparency towards citizens. Literature on open data and open government often enthusiastically emphasized the movement towards public data rendered available to the general public thanks to digital technologies, typically government websites (e.g. Bertot et al., 2010; Bannister and Connoli, 2014). At the same time, there are also more critical positions with some authors acknowledging that data provided by governments are not those that citizens are

looking for (e.g. Cucciniello et al., 2012), or recognizing that the presence of multiple actors with different priorities requires to search for a good balance between values, posing tension on equity and democratic accountability (e.g. Lindquist and Huse, 2017). Notwithstanding the divergent viewpoints, the common idea is that digital technologies render public data available to citizens and the community, that can observe and potentially "use" them. This is connected with an issue of multiplicity of accountability (Schillemans et al., 2021), whereby the public sector institution needs to cope with conflicting views from multiple "accountability forums" (Bovens, 2007), who follows different institutional logics.

The second stream of studies starts from a key feature of digital transformation: the openness of data. It emphasizes *participatory decision-making* and budgeting (e.g. Lim and Ho, 2016; Moon, 2020), brought about by the possibility for users to generate data by themselves. Not only data are rendered available to the public thanks to digital technologies, but the single user can produce data that, in turn, are exploited by governments. This multiple generations of data by government and users, as well as the possibility to render this data available to everyone, has stimulated participatory approaches to public sector decision-making processes, whereby citizens are engaged in processes like public budgeting or co-production and co-creation of value. The involvement of users in participatory decision-making is strictly connected with accountability with citizens and government that are hold accountable on both sides. Digital technologies have accelerated this process fostering the development of horizontal and flattened relationship between government and citizens.

These available studies mainly underline the importance of transparency in reporting information from the government to citizens and the relevance of horizontal relationships between government and citizens in order to enhance participatory and co-creation activities. Hence, these available studies are mainly focused on "how" accountability take place in the digital environment and its effects in terms of transparency and more horizontal relationships.

Moving from these contributions, our study enters this literature on accountability in the digital era focusing on the construction of the accountability trajectory in the digital era. This is investigated exploring the "when" and "where" of accountability in the digital environment, thus mobilizing the concepts of time and space.

## **ACCOUNTABILITY AND ITS TIME AND SPACE BOUNDARIES**

Accountability is a key concept in the public sector field and it has been extensively investigated at different levels (both from a top-down or systemic perspective) and adopting both conceptual and empirical approaches.

Accountability has multiple meanings (Bovens, Schillemans, & Hart, 2008), and it is considered here as "the relationship between an actor and a forum, in which the actor has an obligation to explain and justify his or her conduct, the forum can pose questions and pass judgment, and the actor may face consequences" (Bovens, 2006). Following this view, accountability has a relational nature that links one *actor*, such as a civil servant, or an organization, with another role, called accountability forum, who can be the citizen, the parliament or another organization. This relational nature occurs through

numbers, data and information that are disclosed by the actor to the forum. It is the actor that is called to explain and justify its conduct and, in turn, the accountability forum can pose questions and make judgement. Within this perspective, several papers have questioned the “who” is the actor and the accountability forum (e.g. Schillemans et al., 2021) as well as the dimensions of accountability.

Yet far less emphasis is posed on “when” and “where” accountability takes place in the relationship between the actor and the accountability forum, an aspect that we argue is especially relevant in digital transformation processes. This focus on “when” and “where” led us to introduce a concept of time and space.

Some accounting studies considered **time** with reference to the **accounting cycle**, whereby the actor presents and explain its results to an accountability forum through reports, documents and data. This data and numbers are collected and delivered at specific moments in time. For example, quarterly or periodical reports. Accounting practices are characterized by a "period" of measurement, connected with the accounting cycle through which objectives are set, actions measured and results reported. These “periods” of measurement are associated with different accountability moments in which the actor discloses its results and performances to a forum. These moments have been traditionally clearly isolated and defined in time and typically organized at the end of a given period (the year or the quarter) to account for the previous period results.

