Disentangling Digital Technologies and Power Relations in Work and Organization*

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Abstract: This contribution stems from the thematic track "Digital technologies and power relations in work and organizations. Theoretical and empirical perspectives", held during the VIII STS Italia conference. Referring to the contributions and the discussions we had during the track sessions, we present two main themes that emerged as crucial issues: 1) the hidden dynamics of digitalized interactions in workplaces and organizations; 2) the role of algorithms and digital platforms in organizational and work practices. Not with the aim of summarizing the variety and richness of the discussions we had, with this text we want to raise the curiosity and the attention of the readers toward some of the conversations emerging from the encounters between "the digital" and "the organizational".

Keywords: Digital technologies; work practices; organization; power; algorithms.

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1. Introduction

This contribution stems from the thematic track "Digital technologies and power relations in work and organizations. Theoretical and empirical perspectives", held during the VIII STS Italia conference. In fact, the way technologies may affect work and organizational dynamics represents a longstanding debate in and out STS (i.e., Thompson 1967; Orlikowski 1992; Grint and Woolgar 1997; Karakilic 2020; De Vaujany et al. 2021). This debate is particularly vivid nowadays, as digital technologies are

widespread and ubiquitous in the workplace and give opportunity to new forms of organizational coordination and management-at-distance of different and dispersed organizational actors (De Vaujany et al. 2021). The diffusion of digital systems allowing the creation of complex datasets on employees' performance (Trittin-Ulbrich et al. 2020), together with the spread of digital platforms enabling a "tap" model of work and workforce – a sort of stand-by workforce which can be 'tapped' anytime in order to gain work as a commodity (Stampfl 2021) – are just two of the many examples of the new forms of articulation of organizational processes.

The encounter of "the digital" and "the organizational" leads nowadays to reconsider the articulation of some of the very basic concepts traditionally implied to frame organizations (Plesner and Husted 2020): organizational structures turn to digital infrastructures; production implies "produsage" (a neologism for the combination of production and usage – Bruns, 2008); knowledge management translates into processes of datafication and data management; managerial power and control can be exerted "remotely", but digital technologies may also offer the opportunity to workers for collectively organizing and renegotiating power.

In particular, during our sessions the discussion focused around two major themes:

1) the hidden dynamics of digitalized interactions in workplaces and organizations;

2) the role of algorithms and digital platforms in organizational and work practices.

Thanking all the participants for their engagement and contribution, we will now briefly present the principal insights we retain from the discussions we had.

2. Hidden Dynamics of Digitalized Interactions in Workplaces and Organizations

We are in a factory warehouse, in 2019: the employee's workstation displays staff progress in a "funny" game on a small screen. Lights indicate which item the worker/player needs to put into a given bin and scanning devices track task completion. All the items are tracked so that movements can be followed by the system and shared on the workers' workstation screen in a Tetris-like game. In the warehouse, workers and teams are engaged into these race-like competitions to pick or stow different items, like toys, cellphone cases, coffee machines, and so on.

This is the main idea behind gamification: having fun while working. But be careful, "fun" is mandatory (Mollick and Rothbard 2014). Gamification implies the introduction of game design elements in non-gaming contexts (e.g., the workplace) with the aim of improving work organization, efficiency, and productivity. Nowadays, in many organizations, gamification tools are employed as technologies for modifying workers'

motivation and pushing them to better perform their tasks and correcting their work habits "spontaneously" according to a supposed "good" rhythm of work, without (at least apparently) any constriction, mechanism of sanction, disciplinary or corrective action. But as the Amazon case presented by Daniele Ruggiu (University of Padua,) in our session shows, behind such a funny and apparently "harmless" practice there are not so harmless consequences. This case is a clear example of how technology may hiddenly work for serving capitalistic interests (Coombs et al. 1992), rather than for supporting workers and their legitimate interests in the daily work. It seems rather that, through gamification, the worker becomes a kind of funny hamster running on a wheel, a consideration that highlights how gamification can be problematic from the point of view of workers' rights (e.g., the right to health), their self-determination and self-exploitation, and not lastly privacy.

In the same vein, the case presented by Klara-Aylin Wenten (Technical University of Munich, Germany) shows how technology may induce behaviors and interactions. In the presented case, teamwork (apparently flat) and coordination (apparently horizontal) are mobilized thanks to management tools with a strong, albeit hidden, disciplinary power. Drawing on the concept of "script" as "program of action" (Akrich 1992; Latour 1992), Wenten examines how post-its and whiteboards may act as core objects for performing idea generation and for managing designers, developers, and engineers. The result is that diverse interests and ideas, instead of being exalted by post-its and whiteboards (apparently designed for this purpose), appear unified and standardized, while other issues get lost in the process of translation through keywords on the post-its. The material characteristics of post-its (e.g., they are made to stick on the wall) discipline employees to stay permanently activated: a post-it may fall, thus "interpellating" (Law 2000) the participants to the session in order to be reattached to the whiteboard. Again, in a hidden manner, post-its and whiteboards manage workers to constantly stay committed to their daily work. In other words, on one side these artefacts may discipline, coordinate, and control people's work, while on the other they may standardize and delete otherness and difference.

