Information and Organization
New Ways of Working (NWW): Workplace Transformation in the Digital Age
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1. Introduction: what's new?

This special issue (SI) examines workplace transformation in the digital age under the heading of 'New Ways of Working', continuing the discussion at the 'Organizations, Artifacts and Practices' (OAP) workshops held in Amsterdam in 2018, to which most of the SI-contributions directly or indirectly relate (De Vaujany et al., 2018; Mitev et al., 2021). These workshops and this SI offer a reflection on and contribution to deeper understanding of ongoing, flexibilization, digitization, virtualization and mediation of work practices. These practices are as diverse as teleworking, nomadic working, hot-desking, working at co-working spaces, virtual working or mobile working, and are enabled by complex information systems and virtualized organizational formations (e.g. network enterprises or internet platforms). As part of the ever-increasing digitalization of our society these practices are changing the nature of work by challenging 'formal' bureaucratic logics of organizing (Courpasson and Reed, 2004; Pulignano and Stewart, 2008), positioning flexibility, adaptability and dynamicity as the fundamental values of new working configurations (Kallinikos, 2003; Marsden, 2004; Pulakos et al., 2006; Aroles et al., 2019), and replacing paper documents and file cabinets with

'data objects' and algorithms for the information flow and management of organizations (Alaimo and Kallinikos, 2021; Sellen and Harper, 2002).

The emerging discourses and practices of New Ways of Working (NWW) are reminiscent of Hannes Meyer's[ii] conjecture that 'every epoch demands its own form', proposed in a short essay titled 'The New World' (Meyer, 1994 [1926]). While referring to modern architecture Meyer's essay offers conspicuous parallels with evolving understandings of the notion of NWW, as discussed in this SI. First, reflecting on the meaning of 'new' in NWW Meyer's essay reminds us that the significance of this 'new' goes beyond simply introducing a temporal demarcation between an 'old' and a 'new' world that will gradually become old again as time passes. It addresses first and foremost the experiential feeling of a significant difference, or contradiction, between an 'old' ordering that is overcome or contested by a new unprecedented ordering governed by new technologies, principles and ideas, which were never recognized, formulated or used before as significant for constructing the world. Thus, 'new' in NWW is relative and stands for something truly and qualitatively different, the changes in work practices that are revolutionary and paradigmatic instead of evolutionary and partial. It is of note that particular elements associated with NWW may, in terms of time scales, not strictly be 'new'. Indeed, designs of mobile offices, paperless offices, videoconferencing, and flexible workplaces all originate from the end of the 1960s and the early 1970s (van Meel, 2011). Before the 1990s, however, these designs were experimental and not integrated in work practices and developed on a significant scale.

Second, we could argue that NWW exemplify the demands of the new digital epoch – a global world where our concepts of time and space expand 'out of all proportion' (Meyer, 1994 [1926]). Castells (1996; 2001) refers to these demands when he discusses the emergence of a 'space of flows' and of 'timeless time' in the development of a global 'network society', associated with the widespread application of ICTs and the development of the internet. These conditions are crucial for the development of NWW because they enable the possibility of real-time cooperation in work practices without the need for physical presence in the same place, or, vice-versa, participate in a work practice on a time-slot irrespective of a place. Thus, we can work at the company from home or from a train, we can collaborate on the same project from different desks, we can work with colleagues in different places of the world simultaneously, or work on the same project at different times, as long as we are able to connect to a virtual 'space of flows'.

Third, according to Meyer, the new world is built up, constructed, organized and brought about in concrete forms out of the materials, technologies, innovations and ideas which become available to designers, organizers and workers in their practices. In this sense NWW as new sociotechnical and organizing forms may be understood as expressions and temporal consequences of the economic, cultural and political force fields of our epoch. We recognize in ultima forma Meyer's approach in the original formulation of the concept of NWW by its pioneers and protagonists, in particular Erik Veldhoen (2005) and Francis Duffy (1997; 2000), who explicitly define 'new ways of working' (Kingma, 2019). In the words of Duffy:

> 'Ways of working are changing radically. Information technology is seeing to that. Based on very new and very different assumptions about the use of time and space, new ways of working are emerging fast. They are inherently more interactive than old office routines and give people far more control over the timing, the content, the tools, and the place of work' (Duffy, 1997: 46).