**Space** is instead considered with reference to the physical distance between the actor and the accountability forum. This start from the recognition that accounting allows to act on distant actors. The collection and construction of data and information enhances the creation of a distance between the actor (typically the controller) and the controlled (typically the periphery) (Cooper, 1992). In this perspective, space has been associated to the distance between a controller and a contolee. Accounting with its data and numbers constructs a reality thanks to an accumulation cycle, whereby the center collects and accumulates information about the periphery. This accumulation of information supports "action at a distance", and accounting numbers render controllable a distance periphery. Following this view, accounting numbers create a distance and enlarge the physical space between a center and a periphery.

Our paper wants to explore these dimensions of time (when) and space (where) in an accountability trajectory within a digital environment, reflecting on the implications that digital transformation brings about to these two dimensions. This focus on when and where of accountability is driven by the recognition that digital transformation has significantly affected the space and time dimension. Through digital devices and digital platforms, information is real-time generated, which affects the *time* of construction of the information. The “periods” that characterize the accounting cycle disappear since the moment of production of data corresponds to the moment of usage of the data itself. When surveys are used to collect data on the general public, there is a time distance between the moment of production of information by the respondent and the moment in which the information is rendered available to the government. This means that we can distinguish between a data production phase and a reporting phase. Therefore, we can observe a time span with separated and sequential activities taking place at a given pace. If, instead, data are collected from digital platforms, the exact moment in which the user produces the information on the platform, this is the same moment in which the

information is rendered available to the government. Data production and data reporting take place at the same time, reducing the pace of the accountability cycle. The paper unpacks the “when” of the accountability trajectory in the digital environment.

Similarly, also the *space* dimension is affected by the digital transformation as the digital environment blurred the distinction between the center and the periphery (Agostino and Sidorova, 2017). The digital environment breaks down this physical distance between the actor and the accountability forum, favoring the creation of multiplicity, referred to as “being accountable to a large number of accountability forums” (Schillemans et al., 2021). Through digital platforms, actors and accountability forums are no longer physically distant. On the contrary, they are all present in a unique digital space, posing the challenge of accounting simultaneously to different stakeholders with different interests and, often, conflicting views. The main challenge is related to the presence of one single digital space with multiple accountability forums, which may create problems in terms of selecting the type of information to disclose, the tone of voice and the intensity of information. This paper unpacks the “where” of the accountability trajectory in the digital environment.

## METHODOLOGY

This paper relies on a qualitative methodology. The paper is based on single case study: an inductive analysis on the National Museum at Rio de Janeiro, Brazil. The National Museum is a natural history and anthropology museum currently managed by a federal-owned university. The organization had a significant event in its current past (2018), a fire accident, which pushed the entire organization to reconsider its accountability strategy. The choice of the National Museum at Rio de Janeiro is an exemplary case of a public sector institution that is facing a digital transformation process, mainly driven by a fire accident that forced the museum to use an accountability forum to justify, engage and interact with a multiplicity of stakeholders. We investigate the Museum in this process of leveraging on an accountability forum to explore how time and space affect accountability in a digital environment. In this respect, we consider the empirical setting particularly appropriate for the research questions stated.

As we explain later, initially, the accountability posture was passive and reactive. Just after the fire accident, the Museum adopted a reactive posture followed by a proactive strategy to interact with stakeholders to construct its position regarding the accident and drive the focus to the future, counting on digital media to extend the accountability forum.

Data sources comprise interviews and secondary sources. The primary data source is represented by semi-structured interviews. We conducted preliminary interviews with employees from the communication department and with the general secretary of the Museum, she acts as the key informant to access respondents. She organized the communication strategy during the fire accident and the recent organizing of the accountability actions. We also collected and analyzed secondary sources in annual reports, media commentaries, podcast about the museums, and social media posts. Social media posts were particularly precious in grasping the type of information the Museum offered to the general public and the timing of this communication. Overall,

we collected and analyzed about 560 social media posts between 2018 and 2020. The data analysis phase followed this data collection activity. We started to explore what would be the accountability forum for the National Museum and what are the accountability actions. Secondly, our analysis examined social media posts' content to capture the messages the Museum expected to transmit to the forum and how it materializes the digital space by likes, sharings, and comments made by society. Our coding emerged inductively. The coding identified eight different messages: Tribute to the past of the Museum and their collections; Funds campaigns for Reconstruction; Shaping the Identity of the Museum; Exhibition and Communication of events; Discover from Museum Research; Future of the Museum and 'We are National Museum'.

