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Technology in the time of corona: A critical institutional reading

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ABSTRACT

Drawing on institutional theory and using examples from Israel, we offer a critique of technology’s deployment in responses to the coronavirus disease (COVID-19). We distinguish between technologies-in-use (“small ‘t’ technologies”), the bundle of artifacts and practices that bring them into being, and “Big ‘T’ Technology,” the latter being technology as an institution – shared meanings, structures, and practices that govern thought and action. Using the conceptual tool kit of institutional theory, we make three interrelated arguments. First, the deployment of technologies-in-use in response to the pandemic is embedded in diverse and contradictory institutions, the institution of technology among them. These technologies participate in the very construction of crisis, which fosters the revert to known and established ways of being and doing. Thus, technologies-in-use are not necessarily the most efficient and rational but rather the most legitimate and readily available. Second, putting certain technologies into action has not been happening by itself. Instead, we have witnessed contestations among relevant agents – like politicians and experts – who engage in institutional work to serve their interests. Third, despite its global reach, technology is locally adapted and implemented in specific contexts. All in all, institutional theory helps us to explore further and critique the naïve belief, common in public discourse, in technology as a remedy of all things. Instead, it offers a more critical understanding of the cultural dynamics involved in putting technology to work in the coronavirus crisis. This critical lens carries implications for policymaking and implementation in times of crisis.

1. Technology/pandemic interface: An institutional critique

Like everyone worldwide, so it seems, we have been spending the past months under the spell of the responses to the Coronavirus disease (COVID-19). These interventions brought about radical changes in our daily lives – from how we interact, work, and study, to our mobility and use of space and time. Many of these transformations were anchored in state-of-the-art technologies, like virtual reality, tracking devices, and Artificial Intelligence, and simpler technologies like quarantine, masks, and social distancing. The coronavirus crisis seems to deepen the profound impact of technology in shaping our lives (e.g., Brammer, Branicki, and Linnenlucke, 2020; George, Lakhani, & Puranam, 2020; Hwang & Hollerer, 2020).

We draw on institutional theory, the central theoretical school within organization theory (Greenwood, Oliver, Lawrence, & Meyer, 2017), to examine with critical eyes what happens in this intricate interface of technology usage and the COVID-19 disease.

In the following, we refer to “technology” in two different yet complementary ways, both as “small ‘t’” and as “Big ‘T’” (see Gee, 2015). First, relating to specific technologies-in-use, our definition of technology is based on social construction and a pragmatic
approach. Whereas some conceptualization of technologies separate them analytically from their use through social practices in specific contexts (e.g., Falk, Barrett, & Oborn, 2020), we see all these as inseparable. Thus, like matter (bodies, objects, spaces), technologies are what practice has made them be at a given place and time (Orlilowski & Scott, 2015). Small ‘t’ technologies, as we use them in this paper, are not the artifacts (machinery, equipment, tools, etc.) alone, but the convoluted socio-cultural-technical ensemble that brings them into being through practice (Orlikowski, 2000). For example, it is the very use of masks in specific spaces and by specific actors and in certain ways that turn them into a “technology.” Hence, drawing on a social construction view of technology, our definition of technologies is broad (Bijker, 2010), and includes for example, Foucault’s “technologies of the self” (Foucault, 1988), cities (Aibar & Bijker, 1997; Foley & Miller, 2020; Hommels, 2005) and economic markets (Mitra & Zoukas, 2020; Pinch & Swedberg, 2008). In the context of the Coronavirus pandemic, our definition of small ‘t’ technologies includes the social practices that involve usage of things (like masks or hand sanitizers) by people, ordering and manipulation of people and things (like counting), and arrangements of people in space (like social distancing or Zoom meetings).