Comparable to the approach advocated by Meyer in the case of modern housing, NWW designs start with meticulous workplace studies analysing its spatiotemporal work arrangements, inferring basic principles, modules, elements and activities NWW designs can be composed off. Our spatial, technological and social environments become interdependent and inseparable, and appear as one.

The radically flexibilized alternative of NWW to fixed workspaces is enabled by the decoupling of information processes from spatial designs, the 'Archimedean point' of the organizational philosophy (Veldhoen, 2005). Designs are guided by, for instance, the extent to which specific work activities require particular combinations of individual (or collaborative) and physical-presence (or virtual) work (Veldhoen, 2005; Duffy, 1997). NWW are characterized by an activity-

based work order (Sivunen and Putnam, 2020; Appel-Meulenbroek et al., 2011), integrating and clustering various types of activity, including, 'individual cockpits,' 'team tables,' 'lounge areas,' 'silence areas,' 'comfort rooms,' 'meeting rooms,' and various sorts of 'open workplace' (Veldhoen, 2005). In turn, this composition of work spots inside an office building can be flexibly and virtually connected to various work spots outside office buildings, ultimately creating a variety of 'workscapes' (Felstead et al., 2005) and a distributed workplace (Harrison et al., 2004). Inside-outside boundaries become blurred, when private activities are drawn inside the workspaces and organizational norms are encouraged outside work (Fleming and Spicer, 2004). There is a host of possible and diverse workplaces including working at home, at specialized co-working spaces, and on the move. Potentially, the entire world becomes a workplace. Ideally, workplaces can be carefully tuned to the individualized work needs of workers and teams who have a great freedom of choice in selecting and arranging their workplaces.

Comparably, NWW designs also refer to the totality of organizing. NWW consultants and specialists often refer to NWW in terms of 'bricks, bytes, and behaviour changes', indicating the integrated management of spatiotemporal, technological, and organizational cultural changes (Harrison et al., 2004; Veldhoen, 2005; Baane et al., 2011). What is particularly novel about these changes is not so much the technological aspects but the new approach to organizational design and arrangements in which technological and architectural dimensions are being integrated, commodified, and presented in a systematic way, thus furthering new kinds of sociotechnical workspaces. Thus, NWW are closely associated with integrating roughly three dimensions: the spatial, the technological, and the cultural. For example, in the early phases of NWW, Veldhoen argued that this development was not merely about new work processes, new facilities, or the adoption of new technologies:

> The challenge of the future is in connecting the physical, virtual and mental space, and in the way we do that. The virtual and physical environment have to be tuned toward each other. And you need a mental environment, a mindset to be able to work there adequately: what are the agreements, the codes, how do we assess each other based on performances? These three worlds should not be understood separately, they are unified. (Derix, 2003: 49, translated and cited in: Kingma 2019)

This physical, virtual, and mental space, should, in Veldhoen's view, be conceived as the 'pillars' or 'cornerstones' of NWW. Design projects pursuing this integrative ambition were developed in a gradual process of interactive, incremental, and agile organizational change. These early initiatives concern deliberate designs for NWW, which subsequently inspired many consultancy firms to further develop and disperse the concept, or elements of it. To some extent NWW designs, or aspects of it, became fashionable and can now be considered part of the institutional environment of many organizations.

Considering the integration and combination of dimensions as constitutive of the 'new', implies that NWW cannot be reduced to, and are not determined by, particular spatial, technological or cultural elements. NWW emerge out of, and are recursively and creatively constructed, out of a multiplicity of ingredients in everyday work practices. Culturally and subjectively, NWW are often closely associated with highly educated, motivated, self-reliant and proactive workers, who can be trusted with the responsibility to largely manage their own work. NWW can also be understood as a response to general cultural tendencies of individualization and democratization as much as inspired by spatiotemporal and technological developments. The integrative aspect of the 'new' and the focus on 'totality', further implies that NWW cannot be identified by a definitive form, but are constructed in never-ending processes of development. They appear in a variety of concrete forms, performed through the (temporary) outcome of interactions between spatial, technological and cultural transformations. We currently witness a trend in studying the spatiotemporal, technological and social aspects of working and organizing in more integrative ways (Koslowski et al., 2019; Beyes and Holt, 2020; Baptista et al., 2020; Kolb et al., 2020; Kingma et al., 2018; Stephenson et al., 2020; Petani and Mengis, 2021).