About the empirical setting of the Museum, we highlight the following aspects. It is a university Museum, and the oldest scientific institution in Brazil, created in 1818 for the Portuguese Royal Family and opened to visit in 1821. It was incorporated into the University of Brazil (currently Federal University of Rio de Janeiro) in 1946, becoming autonomous, but subordinated to the Ministry of Education. Before the fire event, the Museum maintained a collection with more than 20.000 objects of Natural History and Anthropology, including the most significant Egyptian collections in Latin America.

Its academic and scientific profile as a university museum, preserved the scientific and cultural heritage, generating knowledge, and training new scientists. The Museum as research and education organization is organized in six academic departments: Anthropology, Botany, Entomology, Geology and Paleontology, Vertebrates and Invertebrates. It offers PhD programs, including the prestigious program on Social Anthropology since 1968.

The staff embraces 213 servants and 87 lectures and professors (Nacional Museum, 2020). For the last 500 days, its employees still collaborating to the restoration of the building and the collection. Currently, stakeholders still enrolled supporting crowdfunding campaigns for the recovering, as the Ministry of Education, UNESCO, UFRJ, Federal Deputies of Rio de Janeiro, Government of Germany, CAPES, Carlos Chagas State funding agency of Rio de Janeiro (FAPERJ), and the Association of Friends of the National Museum.

## **THE ACCOUNTABILITY FORUM OF THE NATIONAL MUSEUM**

This section presents the development of the National Museum's accountability trajectory and its time and space implications (see Table 1). The section follows four main qualitative phases, which distinguish between the different timing of the museum evolution: the period before the fire (phase 0), the period immediately after the fire (phase 1), the period of the reconstruction (phase 2), and the period of activism and stressing the research discoveries (phase 3).

**Table 1. Accountability trajectory**

Phase	Content	Main stakeholders	Media
0	Financial performance	Court of Accounts	Annual report, passive
1	Responsibility to the fire	Society and Justice	Communication bureau, passive
2	The museum lives, reconstruction	Donors	Digital, active, frequent
3	Activities, research discoveries	Donors and society	Digital. active, frequent

**Phase 0: Before the fire event**

On September 2, 2018, a fire accident occurred in the Imperial Palace, the main building of the National Museum, engulfing a significant part of the historical building, and more than 20000 objects in their collections formed for 200 years. Many errors were detected during the firefighting and the following days. For instance, there was no water in fire hydrants near the Museum and lacked a fire sprinkler system. The maintenance and safety measures were not in place at that time. What could be considered a complete silent posture about the Museum regarding its vulnerabilities before the fire accident came to a substantial social mobilization in the following days after the fire. Some months before the accident, the Museum celebrated its 200th anniversary, but no state ministries attended the ceremony. For years, the administration of the Museum, subordinated to the Vice-chancellor of the Federal University of Rio de Janeiro, claimed for support. However, the annual budget was recurrently reduced, as federal universities in Brazil also were under pressure due to the economic and political crises that started in 2014 (persistently extended until now).

Warnings about the risk of fire, infiltration, flooding and even plaster falling on the heads of museum officials began more than a decade ago. Complaints made to the Public Ministry about exposed wiring, poorly maintained, infiltrated Palace rooms were being investigated, but the silence about the Museum vulnerabilities was broken with the fire event. A set of authorities immediately engaged in distributing responsibilities in their discourses, raising voices against the federal government, the director of the Museum, the University vice-chancellor, the mayor of Rio de Janeiro (due to water supply), and other authorities. From day to night, the digital communication of the organization was demanded to become more dynamic. They imprinted and extended an accountability forum that rapidly assumed a dispersed multivocality.

**Phase 1: Just after the fire**

The Communication Center, subordinated to the general manager of the Museum, was just recently created to strengthen the Museum's image with their audiences. When the fire took place, the Museum installed a crisis cabinet and centralized the accountability

forum's responses and messages. The Museum defined the crisis management actions by disclosing press releases, attending press interviews atomically, following a designed and very coordinated discourse, as recommended by its outsourced advisor for communication affairs (Annual Report, 2018). The principal spokesperson was the Museum's director, adopting the motto "The National Museum lives!", printing it on t-shirts, and sharing it on social media posts. The focus aimed to stimulate engagement by the internal audience at the University and Museum's staff, faculty, and external audience (Annual Report, 2018) positively. First, the messages stated a reconstruction phase in the near future, and that the Museum "had never stopped really". This motto was imprinted on all accountability actions since then.