In short, the discussion articulated around the ways in which organizational power and control may be incorporated in analogic and digital artifacts adds further evidence to the need for STS not to dismiss the dominating side of (digital) technologies simply because this could sound "deterministic" but, on the contrary, to elaborate non-deterministic interpretations of the hidden power of technologies. In other words, there is a growing need for non-binary and fine-grained interpretations able to give account of the intricacies of power, digital technologies, and organizational processes (Bruni et al. 2020; 2021).

Since labor process theory, in fact, critical theorists focus their attention on the more or less hidden power of technology, usually seen as a driver for instilling managerial strategies and organizational ideologies. We may

add that, when it comes to technology and work, a common assumption is that technology impacts work and organizing, leaving people helpless in the face of it. An argument that reinforces the general concern regarding workplace surveillance and technologically raised power imbalances between employers and employees (Tække 2011; Zuboff 2019). Going back in time, already Marx himself suggested that workers are not powerless, rather, they have a compensatory workforce because capitalists depend on them to do the work that provides a return on the invested capital. Also, the very "malleability" of digital technologies may either "empower" or "disempower" workers allowing them to act in unexpected ways: in short, technology shapes our behaviors but, in turn, is shaped by our behaviors.

A telling although somehow paradoxical example of this dynamic is the case of the FairLabor app presented by Francesco Saverio Ranieri (Sapienza University of Rome), which shows how a technology designed to act as an "emancipator" tool may fail to help workers to free themselves from their condition of exploitation. FairLabor has been developed by the Lazio region for opposing the illegal hiring in agricultural work. It was designed to work as a virtual placement office that allows users to register on the booking lists for agricultural work for bypassing corporals in the practices of labor intermediations. However, there are difficulties in enrolling users, as they are already accustomed to the use of much more informal and widely used app (namely, Whatsapp), which better supplies the needs of on-time coordination and permits to maintain the illegal structure of work intermediation. We may add that a "failure" in configuring the users (Woolgar 1991) eventually results in a failure in enrolling them in the program.

The point, thus, is that humans may play an active role in the development of a (digital) technology simply by not using it (Kline and Pinch 1996; Kline 2003). This same point underpins the work presented by Robin Renwick (Trilateral Research, UK). Here, mapping and understanding human factors for an effective cybersecurity is the core of a project that tries to consider the fact that management, cybersecurity departments, and general employees can have conflicting priorities towards cybersecurity. Workers may activate tactics that defuse technology. As we will shortly see considering the case of digital platforms, such a consideration can be applied also to study contexts other than cybersecurity for showing how workers can react, resist, and even "appropriate" technology (Eglash 2004) in many different and unexpected ways (Miele and Tirabeni 2020; Andrei et al., 2022).

3. The Role of Algorithms and Digital Platforms in Organizational and Work Practices

Digital platforms, it could be argued, are one of the major outcomes of the encounter between "the digital" and "the organization". The debate on digital platforms, even if recent and still ongoing, has already witnessed two

different interpretative waves (Bruni and Esposito 2019a). In a first wave, digital platforms are put in connection with concepts such as "peer-to-peer", "digital commons", "online cooperation", "liberation of work", "horizontality", "innovation from below", and, foremost, "sharing economy" (Benkler 2006; Botsman and Rogers 2010; Gillespie 2010; Sundararajan 2016). In other words, platforms are seen as helpful tools that contribute to the pursuit of ideas of freedom and free circulation of knowledge. This first wave dates to the early days of Web 2.0, when the possibility of users interacting with the World Wide Web and going beyond the original designers' project (by customizing online spaces, uploading content, and sharing them in a network of peers) seemed to give concrete support to facilitating commons and commoning (Plantin et al. 2016). As Van Dijck, Poell and de Waal (2018, p. 11) put it, it was as if "connectivity automatically leads to collectivity".

More recently, a second wave has stressed how "many forms of digital commoning are not purely informational but are entangled within an organizational network of concrete (non-digitalized) economic practices" (Ossewarde and Reijers 2017, p. 612). The sharing of a car or an apartment (such as BlaBlaCar or Airbnb), as well as the delivery of food (such as Foodora, Just Eat, or Glovo) and/or a taxi service (such as Uber), are evidently linked to a set of heterogeneous practices, often "material" (such as driving or riding) more than "digital". This second wave thus concentrates on the conditions of those working behind the platform and the ways in which platforms profit from users' labor (Irani 2015; Jin 2015; van Doorn 2016). Platforms are now associated with words such as "precariousness", "fragmentation", "individualization", "erosion of workers' rights" and, most of all, "outsourcing". In fact, even if many differences occur between them, Airbnb, Uber, Amazon Mechanical Turk, BlaBlaCar, Foodora, or Taskrabbit all share a form of operating "through a hyper-outsourced model, whereby workers are outsourced, fixed capital is outsourced, maintenance costs are outsourced, and training is outsourced" (Srnicek 2016, p. 95). Through this outsourcing-based model, platform-organizations optimize labor's flexibility and scalability, articulating a "workforce-as-a-service" model (Starner 2015) and creating *ad hoc* (labor) marketplaces, apart from institutional rules and rights (van Doorn 2016).