Since the notion of NWW is still emerging, open to diverse economic, social and technological pressures, as we have seen during the recent Covid-19 pandemic, this SI does not offer an extensive history of its development and scholarly study. Rather, we seek to address the emerging, hybrid and diverse nature and backgrounds of NWW, including the meaning of the adjective 'new' to work-practices, often studied in one- or two-dimensional ways, for instance with spatiotemporal notions of flexibility, technological notions of digital working or cultural notions of self-management, surveillance or identity. Rather than a-priori deciding for and advocating the new, this SI explores different perspectives and conceptions of the 'new' in emerging work practices associated with NWW. The SI also aims to stimulate examination of these work practices in more complex and holistic ways, particularly including the dialectical interaction between the spatiotemporal, the social and the technological. This is not to suggest that the papers enlisted in this SI represent ideal typical examples of NWW studies. Rather, the studies explore diverse topics and contexts and explore new concepts and theoretical perspectives to help better understanding of some forms of NWW.

In this introductory paper we further discuss some of the backgrounds, promising aspects, pitfalls and tensions addressed in the literatures dealing with NWW practices and developments. In this way we both contextualize the papers in this SI and highlight their distinct contributions to the understanding and theorization of NWW. Drawing from the recurring themes of the papers, we focus on three interrelated aspects of NWW: (i) changes in the relationship between technology, the digital and work; (ii) changes in the relationship between organization, work and individuals; and (iii) changes in the spatial and temporal dimensions of work. Finally, we also reflect on the significance of the Covid-19 crisis for NWW. Since most of the papers were largely conceived, written and elaborated before 2020, they only briefly reflect upon their relevance for the post-Covid era. However, the paper by Klein and Watson-Manheim (2021) builds on an example of electronically mediated teaching propelled by the conditions of the pandemic and the need for lockdowns. Arguably, the enforced and immediate changes required to respond to the global pandemic made visible, accelerated and expanded characteristics of NWW that were previously piecemeal. Certainly, it has brought to the fore the issues which are discussed in the papers in this SI in different, pre-pandemic conditions, making this even more timely as a SI topic.

2. Technology, the digital and work

Underpinning NWW, are the multiple and proliferating forms of information and communication technologies (ICTs) that in many ways characterize our current time. In their study of the changing spaces of work, Felstead et al. (2005) talk of an 'electronic envelope' surrounding work: that individuals are able to work in more mobile and less place-bound ways since technologies have been developed that are both portable and interconnected. Within the bounds of the workplace too, ICTs have played a pivotal role in the diversification and evolution of work (Brocklehurst, 2001; Wilson et al., 2008), paving the way for a wide array of transformations. These include the enabling of new forms of collaboration (Faraj et al., 2013); the disembedding of work from a particular place or time (Bosch-Sijtsema et al., 2010; Hirst, 2011; Sewell and Taskin, 2015); and the facilitation of many new tasks and occupations, along with the reconfiguration of existing jobs and professions.

Early discussions of the changing nature of work in tandem with technology include the pioneering work of both Nilles (1975) and Toffler (1980) on telework and telecommuting. During the 1980s in particular, a 'future of work,' not to mention an 'end of work' literature flourished, with 'post-industrial utopians' (Frankel, 1987) making predictions regarding new ways of living and working (Granter, 2016). Technological developments, such as mobile phones and Internet in the 1980s or wireless connections in the 1990s, enabled the materialization of a multitude of various work modalities, increasingly diverging from stereotypical '9-to-5' office jobs (Barley and Kunda, 2001).

Technological changes have gone hand-in-hand with contextual and cultural factors such as the decline of the employment relationship. Thus there has been significant attention paid to the development of the 'sharing economy' and the rise of online platforms, as new organizational forms (Sundararajan, 2017; Scholz, 2017; Howcroft and Bergvall-Kåreborn, 2019). These have generated more hybrid forms of work, for example in the shape of 'plural careers' (Caza et al., 2018).

The latest manifestations of new work practices range from the expansion of new modalities of employment, such as: zero-hour contracts and other forms of unsecure employment in the context of platform capitalism (Petticca-Harris et al., 2020; Scholz, 2017); the growing popularity of online labor platform workforce (Howcroft and Bergvall-Kåreborn, 2019); the development of crowd-based and collaborative forms of entrepreneurship (Sundararajan, 2017); and the emergence of new spatial work arrangements, e.g. coworking spaces, makerspaces, hackerspaces, fablabs (Brakel-Ahmed et al., 2020). These all raise many questions around the actual 'fabric' of work, as a significant and growing proportion of work activities occur outside the realm of the 'formal organizations' (Petriglieri et al., 2019).