The main focus of the accountability changed from a unique audience, mainly the Court of Accounts, to a multiple one, including Justice courts, Public Prosecutor, the international association of museums, and society in a broad perspective. It included the defense that the Museum did not stop its activities due to the fire event.

Social media (Facebook and Instagram) has become the main media used by the Museum to support its accountability forum with multiple stakeholders. The social media platforms *materialize and delineate a digital space in which the digital presence happened*, despite the absence of the collections and the Imperial Palace in a physical way. Such digital space creates an arena for activism and became a place for identity construction. Such space was used immediately with the fire to account to society was going on with the organization the following days to the fire, "*we took the first steps towards our rebirth! The National Museum Lives!*" (Post11, 2018).

In 2016, the Museum staff included the museum's collections at Google Arts & Culture platform, aiming to connect a digital experience to people who wanted to meet the collections that were in the Imperial Palace, representing the past. Nowadays, this platform exhibits collections that were lost in the fire and cannot be seen physically anymore.

The accountability strategy trajectory evolved (Table 1), passively in the first moment, giving answers to some news or actions made for some stakeholder, such as sharing reports by police or firefighters. They decided to anticipate and work strategically in a playful way, in a second moment, saying that the Museum never stopped. The main activity they have is continuing, which is producing and sharing knowledge.

In this phase, the Museum's management begins explaining the fire event, and after a month, the main focus of accountability was on the Museum reconstruction. They took advantage of the fire's immediacy to raise awareness and obtain funds from the federal government, the national and international community, and engage minorities to expand the support base they need to maintain the image that the Museum still lives and will exist physically in the future.

The Museum enhanced its communication with stakeholders looking for a future that strongly depends on society's donations and support. Additionally, it launched alternative initiatives to collect private money (ex. Vale S.A.) and crowdsourcing donations.



### **Phase 2 and 3: The museum lives**

In second and third phases, the Museum expanded the accountability forum beyond the annual financial performance, budgetary pressures, or financial statements. They focus on consolidating the reconstruction and guarantee the image of "in reconstruction".

During these phases, the society and external stakeholders were invited to join to Museum initiatives. The main actions focused on supporting, justifying, and explaining the ongoing reconstruction project. The Museum balanced onsite events with a more frequent presence online. The strategy combined digital and non-digital spaces to show society part of the collection not affected by the flames, because they were in others museum buildings, and to show those rescued of the rubbles and been restored. Finally, in the third and current phase, the museum manages a polyphonic social media posting, addressing diverse aspects and interests to different stakeholders. Many spaces were created to perform the organization and were producing the organization, with different spaces, temporality, and audiences (stakeholders).

Instead, the Museum continued to produce research, deliver services, and share knowledge, despite "*not having audiovisual resources and collections necessary for lessons*" (Post7, 2018) or resources to start the reconstruction immediately. In this sense, the Museum launched publicity crowdsourcing campaigns to collect donations from society and reinforced the public funding as the main resource source and, consequently, the federal government's legal mandate and responsibility in the reconstructing phase.

The Museum currently continually is under attack from the federal government ideological branch, suggesting bringing back the Imperial Palace to the Monarchy family in Brazil. The proposal is that the palace, former residence of monarchs Pedro I and II, be reconfigured to house a center dedicated to imperial Brazil. In this case, the Museum would lose its main and prestigious building, having to relocate what remains of the Museum's scientific collection rescued from the rubble. It demands a continuous reaction from the University Vice-Chancellor and mainly from the Director of the National Museum. The Director recurrently as necessary calls the recent past to the audience's mind, for instance the incident, the recovering and the volunteer workers: "*One of the most desperate moments was to notice the lack of water in the hydrants. And the saddest thing: almost two years after the fire still does not work, despite the constant calls we made ... in the reconstruction work of the National Museum, we are establishing security protocols and actions aimed at the Museum sustainability*" (Kellner, Post 424, 2020). Next section we bring a series of postings to illustrate how they manage the accountability to multiple audiences.