Second, and at the same time, the use of “small ‘t’ technologies” is embedded in “Big ‘T’ technology” – viewing “technology” as “an institution.” This latter understanding of technology is grounded in Scandinavian institutionalism, which holds a strong constructivist stand. Institutions are the broad meaning systems and the structures, materiality, and practices that reflect, embody, and maintain them. Institutions – like the family, the market, religion, and technology – shape the conditions of possibilities for individual and organizational thoughts, behaviors, and aspirations. They are the obvious ways of knowing and doing things and thus have much power over anyone within their jurisdiction (Berger & Luckmann, 1966). For us, technologies are not just “carries” of institutions (Scott, 2014) or their effects (e.g., Currie & Swanson, 2009; Mignerat & Rivard, 2009), but also material instantiations thereof (Gawer & Phillips, 2013). From this perspective, over and beyond the functional understanding of technology as artifacts (tools, products, infrastructures) and the practices of their use that solve day-to-day problems, technology is filled with symbolic meanings. This is true to both pre-modern and early modern technologies and late modern information technologies, especially so since the heights of the “high tech bubble” of the early 2000s (Zilber, 2006a; Zilber, 2006b). As an institution, technology is based on the “myth of the machine” (Mumford, 1967), the belief that everything is solvable given the right technology (Strathern, 1999). Technology is the epitome of Enlightenment ideals of bringing about progress through scientific understanding, and it encompasses an ever-renewed promise to conquer nature (Whimster & Lash, 1987). Its applications are presumably profoundly transformative in all fields of life, like economics, communication, medicine, and governmentality.

In the following, we offer a phenomenon-driven problematization of technology (Gerédakisa & Constantinides, 2019) by exploring technology-enabled responses to COVID-19 as institutional dynamics. A critical view of technology as socially constructed is not unique to institutional theory (e.g., Actor-Network Theory, Alcadipani & Hassard, 2010; Science and Technology Studies, Woolgar, Coopmans, & Neyland, 2009; Constructivist Sociology of Technology, Bijker, 2010). Still, institutional theory offers a rich conceptual tool kit of its own that helps explore various dimensions of technology (e.g., Bailey & Barley, 2020; Burton-Jones et al., 2020; Hinings, Gegenhuber, & Greenwood, 2018) and – in the following – the role of technology in the responses to COVID-19. Using Israel as the main setting from which we draw examples, we employ insights developed in institutional theory to make three interconnected arguments that together problematize how technologies have been used in struggling with the coronavirus crisis.

First, the deployment of technologies-in-use in response to the pandemic is embedded in diverse, at times contradictory or competing institutions, the institution of technology among them. These technologies participate in the very construction of crisis, which fosters the revert to known and established ways of being and doing. Thus, technologies-in-use are not necessarily the most efficient and rational but rather the most legitimate and readily available.

Second, given that institutions are social constructions and are multiple, the use of technologies does not happen by itself. There are much contestation and much room for social agents to play with and manipulate institutions to their advantage. The role of technology in the crisis is the outcome of struggles between various institutional actors performing institutional work.

Finally, while institutions – like technology – may seem to have a global reach, they are always local in their implementation. Thus, the use of technology to respond to COVID-19 has many localized variations that can be understood by exploring how the institutional order is played out in different national and cultural contexts.

Whereas the popular discourse – among politicians, technocrats, experts, mass and social media, and the general public – reflects the belief in technology as the straightforward solution to many of life’s adversaries, the initial construction of the crisis and responses to it demonstrate the complexities of technologies-in-use, the institution of technology and the institutions associated with it.

2. Problematizing technological interventions with the coronavirus disease

2.1. Availability within a complex institutional order: Technological interventions in times of crisis

The institutional environment is complex. It is governed by multiple institutions that may complete or contradict each other (Greenwood, Raynard, Kodeih, Micelotta, & Lounsbury, 2011). In past decades it became apparent how technology goes hand in hand with other institutions, including globalization, future-now, and individualism (Zilber, 2006b). Technology, even more so information technology, has been understood as cutting across geographical and national borders, creating a “flat” world (Friedman, 2005), characterized by universal dynamics (Meyer, Boll, Thomas, & Ramirez, 1997; Meyer & Jepperson, 2000; Zilber, 2018a). Further, technology makes us believe we live in an accelerated world of unprecedented speeds, bringing far futures into the present (De Cock, Fitchett, & Farr, 2001; Zilber, 2006a). And, technology is anchored in individualistic (Taylor, 1990; Tucker, 2018) and neoliberal values that glorify entrepreneurs for their technological innovation and economic growth (Nicholson & Anderson, 2005; Ogbor, 2000), assuming the market is populated by actors perusing their self-interest, that the political sphere include citizens with equal right to
participate, and that everyone has the right for autonomy and self-expression, especially in private (Habermas, 1984).