For many, contemporary entanglements between technologies and paid work throw up both possibilities and concerns. On the one hand, changes in forms of work offer the potential for a greater sense of flexibility and autonomy (Tremblay and Thomsin, 2012; Baruch, 2000; Golden, 2009), for a better balance between the demands of 'work' and other aspects of 'life' (Felstead and Henseke, 2017; Kelliher et al., 2018). For others, alongside these opportunities, come a series of concerns relating to issues of precarity, surveillance, control, deskilling and, more generally, changed power dynamics (Brivot and Gendron, 2011), notably around the emergence of horizontal forms of control (Dale, 2005). Even further, the concern is that work, having spilt out of the bounds of organizations, workplaces and working days, has also become embedded throughout other social relations and identities, as the 'diffused workplace' or the 'social factory' (Fleming, 2015).

In academic terms, these developments have raised important questions relating to materiality, embodiment, temporality, and spatiality, in organizational landscapes (Aroles et al., 2021; Mitev et al., 2021). All of the papers in the SI provide a different insight into the relations between technologies and work: Idowu and Elbanna (2021), in their study of crowdwork in Nigeria, show how the very nature of working online leaves crowdworkers open to a specific societal stigma of association with the taint of internet fraud and crime along with the material effects of this through the constant threat of wrongful arrest and imprisonment. In this way they provide a detailed account of how our relations with technologies are simultaneously material, social and symbolic, and thus context specific: a powerful reminder that western assumptions and relations around technology are themselves contingent and situated. The paper by Endrissat and Leclercq-Vandelanoitte (2021), looks at the foregrounding and backgrounding, and the voicing and silencing of technologies in co-working spaces. Ajzen and Taskin (2021) focus on flexwork, discussing how technologically mediated work can both separate and isolate people, but also provide opportunities for a re-regulation of collective work relations and community. Both papers pick up on the interrelationship between technologies and work which can distance people and bring them together, in different ways, in different times and places, bringing new insights into the entanglement of technologies, identities, embodiment and space.

Two of the papers in this SI tackle the question of the changing relationship between technologies and work directly. Klein and Watson-Manheim (2021) study the profound transformative effects of '(re)configuration work' in relation to digital innovations, with two illustrative cases: robotic surgery and online teaching. They draw on Suchman's (2007) 'human-machine' configuration perspective. Digital configuration work requires human agency, innovation and imagination in making sense of

technologies, discourse and practices. They also refer to Baptista et.al. (2020) to highlight the various levels of (re)configuration involved in the transformation of organizational practices. In both case studies, Klein and Watson-Manheim show that the reconfigurations entail new and different types of work, and that significant 'hidden work', work which is often taken for granted, is involved. In computer-mediated work, workers continuously have to improvise and 'figure out' how digital innovations are implied in their work, in particular how they are consequential for the setting of work, for 'life on the screen', for establishing common ground between all involved, and for organizational arrangements. In online teaching they observe for instance that virtual encounters have left students and staff 'not only more uncertain about mutual expectations, roles, rules, but also reveal the unreflected limitations of the mutual understanding'. This situation may be recognized by many readers, since pre-pandemic most universities and management teams had little experience with distributed work, and thus struggled with the lack of visibility of colleagues and their team (Hafermalz, 2021). Klein and Watson-Manheim (2021) make a key point when they say: 'By recognizing that a lot of figuring out remains hidden, we highlight the amount of work that is required and put into the novel arrangements. It appeals to the collective (individual, social, economic) responsibility to recognize and adequately deal with it, as hidden work will otherwise become shadow work'.

The paper by Willems and Hafermalz (2021) also looks directly at the effects of digitalisation in an online betting company, focusing on the introduction of algorithms into an automated trading platform involving the use of historical data on sporting events to calculate the odds for specific games. They suggest approaches to the introduction of algorithms (or other technologies) tend to divide between the idea that human work would be automated, involving it being deskilled or replaced, or human work would be augmented, with algorithms being complementary to and distinct from human capabilities. They argue that both these perspectives see algorithms as an 'add on' to existing work, not sufficiently considering how the introduction of algorithms into work then transforms those work practices in complex, reciprocally interactive and therefore irreversible ways. They study the work of traders in the betting organization, whose main role is to manage the odds for each sports game to ensure the company consistently makes money and reduces the risk the company is exposed to whatever the outcome of the events. Thus, traders require a combination of specialised knowledge, ability to understand and manipulate data, and connect with, respond to and shape an emerging market situation around the bets for each match. By studying closely practices at the human-algorithm interface, Willems and Hafermalz show how the work itself is reconfigured in a way which they describe as 'distributed seeing'. This is a particular (re)configuration of algorithms and human workers joining up in mutual efforts to 'see' and act in a specific domain. Thus, algorithms can be seen as performative, although not in isolation from their interactions with the material, embodied, social and epistemic assemblage they are part of.