### **DIGITAL ACCOUNTABILITY: REDUCING TIME AND ENLARGING SPACE**

The Museum changed (probably not fully designed) some features of its accountability. In this section we analyze some features of the digital interactions of the Museum with its audiences and trace some features of what we are calling "digital accountability". Digital accountability is not just report in digital media (as electronic files or

spreadsheets, images, videos, or social media posts), but comprises significant changes on space and time boundaries.

The first phase the Museum used to have a traditional accountability, for instance reporting to some (but not all) stakeholders, once a year, or under request, ex-post facto. If some additional request is made based on the first report, then the Museum offer additional information. That is how the traditional accountability forum operates, the accountable report ex-post facto and the monitor accept or not the performance and justifications reported, imposing remedies and requiring adjustments on how the organization operate. The Museum reported annually to Courts of Accounts, to the University council, mostly centered on fiscal and budgetary compliance. Those reporting, looking for compliance and legitimacy, came from two different spaces of interaction, each of them represented by the legal mandate of the stakeholder monitoring the Museum's activities.

The dynamics of the accountability forum in our case changed, prompted by the fire accident, but probably such transformation affects modern organizations also. The current observed dynamics of digital accountability is an ongoing movement, always under construction, iterative, in which the organization continuously interacts in the forum, get feedback, questions, critiques, and are demanded to manage how that forum make sense of facts, events, performance, in which the organization is implicated. The accountability forum now is a broad space of digital interactions, in which the multiple stakeholders following simultaneously the organization.

Therefore, the digital accountability brings new temporal and space configurations to the accountability strategies, and to the understanding of accountability.

We present a series of Facebook postings, from August/2020 to October/2020, in which the Director of the Museum interacts with multiple stakeholders in the digital space. The Museum just got a fund from the State assembly and started to dialogue with the Deputies from the assembly to its staff, citizens, and other supporters.

*Post 463 (Aug, 2020): "This week, the Rio de Janeiro Legislative Assembly (ALERJ) approved the transfer of R \$ 20 million for the reconstruction of the National Museum". (...) "This approval in the plenary of ALERJ came at a good time and encourages all of us working with great dedication in the recovering, bringing the Museum back to society as soon as possible. Naturally, we are all hoping the solution for pandemic crisis to know when start the palace facade and roof recovering works. The scenario is still somewhat uncertain, but once the administrative process got done and the money transfer made, we will be ready to start - even remotely - with the bidding procedures. Not an easy task, but absolutely necessary for public funding. Then, ... with a bit of luck, construction works start this year [2020]. Together with ALERJ and the University we will give much visibility as possible to the entire process, including how the resources are being used, to keep society informed about the reconstruction and other projects. As we have stressed several times, the National Museum of UFRJ belongs to all Brazilian society, as the ALERJ initiative makes quite clear."*

In this example, we observe that when they just approved the funds, the Director stated that it would take months to one observe physical evidence of the money usage, as they would need deal with public bidding processes, therefore, the director reduced the

expectations about the near future, despite the good news. One can also see promises to society on applying the funds received for the reconstruction of the Palace. In the next post, the museum director confirms the donation, thanking all state deputies for that, and seizing the opportunity to invite other stakeholders to make the same gesture for the Museum and participate in the museum reconstruction. Additionally, it lists the other previous donors, as a roll of honorable Museum's supporters.

*Pos 473 (Aug, 2020): "We had excellent news: the confirmation of the donation of R\$ 20 million made by the Legislative Assembly of Rio de Janeiro (ALERJ)! The contract was signed last Wednesday, August 19, by the [he nominates authorities]. It was a simple event in front of the palace, in Quinta da Boa Vista [quartier] (...). However, with great emotion and certainty that history is being written right now and we take another step to reconstruct the first Brazilian Museum. The National Museum / UFRJ kindly thanks all state deputies ... for their sensitivity and important concrete gesture. May actions like this be an example and incentive for other actors to present themselves and join institutions such as UNESCO, VALE Foundation, BNDES, Government of Germany and SAMN in this noble task of returning the National Museum / UFRJ as soon as possible to society!"*

Following, the director enrolled explicitly the society and describe what has been planned for the Museum's future. As a discursive act, the Director message remembered the challenges that the fire accident brought to them and built a museum's trajectory until that day. He also connected it message to multiple stakeholders, articulating how they supported the reconstruction.