Using technologies in response to the COVID-19 disease was thus carried out within an institutional environment that glorifies its power and shapes it application. At first, reactions around the world reflected a naïve popular belief in technology’s ability to conquer the virus. Many believed that especially information technology – from location-tracking apps that will allow to quickly cut chains of infection by isolating infected people (Ferretti et al., 2020) to the use of video-conferencing to enable the continuation of business and educational activity during a quarantine (Williamson, Eynon, & Potter, 2020) – will provide the tools for a quick recovery. Yet, with time, a gap has been exposed between information technology’s functional capabilities and its far-reaching, even fantastic aspirations. For example, implementing artificial intelligence to detect patterns of coronavirus disease held great promises. Yet, it necessitates rich data about patients, their symptoms, and their illness trajectory, which were simply non-existent early on. Further, building on digital technology to replace face-to-face teaching necessitates that all students have computers and appropriate bandwidth, which are not as widespread as we want to believe – their availability is clearly aligned with social boundaries ethno-class differences.

At the same time, the ability of technology to offer remedies is pending on its inter-connections with other institutions. Technology – again, especially in its hyper-modern constructions – goes hand in hand with individualism. It is about each of us having their smartphones, tablets, and computers, which extend our self. Yet such individualized technologies, while allowing for connecting so profoundly and immediately with others, turned out to be insufficient. Even if we could keep social distancing by isolating ourselves in front of a screen, it will still take collective efforts to eradicate the virus. And with the crisis ongoing, we started realizing the heavy price we pay for missing the livelier sense of being together and the need to move from “social distancing” to “care in connecting” (Gibson, 2020).

Furthermore, some responses to the coronavirus brought to the fore the deep tensions between global and national institutions. While the institution of technology goes hand in hand with the institution of globalization, and while we do call the crisis a pandemic – in effect, many governments were quick to close borders and compete with others over technological resources and solutions (e.g., testing equipment, respiratory machines, and vaccines), instead of cooperating in using technology to bring remedy to all.

Not only that information technology could not offer quick fixes to the crisis, it actually took part in its very construction. A crisis, we are reminded, is not an objective reality but rather a result of discursive efforts (Munir, 2005) that form experience and perception of uncertainty, urgency, and threat (Brinks & Ibert, 2020). Crises do exist, yet they are constructed according to taken for granted ideas and ways of acting and interacting (Staniland & Smith, 2013). These social constructions included media technology and the spread of news (at times, fake) regarding what was going on (Zinn, 2020). While airplanes quickly carried the virus around the globe, and while high-technology spread the news worldwide, it took much time for the narrative to unfold. As in many countries (Brinks & Ibert, 2020), including Israel, the news about a mysterious virus spreading far away in Wuhan, Hubei Province, China were acknowledged but not immediately registered as relevant. Then slowly, within a few weeks, as virus carriers spread it throughout the world, governments started to respond.

Technologies like selective counting, mass media, and social took a central role in constructing the crisis. Daily counts of infections and deaths, appearing in news media headlines, created a sense of urgency and threat. Early on, the only numbers represented were locally oriented gross figures related to the crisis’s medical aspects. With time, measurements became more sophisticated, offering relative data (like excess mortality rates), as well as global and fine-grained data about the spread of the virus. The scale of the data (e.g., John Hopkins University World map, and US data by county) created different perceptions of global and local crises. The focus on one type of data – infections and deaths1 – constructed the crisis as primarily medical. Once financial data started to be cited (like job loss, stock indexes), and as emotional and mental grievances were starting to gain attention, the construction of the disease was gradually moving from a purely medical to a multi-dimensional framing, one that acknowledges that epidemics are not only medical but social phenomena (Shah, 2020).