Technology further underpins and shapes the themes we now go on to consider: changes in the relationship between organizations, work and individuals; and changes in the spatial and temporal dynamics of work.

3. Organization, work and individuals

As we have seen above, the ways in which work and organizing are evolving are riddled with paradoxes (Boell et al., 2016). On one side, it can be argued that we are effectively witnessing the 'dissolution of work (as we know it), or perhaps the erosion of the specificities of the notion of paid work as being bound by space, time, organization and employment. As we have mentioned above, in some ways work is becoming increasingly more integrated into other activities (Sundararajan, 2017; Fleming, 2017).

A different way of looking at these changes, is the view that work is not disappearing but reappearing under a different form, as if 'reinventing itself'. Therefore, while some more formal structures of work are disappearing, work is simultaneously becoming increasingly invisible as it pervades all social spaces. The fragmentation of work, the multiplication and ramification of work practices, the emergence of new forms of collaboration, and so on, are related to the changes that we see in NWW.

NWW extended beyond formal organizations and permanent employment. These involve diverse non-traditional work arrangements enabled by new digital technologies, such as sharing economy work, platform-based work, and digital nomadic work. For instance, working only digitally online freelance workers and digital nomads are location-independent knowledge workers who choose uncertain work arrangements (e.g. bidding for projects; ad hoc partnerships) in global markets, seeking flexibility, autonomy and lifestyle opportunities (Schlagwein and Jarrahi, 2020; Aroles et al., 2020). On the other hand, work arrangements mediated via on-demand labor platforms such as Uber, TaskRabbit or Amazon Mechanical Turk, are more often chosen out of necessity. While also providing new flexible work opportunities, these so-called Uberized labor-on-demand models often enact exploitative work practices, disempower and instrumentalize workers and push labor costs and risks to workers (Fleming, 2017; Glavin et al., 2020). These examples illustrate opportunities as well as critical issues and concerns arising with the diverse forms of NWW outside formal organizations.

Research on new work practices has generated a vast body of literature. While the notion of new work practices features regularly in the literature, there is a lack of consensus around its actual contours (Messenger and Gschwind, 2016), which is evidenced by the presence of various terms, such as 'non-standard work' (Ashford et al., 2007), 'alternative work arrangements' (Spreitzer et al., 2017), 'distributed work' (Harrison et al., 2004; Hafermalz, 2021), the 'new world of work' (Sewell and Taskin, 2015; Spreitzer et al., 2017) 'activity-based-working' (Hoendervanger et al., 2016; Parker, 2016), and 'new ways of working' (Mitev et al., 2021; Kingma, 2019; Brunia et al., 2016), dependent on the objectives and features under consideration.

Spreitzer et al. (2017) propose two images of the new world of work. The first image, which is highly positive, concerns the experience of highly skilled workers who can use their wide range of skills to easily navigate through the new world of work, grabbing opportunities as well as creating their own while being in demand. In this so-called war of talent, they can exert a high level of agency in shaping their professional journeys, for instance rejecting jobs and contracts they are not interested in. They can thrive in virtually any work arrangements, deciding when, where and how to work. This global elite is one of the main beneficiaries of this new world of work where aggressive forms of capitalism benefit the very few who can modulate the system to their own advantage. Alongside this image, lies a second one, which is considerably less glamorous and far removed from enthusiastic portrayals of NWW. This image, concerns the life and situation of 'low-skilled' workers for whom job security, living wages and decent working conditions are simply absent from their working deals. This new 'precariat' bears the costs of the flexibilization of the job market.