*Post 477 (Agu, 2020): "On September 2, we recorded the two-years of the fire at the first museum to be founded in the country. It was a challenging period and much struggle. However, we are moving forward. From the beginning, the Ministry of Education, still in the Temer government, transferred the necessary funds for the shoring of the building and the making of the provisional roof, which made it possible for us to rescue the pieces that were found in the rubble. In this part, the German Government's support was essential, which financed part of the recovery of the pieces. UFRJ has given full administrative support, without which we would not advance in the various projects. UNESCO, a first-time partner, assists us in the issue of project design. We also had a fundamental contribution from the Federal Deputies of Rio de Janeiro, who in 2018, through an imposing parliamentary amendment, provided the basis for us to install the academic area in a terrain provided by the Union. BNDES has helped us in the renovation of our library and the construction of a building for the administration of the institution in our new Campus. The Vale Foundation, in addition to providing resources, introduced a new way of managing the project. Alerj also joined the project, and 26 German institutions published via the Federal Republic of Germany's embassy an open letter expressing your support and determination to help in this arduous task! We are optimistic about the reconstruction work. We maintain our planning: in 2022, the year of the bicentenary of independence, we want to return part of the facilities and, in 2025, reopen the entire palace for visitation! It will not be easy, but with work and support, it is an achievable goal."*

In June 2020, the Museum of Natural History and Botanical Garden of UFMG (MHNJB) also got on fire. The Director sympathized with that and expressed all memories and

emotions they experienced in 2018 during the National Museum fire accident. He enjoys the opportunity to emphasize that some problems persist until that day because the city's mayor did not correct them. He reconnected with the stakeholders that helped in the reconstruction and showed how these partners helped establish safety protocols and actions aimed at the institution's sustainability.

*Post 424 (Jun, 2020): "My immediate reaction when I learned that another museum had caught fire in Brazil was of profound consternation. The "ball of the time" was the technical reserve of the Museum of Natural History and Botanical Garden of UFMG (MHNJB). We cannot - nor should we - be unaware of such a new situation, especially considering the tragic fire at the National Museum / UFRJ. In solidarity with our colleagues at UFMG, we immediately made ourselves available to help with whatever was needed, sharing our experience with the collection rescue, which has been successful. Upon hearing the news of the fire at the MHNJB, we, from the Museum's social body, relived those days of anguish in 2018, forever rooted in our memory. Personally, the sounds of firefighters' sirens echoed again. I remember the smell of burning before I even arrived at the Palace. I felt my eyes burning with intense smoke again and visualized the despair of colleagues, running from side to side, trying to rescue what was left of the memory of a country that was being destroyed. One of the most desperate moments was to notice the lack of water in the hydrants. The saddest thing: almost two years after the fire still does not work, despite the constant calls we made ... In the work of reconstructing the National Museum / UFRJ, we are establishing safety protocols and actions aimed at the sustainability of the institution. UNESCO, VALE Foundation, BNDES, German Government and British Council are some of the partners that are hand in hand with MN and UFRJ in the essential task for our society: to recover the Museum as soon as possible! Brazil needs its first Museum to return to full operation and with all security measures. Again, I reiterate all our support to MHNJB colleagues, wishing them the strength to move on!"*

Those piece of evidence reveals a transition from traditional accountability to more dynamic accountability, made continuously throughout the year and to a broad group of stakeholders, although not entirely planned. Some of them are reactions to events that happened during a week. Initially, they focus on one stakeholder but use the opportunity to reconnect to others and reinforce that they are dealing with a big audience, with many actors simultaneously, and desire to be accountable with all of them.

Therefore, space and time assume different perspective compared to the traditional one. First, in the *temporal dimension*, digital accountability is continuous, iterative, always in place, **every time, social constructed**. From a brick-and-mortar business model to a digital environment, accountability leaves its pre-defined frequency (annual, quarterly, etc), encapsulated into text reports, tables or predefined forms, to atomic messages and reactions, real-time, 24-hours interaction with multiple stakeholders. Such an atomic moment of accountability is never stable. It evolves as the content posted on social media gives rise to a new view and new posts by authors and visitors. The organization must continually drive the sense made by its audience.