Further, as the coronavirus pandemic was constructed as a severe crisis, the most available and accessible – the institutionalized – templates were mostly readily used. Indeed, the determining influence of institutions is especially powerful in times of crisis, characterized by multiple uncertainties, ambiguities, and ambivalences (Jenkins, Jessen, & Steffen, 2005). Governments fell back on known modes of interventions from past pandemics. These pandemics occurred in very different scientific, medical, and technological realities (Barel, 2020). Still, ancient and more recent histories – the middle-ages Black Death, the 1918 Influenza pandemic, the Ebola, and MARS – offered ready-made scripts for understanding and action. Even in our hyper-technological world, rather old, simple, technologies were used as initial responses.

In Israel, various simple technologies – like self-quarantine, community lockdown, and isolating the sick – resonate with ancient biblical technologies used against leprosy (Leviticus 13), the plague in the 14th century, yellow fever and cholera, and other diseases in many corners of the world, as recently as in the past two centuries (Bashford, 2016). As is often the case in framing policy in times of (constructed) crisis (Spector, 2019), these severe all-or-none measures were framed as inevitable, with no other alternative. The daily numbers of infected and the dead helped bring the message home (Zinn, 2020), sidestepping alternatives, like more selective and partial lockdown of at-risk populations.

The deployment of technologies-in-use in response to the pandemic is embedded, then, in diverse, at times contradictory or competing institutions, including the institution of technology itself, and results in a diverse set of technological interventions, with internal contradictions and tensions. Further, these technologies participate in the very construction of crisis, which fosters the revert to institutionalized ways of being and doing. Thus, technologies-in-use are not necessarily the most efficient and rational but rather the

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1 This data is controversial for it is not easy to determine who died from coronavirus or with it and much of the data is an artifact of numbers of tests (Zinn, 2020).
most legitimate and readily available.

2.2. Institutional work: Technologies, values, politics and human agency

The use of technologies also has to do with the interests of and power relations between the various actors. Although institutions have much power over their constituencies, they are always mediated by actors. Actors have the agency to counter institutional influences and not only maintain, but also create and transform institutions (Lawrence & Suddaby, 2006). The multiplicity of institutions is one source for agency (Seo & Creed, 2002), as actors may speak for and act on behalf or against various institutions (Greenwood et al., 2011). The framing of events – like understanding a pandemic as a crisis that entails specific uses of technologies – involves purposeful work by multiple, competing individuals and organizational actors (Hampel, Lawrence, & Tracey, 2017).

Many actors took part in the institutional work involved in implementing technological responses to COVID-19 disease. Heads of states, political figures, entrepreneurs, industry giants, professionals (medical experts, economists, and scientists in various disciplines), the media, and the public all participate in negotiating the interventions. In their institutional work, they not only tried to influence the responses to the crisis, but also pursued their own interests and values (Lawrence & Suddaby, 2006; Wright, Zammuto, & Liesch, 2015).

In Israel, for example, the coronavirus disease embarked during a volatile political situation, after three consecutive elections in one year. The two main parties’ leaders used the disease to legitimize forming a coalition and breaking the political stalemate, seemingly to ensure a concerted effort through harsh technological measurements. Prime minister Benjamin Netanyahu in Israel, as President Donald Trump in the USA, used the crisis to legitimize an increased use of mass media and social media technologies, especially frequent appearances in “special” press conferences in primetime TV (often, no questions allowed), in attempts to re-establish their authority and gain credit for the various responses. When such appearances backfired, they suddenly ceased to be so vital. Whereas the Israeli prime minister was constructing the crisis as catastrophic to strengthen his standing, the USA president played it down for the same reason. However, both were using certain technologies to intervene in the disease as much as they were deploying the disease for political gains.

Many experts offered advice. Many entrepreneurs and business people offered help in buying medical equipment in the fiercely competitive global market or offered new technological solutions (e.g., new, seemingly cheaper, and easier to build respiratory machines). These offers may have been genuine, but they also served self-interests, like building a reputation or creating opportunities for financial gains by spreading their new machines. They all involved efforts to influence how their own acts and acts of others should be understood and evaluated, including how their technology will be understood and used (Migdal-Picker & Zilber, 2019).