This is especially pertinent when we consider the extensive body of literature that has looked into how working conditions have changed in the context of remote work (or telework). Remote work has been praised for a variety of reasons, including how it contributes to fostering organizational agility (Campbell & McDonald, 2009), to reducing organizational costs, to enhancing flexibility and autonomy (Baruch, 2000; Golden, 2009; Tremblay and Thomsin, 2012), to enabling employees to enact their own working times and spaces (Gajendran and Harrison, 2007), to improving work morale (Wheatley, 2012). It has equally been criticized on many grounds, including the extent to which it can adversely affect knowledge sharing (Sarker et al., 2012), lead to instances of work intensification (Kelliher and

Anderson, 2010) or hinder collaboration within an organization. Contradictory results are frequently found in this literature (Boell et al., 2016).

A number of the papers in the SI address this very question of the changing relationship between individuals, the collective, work and the organization under the dynamics of NWW. Ajzen and Taskin (2021) look specifically at the effects of flexwork on the individual and especially the collective identity of employees experiencing these NWW in a Belgian insurance company. They argue that most research portrays flexwork as a trend which individualizes workers and work practices. Through researching the experiences of workers, they look at how the dynamics of flexwork are more complex than this, being neither mechanistic or one-way, but rather a relational process with other colleagues. The participants experienced elements of feeling detached and dispossessed from their previous work relations by individualizing work practices that focused on outputs and productivity, but they also participated in what the authors describe as a re-regulating of collective identity. Here Ajzen and Taskin draw inspiration from Stang-Våland and Georg (2018: 201)'s concept of 'spacing identity' which explicitly focuses on 'identity as a collective process rather than a case of the individual'. Ajzen and Taskin note that: 'Rather than sit passively while working relations and communities are deleted, most workers collectively develop alternative definitions to build and maintain them. Here lies the main characteristic of a re-regulation process: managerial techniques are appropriated and enacted by workers rather than imposed on them'. In their paper, Endrissat and Leclercq-Vandelanoitte (2021), also show how some remote workers may seek new community-based spaces of work, to compensate for the missing social aspect of organizational life and to reconstitute forms of sociality and cooperation.

The changing relationship between NWW and work/social identity also comes to the fore in Idowu and Elbanna's (2021) paper, although in a different manner. Here the stigma and threat of crowdworking in the Nigerian context means that the identity of those working in this area is very different from the typical western positive picture portrayed of autonomous micro-entrepreneurial work unshackled by the constraints of formal employment and organizational structure. Idowu and Elbanna's research shows that social affirmation was paramount, such that the crowdworkers adopted the social identities of entrepreneurs and business owners.

Aside from being approached from different (sub)disciplinary angles, the changing nature of work has been explored through many different theoretical lenses. Many conceptual approaches have been mobilized in an attempt to make sense of this new world of work such as institutional, behavioral, labor process theory, phenomenology, sociomateriality, lefebvrian or foucauldian. It is to changes in the spatial and temporal dimensions of work, and the associated attention to materiality and embodiment, that we now turn.

4. Spatial and temporal dimensions

NWW have been developing at the same time as relevant academic interest in the spatial and material relations of work and organizations (Dale and Burrell, 2008). The gathering together of work and workers in space and time was of course a novel feature of industrializing processes, which then came to be taken for granted as the norm, thus largely dropping out of focus. Studies of work and organizations concentrated on social actors, following the tendency of the social sciences generally to overlook the embodiment of those actors, and the inherently intertwined social-and-material nature of 'social' and organizational life.

As the original ideas and conceptions of NWW travelled to new contexts, beyond Western Europe, they transformed, emerging into a variety of forms in different cultural, economic and political

environments. 'Activity-Based Working' (ABW) as a key characteristic of NWW (Sivunen and Putnam, 2020; Kingma, 2019), is a term used to denote innovative designs of open-plan office spaces with dedicated sections to suit different types of work tasks – hubs for group work, individual quiet places, meeting areas and rooms, lounges, and café-style places. Enabled by increasingly powerful IT systems, ABW assumes flexibility of working within company offices and beyond, including working remotely – at home, from clients' or other locations. While the adoption of ABW has been promoted as new innovative working conditions that increase flexibility, collaboration and workers' autonomy and empowerment, growing research reveals that the key drivers in many companies are cost reduction (space reduction and related costs) and efficiency and productivity gains (Parker, 2016). Hidden in these ABW enactments are *scientific management* processes that ensure 'human and physical assets' are working ever harder (Parker, 2016; Parker and Jeacle, 2019). In these instances, the 'new' practices introduced by ABW – increased control, surveillance and micro-management – are not at all new, raising concerns for resurgence of Taylorist management principles under the guise of new ways of working.