In the vein of this second wave, various contributions focused on the role of algorithms and digital platforms in organizational and work practices. In particular, Gianmarco Peterlongo (University of Turin) and Francesco Bonifacio (Cattolica University, Milan) concentrate respectively on Uber and Glovo riders to problematize the power exerted by platforms over the workforce. In the ethnography conducted by Peterlongo in Buenos Aires, the peculiar illegality of Uber's ride-hailing service has allowed unprecedented forms of counter-use of the digital platform: subverting some of the app's tools, Uber drivers adopt and share tactics to circumvent the rules of the platform, re-appropriate its digital infrastructure, and turn the conditions of work for their own advantage. Similarly, the four-months

enactive ethnography (Wacquant 2015) conducted in Milan by Bonifacio focuses on the relation between Glovo riders and on-screen interfaces, epitomized by moments when algorithms come to matter, as for the notification of deliveries' acceptance/refusal. Showing the heterogeneity of riders' workforce, the research accounts for the "fabrication" (Wacquant 2005) of different types of food-delivery workers, which also lies in the construction of a different "algorithmic imaginary" (Bucher 2018). In fact, "thinking about what algorithms are [...] and how they function" (ibid. p.113) affects riders' work, embedding different meanings (precariousness, risk, professionalism, competence, etc.) and organizational and work practices. In fact, a conspicuous part of riders' training and skills lies in the interpretation of algorithms computational functioning, so that the interaction with the algorithms becomes a site of learning and differentiation between various ways of unfolding the job. Some of these skills are directly referred to the algorithmic organization of work (e.g., learning how to manage work differently during the weekend or the week-days), while a good portion of the required knowledge is not algorithmic based, even if fundamentally entangled with it (e.g., achieving a good knowledge of the city, its traffic and its rhythms is fundamental for a rider in order to decide what gigs to accept or the area where to work more proficiently). As showed by Bonifacio, if part of this learning is the result of an ongoing individual process of learning-by-doing, a specific algorithmic-related knowledge is also collectively produced and shared in different spontaneous micro-communities of workers originated in informal moments and places (as for the times/places when/where riders wait for gigs).

This same relational and non-deterministic account of the role of algorithms and platforms permits Fabio Esposito (Federico II University of Naples) to question the kind of organizational model emerging from the platform-user relationship. Focusing on Airbnb, Esposito shows how coordination between its "core" (namely, the digital infrastructure) and single operating units (i.e., the Hosts) is achieved through reciprocal adaptations. Thanks to its templates and managing tools, the platform is able to collect information about its members and impose a few standards, while adapting to Hosts' different local needs and arrangements. On the other hand, Hosts adapt their spaces, habits, and time-schedules to meet the platform's standards and requests; and given the freedom they have, they find *ad hoc* arrangements to perform the service required by the platform. Referring to Mintzberg (1980), the organizational model emerging from Airbnb could thus be framed as an "adhocratic infrastructure". In adhocracies reciprocal adaptations take place through informal relations which seems to have no need to be standardized, and power exists only as "virtual loci" of control. This happens also in the case of Airbnb, which positions itself as some kind of authority that simply regulates interactions between its central core and single operating units, organizing, monitoring and eventually sanctioning or rewarding them. In this way, the platform draws

and maintains the sociomaterial infrastructure in which organizational norms and standards are inscribed (Bruni and Esposito 2019b).

As the inspiring concept of "adhocratic infrastructure" suggests, together with all the other contributions and discussions we had in our track, further inquiring is needed in order to grasp the specific ways in which organizing processes and power relations are performed and stabilized in and through digital technologies.

4. Concluding Remarks

Pointing to some of the themes around which our debate articulated, the purpose of this text was to stimulate the curiosity and the attention of the readers toward some of the conversations emerging from the encounters between "the digital" and "the organizational". Focusing on the hidden dynamics of digitalized interactions in workplaces and organizations and on the role of algorithms and digital platforms in organizational and work practices, we have highlighted a number of related issues, such as the organizational adoption of gamification processes for motivating workers; the disciplinary power of material artifacts and digital technologies; the failures and paradoxical effects digital technologies may have once final users (that is, workers) enter the stage; the forms of appropriation, adaptation, counter-use and even non-use workers may display in relation to the algorithmic management of digital platforms; how digital platforms may be framed as "adhocratic infrastructures", where coordination is exerted through informal relations and power exists only as "virtual loci" of control.

Some of these issues are already at the core of the STS debate, others are *in fieri*, but all together they signal the heterogeneities and complexities of disentangling digital technologies and power relations in work and organization and deserve to be further explored.

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