2.3. Local responses: Institutional translation and variations

Institutional theory is interested in the process of institutionalization – the spread of ideas (new understandings, structures, and practices) across borders and over time. Ideas do not travel intact, but rather change as they travel and are adopted – and adapted – in new contexts, and thus get infused with locally relevant meanings (Czarniawska & Joerges, 1996). Institutionalization is understood then as diffusion with variations (Boxenbaum & Jonsson, 2017) or translation (Wedlin & Sahlin, 2017). While the coronavirus disease seems to travel intact, and the pandemic is global, we see many local variations in the virus (and in the disease) and responses to the disease (Brinks & Ibert, 2020). For example, while everyone in Israel was instructed to wear masks, and large fines were set to ensure obedience, many variations were expressed. From strict wearing to a nonchalant hanging over the mouth alone or even lower (thus clearly annihilating any of its presumed benefits). Asking people to keep two meters apart in public places has been quite a challenge, causing conflicts among fellow citizens and between them and law enforcement agents. Given a common “cultural distance” (Hall, 1990), which in Israel means staying quite close to each other, many found it difficult to keep the new required distance.

Furthermore, as technologies are adopted in local contexts, they are given various meanings, which affect their adaptation and use (Czarniawska & Joerges, 1996). In the localization of every technology, other institutions prominent in the local environment take part. For example, the technologies of washing hands with antiseptic soaps) wearing masks and social distancing can all be framed as signs of weakness (e.g., Donald Trump during the early spread of the coronavirus in the US), as effective weapons in the war against the virus (e.g., Benjamin Netanyahu in Israel), or as a sign of mutual responsibility to our community (e.g., Jacinda Arden in New Zealand). Each framing of seemingly same technologies position them within a specific institutional context that influences how people understand and comply with or resist the technology.

The same is true regarding the technology of the vaccine. Building on its robust public-medicine infrastructure, Israel has been able to roll out an impressive vaccination effort. Yet, in the places where the disease has been hitting most harshly, for example, in densely populated ultra-Orthodox towns and neighborhoods, the resistance and hesitations regarding the vaccination have been the highest. These populations live under the dominance of the Institutions of the Jewish religion. As such, they adhere to their religious worldviews. They resist the authority of science, trusting authoritative religious figures like Rabbis instead. They are the least exposed to the public discourse through various social and news media, as they have limited access to the Internet by using Kosher, censured smartphones. The translation of technological interventions within specific populations in Israel, then, affected its use and the overall struggle with the pandemic.

The localization of institutions like technology is not limited to unique, “exotic” populations. It is relevant to mainstream communities as well. In Israel, extensive use was made of the police and the military in forcing general and local lockdowns. Israel’s security agency was used to implement tracking technologies via smartphones. This technology, originally developed to control the Palestinian population, was now used to identify Israeli citizens who were in proximity to carriers of the virus. While other
governments have been attempting to use tracking technologies, many opted to do so through the market, with the help of technological companies, and encouraging – but not forcing – citizens to use them. In Israel, the government tended to build on its security forces and on militaristic notions, which enjoy high (yet deteriorating) legitimacy in Israeli society (Ben-Eliyahu, 1997; Kimmerling, 1993). The government’s interventions have engendered much political and public debate around their use to intervene with the virus. Legitimacy is always at the core of institutional dynamics (Deephouse, Bundy, Plunkett Tost, & Schuman, 2017). The legitimacy of each of these variations is pending on local institutional regimes and the power struggles associated with them.

Furthermore, technological interventions in Israel, especially the widespread use of lab tests to diagnose the virus and selective lockdowns, seemed, at first sight, to be motivated by professional and bio-medical concerns alone. Yet, they quickly brought forward the local contested institutions of religion vs. secularism (Ben-Porat, 2013; Cohen & Susser, 2000) and Jewish vs. Palestinian nationalism (Smooha, 2019). The Haredi, ultra-Orthodox neighborhoods and Arab Israeli cities, for example, heavily populated as they are, have been marked as spatial and social enclaves to spread the virus. Fierce debates arose whether gathering local data on the spread of the virus and the use of local curfews over these neighborhoods and towns are legitimate interventions. Disputes also arose whether religious places like synagogues and mosques, which were allowed to remain open, should be treated any differently from mostly secular places like gyms, which were forced to shut down. Likewise, the COVID-19 crisis brought to the fore ethno-class and racial divisions, tensions, and inclusion/exclusion dynamics in other locales worldwide, impacting the understanding of, and the technological responses to, the crisis.