It is worth outlining some further key features as they relate to NWW.

As mentioned above, telework was one of the first NWW to be the focus of serious attention as a distinct phenomenon. Messenger and Gschwind (2016) distinguish three stages in the evolution of the spatiality of (tele)work: the home, the mobile and the virtual office. In the case of the 'home office', professional activities are performed at home, where two discourses, those of industrial and household production, meet (Tietze and Musson, 2005). In turn, this contributes to the blurring of the boundary between work and private life (Golden and Geisler, 2007; Sayah, 2013), often leading to a tipping of the balance towards work (Gold and Mustafa, 2013). With the 'mobile office', professional activities occur in third spaces, which have typically included cafés, restaurants or trains (Oldenburg, 1989). The inclusion or repurposing of these spaces relies on the development and democratization of wireless technologies allowing for remote connections to servers, client databases and email services. Finally, in the context of the 'virtual office', work is conducted in 'intermediate spaces' (Messenger and Gschwind, 2016); these can, for instance, include elevators, parking lots or even sidewalks that can be mobilized in order to read and send emails or make phone calls. This third stage implies that any location can potentially form part of a work routine.

This development of telework has also led to an appreciation of the concept of hybrid workspaces (Halford, 2005), with workers mobilizing a multitude of workspaces in their professional endeavors (Hislop and Axtell, 2009), including organizational workplaces for employees, coworking spaces, home and other spaces 'in-between' (Kingma, 2016; Oldenburg, 1989). This hybridization also concerns the structural design of organizations with some spaces purposively mixing features of professional and leisure activities (e.g., the offices of *Google* or *Pixar*), thus fostering the gamification of organizational space (Morschheuser and Hamari, 2019). Interestingly, work seems to become increasingly more detached from spatial considerations (Felstead and Henseke, 2017), yet the development of an array of new work-oriented spaces testifies to an attempt to rematerialize work outside the formal boundaries of organizations.

The rematerialization of work outside the formal organization can be clearly seen in the development of co-working spaces (Garrett et al., 2017; Spinuzzi, 2012). Consisting of a diversity of arrangements where work space can be (usually) rented, the spaces are shared mainly by freelancers, microbusinesses and self-employed individuals. However, the other side to this view is that a paradox, or a contradiction, lies at the heart of coworking spaces: if their potential for change is very often put forward in the articulation of their ethos, they also represent the latest materialization of neoliberal economies (Vidaillet and Bousalham, 2020). The paper in the SI by Endrissat and Leclercq-

Vandelanoitte (2021), presents a grounded study of co-working spaces and participants, which we will discuss in more detail below.

Another facet of these changes concerns the daily operations of professional activities: through technologies, organizational employees and independent workers alike can be reached and contacted instantly at any time (Mazmanian et al., 2013), thus potentially suffering from the stress of the imperative of always being 'on' (Barley et al., 2011). As an illustration, whilst contract and gig workers hold significant schedule flexibility (Lehdonvirta, 2018), in practice many are not in the position to use this flexibility to their advantage (Petticca-Harris et al., 2020).

While the fact that workers can access work-related information without any spatial or temporal consideration might be hailed as a source of flexibility and organizational agility, it is also a cause of workaholism that can have many adverse effects (Sarker et al., 2012; Boell et al., 2016). Interestingly, all these trends are sometimes related to a possible process of disembodiment, individual isolation and lack of solidarity, which in turn can be counterbalanced through disconnecting from digital networks, or new practices to re-introduce collective support and solidarity (De Vaujany and Aroles, 2019).

Just as all of the papers in the SI present different angles on the relation between technologies and NWW, so too do they all offer reflections on space and time, embodiment and materiality. The papers by Idowu and Elbanna (2021) and by Ajzen and Taskin (2021) both problematize the interactions between material and cultural dimensions in the construction of NWW. The Nigerian context not only makes clear that crowdwork cannot be reduced to virtual transactions via online platforms. The negative connotations of crowdwork in Nigeria which led workers to reframe their identities as entrepreneurs and business owners, required also a re-presentation of their bodies in time and space in order to mimic the material characteristics of regular nine-to-five 'office work'. To do this they dressed as office workers, hired office space, used business cards and stationery, and adopted the typical temporal and spatial routines of 'normal' office work. In the Belgian context of newly adopted flexwork practices, involving shared offices and homebased teleworking, which individualized work relationships, Ajzen and Taskin show how their participants found ways to 're-spatialize' their collective identities, re-appropriating spaces – both material and virtual – and with this re-creating collective arenas for socialization, collaborative work and friendship.