In the empirical case, this was evident in the annual reports and daily posts. Previously, the traditional annual report was a single monolithic document reporting financial tables

and some arguments at the end of the year. Currently, the same annual document also summarizes the past social media posting and digital presence of the Museum. The digital accountability happens through daily posts, such as photos or comments, or videos posted by the Museum in several moments along the year and gave rise to real-time interaction with social media users providing their comments and reaction. In turn, this altered and affected the response of the Museum. In this respect, we could observe digital accountability with the museums' continuous posting and "in the making", becoming accountable with an atomic moment of data production, which evolves depending on users' comments. It stimulates some additional reflections on how the intricate relationship between accountability, reputation, and identity with the museum accounting and reporting information depends on users' real-time reactions. Through this digital accountability, the Museum's identity is continuously (re)built by comments, likes, and users' sharing. It was visible in the comments posted and reactions by users that moved from financial performance, responsibility about the fire, the Museum still alive and new research and activities.

Interestingly, despite the Museum's physical closure, through digital media, the Museum pushed its activities and was rendered accountable to everyone. In turn, users reacted, which shaped a new image of the Museum, more open and inclusive despite the onsite closure. In this respect, through its temporal dimension of an atomic moment of accounting for and being accounted, digital accountability shaped a new image of the Museum.

*Second, about the spatial dimension,* digital accountability happens in a broad digital space of interactions with multiple stakeholders. In brick-and-mortar business model, organizations report to different but few stakeholders through legal spaces, using predefined media and compliance processes. For instance, in our empirical case, the Museum report and justify its performance with an ex-post report to the university, approved in the Council meeting, annually or under request due to relevant facts. The Museum report to the Federal Court of Account annually to account for specific grants and must open data on its website to attend the federal law on transparency, monitored by the Federal Ministry of Transparency (former Internal Control agency).

It shows different dedicated spaces, each space one segregated interaction to be accountable with each stakeholder. There is a clear identification of the uniqueness of the relationship between the Museum and each stakeholder that took place through specialized and customized documents in *ad hoc* relationships. The movement towards a digital environment reduces this distinction when the forum is translated to a broad digital platform of social interactions. The difference between the roles and the stakeholders becomes blurred. This broad digital space unifies how different stakeholders observe the organization and share the organizations' reactions to each stakeholder to the others. Boundaries between the previously segregated forums felt down. There is now a network of accountability where the Museum is rendered accountable, and stakeholders continually interact with this accountability activity.

In summary, digital platforms possess implications on the spatial and temporal dimension of digital accountability. It resulted in a more continuous accountability by everyone and every time in a unified (digital) space beyond the accounting rules.

## IMPLICATIONS AND FINAL REMARKS

We propose that accountability actions are any intentional effort made by an organization to monitor and drive stakeholders' perception about its operation, mission, activities, and organizational life in society. Therefore, accountability is not just about financial performance but addresses any challenging understanding that can be constructed outside organization that can damage reputation and legitimacy, funds collection and revenues. As any challenging understanding by multiple relevant stakeholders need to be addressed, the efforts to manage the broad sensemaking implicates to drive attention to multiple actors in society. Beyond transparency and openness, accountability is about embracing, convince, explain, and argue in a sensemaking arena.

Within a digital environment, accountability is affected by “when” and “where” it takes place. In digital platforms, accountability becomes every atomic moment of communication, that is never, stable, but always in the making. This idea of atomic moments of accountability, that are recurrent and never as they were the moment before, opens to two main reflections. The first reflection relates the instability and uncertainty of digital data that continuously evolve and never give a unique and clear picture. The moment depicted by the social media post of yesterday is different from how it will look like the day after, because of novel comments, like, reactions to that post. A second reflection is about the increasingly adoption of pictures and images rather than numbers and financial data. We're moving from a data society to a picture society, where accountability is gained by visual images and pictures. This poses further questions on the meaning of accountability in a digital environment, where historical, financial and audited data are being substituted by real time, picture-based and user-driven data.

Reducing Latourian time and space by engaging people in the debate as it occurs (decreasing distance) and enhancing the frequency and the broadness of communication in real-time (changing time and perception of multiple events).

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