3. Conclusions

Using institutional theory to reflect on the initial technological interventions in response to the coronavirus disease offers an analytical space for what otherwise may be perceived as objective, rational, and inevitable. Like Science and Technology Studies, Actor-Network Theory, and a Constructivist Sociology of Technology, Institutional Theory conceives technology not just in its strict and practical sense but also as a social construction. Specifically, rather than treating the pandemic and the technologies used for intervening in it as given and value-free, we noted the complex and contested institutional dynamics involved – the ways multiple institutions shape how technologies are used, the many actors who maneuver them, and how technological responses are being localized. Our conceptual contribution in this paper demonstrates how institutional theory insights can be integrated and implemented to understand the complex technological interventions in the local setting of a global pandemic. Technology – both small ‘t’ and Big ‘T’ – serves as an apt case study to further develop institutional theory in line with recent developments highlighting multimodalities (Zilber, 2018b) and microfoundations (Zilber, 2020). Further research can dive more deeply into the inter-relations between the material and other modalities, like emotions, which were clearly central to the very construction of the coronavirus crisis and its implications. Research can also take a more longitudinal approach and explore how early and mid-pandemic technological interventions (like vaccinations – which started as we finalize this paper) unfolded and their long-term impact on the institution of technology and technologies-in-use.

Our institutional critical reading of the interventions in response to the disease points to practical implications as well. Since taken for granted institutions tend to shape which technologies are used, and how, governments are advised to broaden the types of knowledge and the diverse experiences upon which they build in times of crisis. For example, recruiting social scientists and not only medical experts. Social scientists can more critically assess the ways of thinking, and habitual, taken for granted, responses to a crisis. There may be, for example, possible misconceptions in regard to the use of old technologies, like quarantine, or overestimation of new technologies such as virtual meeting. As well, the very same technology may have diverse interpretations in sub-groups within the population, fostering or hindering their use of technology and thus affecting the entire population. Such constructions of technologies and their embeddedness within the complex institutional order should be taken into consideration in policymaking. For example, persons who better understand the ultra-Orthodox and Arab communities and their approach to technologies can communicate with them through social relations, social hierarchies, spatial arrangements, and cultural worlds. Thus, they are more effective ways. Including social scientists likes science and technology scholars (Harambam, 2020), anthropologists, sociologists, and psychologists (and not only economists, Maher, Seguin, Zhang, & Davis, 2020) will introduce cross-cultural comparisons and thinking into policymaking. This may ensure government policy is culturally sensitive, based on relevant cultural competences (Betancourt, Green, Carrillo, & Ananeh-Firempong, 2003), and considers the institutional complexities of technology use.

Further, as we noted, technologies are worked out by many actors who handle them in diverse ways that suit their interests, expertise, and power. Collaborative, stakeholder-based modes of governing and policymaking (Bingham, Nabatchi, & O’Leary, 2005) may be necessary to design and implement technological interventions in times of crisis. Governments should engage diverse actors in policymaking panels, including women (and not only men), parents of kids of various ages and not only “experts,” social workers, business persons, representatives of both geo-political center and periphery, diverse ethno-class groups, and so forth. While engaging with different stakeholders caries its own challenges (Ansell & Alison, 2008), it may foster the likelihood of designing technological interventions that consider diverse interests and knowledge and are relevant to a broader population, and thus more efficient.

4. Final reflections

The geopolitics and chronopolitics of the pandemic shattered many of the institutions we take for granted (Hwang & Hollerer, 2020). In truth, many of the institutions now under threat were facing threats even before (e.g., globalization, see Lounsbury & Shaoqing Wang, 2020). Yet, with these clashes of technologies, people, and institutions – under the perception of a grave crisis – people in Israel (and perhaps in other countries worldwide) have been losing trust in “the system” itself. With the unfolding of the events and
the interventions used, the very institutional fabric was challenged, as the “obviousness” of Technology and other institutions was shaken, leaving us with no clear template to direct thought and action. It is with these questioning and wondering that we would like to conclude.

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