Willems and Hafermalz (2021) also problematize the interaction between virtual and material dimensions of NWW. Although their paper shows how digital technologies are intimately involved in reconfiguring work and markets, trading cannot be reduced to the disembodied work of computers. Instead, traders' work is constituted 'in sensible (audible, visual) input and relies on forming a judgment and contextualized interpretation of computer calculations'. Willems and Hafermalz in particular analyze work practices and processes of sense making in which traders have to 'check' on the odds created by algorithms, align 'partial', sometimes contradictory views of markets, and have to manage 'breakdowns'. In their study of the technologically-augmented work of surgery and online teaching, Klein and Watson-Manheim's (2021) study of reconfiguration also brings to the fore the sensory and material aspects of 'figuring out' human-technological relations. As they note, 'configuration work is fundamentally embodied and cognitive'.

Endrissat and Leclercq-Vandelanoitte's (2021) paper particularly shows the interplay of technology, spaces and bodies in the different ways in which users of coworking spaces negotiate between boundaries and openness to others in the space. As they show, virtual and mobile work still requires the management of space and material technologies. Some workers occasionally seek sociality and a sense of belonging from the shared spaces, other workers seek to protect their spatial and temporal

boundaries in order to be productive or focused. Embodied interactions with technologies were often deployed to produce these effects: where bodies were attuned to the technologies through eyes being trained on screens and the wearing of headphones, others would understand that the individual was not available to them despite their co-presence in space and time. Conversely, disengagement from technology, by individuals or as a deliberate arrangement in the specific co-working space, was needed to achieve a sense of community and also, for some workers, this openness contributed to their creativity and productivity. These different sorts of interactions between human and materialities contributed to the dynamic production of affective relations, to 'atmosphere' and 'vibe'. In turn, workers developed practices which enabled them to transition through different places and atmospheres to match the needs of different aspects of their work.

The experiences of the last two years, where work has been reshaped in unforeseen and urgent ways in the wake of the global covid-19 pandemic, particularly brings to the fore a different realization of the precarity and embodied nature of work, as well as shining a spotlight directly onto the possibilities and constraints of NWW within this uncertain and changing context.

6. Covid-19 and the Future of Work

While this SI was in the making – papers submitted, reviewed and revised – the world plunged into Covid-19 pandemic that massively disrupted work practices, heightening attention to NWW. Remote, online, mobile and specifically home working became the only options for many organizations and their employees. With Covid-19 prevention policies, especially the notorious lockdowns, the spatiotemporal aspects of work practices were radically and suddenly transformed, enabled by the technological advances and achievements of NWW. When organizations around the world switched to virtual working in response to snap lockdowns, forcing home working upon their workers, the transition went comparably smooth. Such a radical transition would not have been as fast or even conceivable without the advanced modes of virtual working offered by for instance internet platforms such as Zoom, Skype or Microsoft Teams. Moreover, organizations relied on the individual and collective experiences with online, remote and mobile working as well as emerging understanding of various forms of NWW integrated and accepted in many organizational fields of work. In this sense NWW have helped many to successfully cope with the Covid-19 crisis.

More than that, the Covid-19 pandemic significantly accelerated the adoption of virtual forms of working and organizing, leading to ongoing transformation of work practices across many sectors, not only IT, banking and finance. Beyond the most visible relocation of work from corporate offices to employees' homes, companies reconfigured and automated their operations and work processes at a much faster rate than before. For example, companies adopted higher percentage of digital interactions with customers; reconfigured supply-chains to absorb higher risks; and improved data management and security (Laberge et al., 2020). As Satya Nadella, the CEO of Microsoft, put it succinctly in April 2020: 'we've seen two years' worth of digital transformation in two months. From remote teamwork and learning, to sales and customer service, to critical cloud infrastructure and security'[iii]. A little less than two years of the pandemic have brought the forecasted future of NWW forward, exemplifying 'the age of acceleration' (Friedman, 2016).

Since the beginning of the Covid-19 pandemic NWW has been propelled by enhanced digitization and automation, based on wide adoption of AI, machine learning, data analytics and robotics. These technologies have accelerated transformation of work practices (Nigel, 2020) enabling organizations to extend the innovative domain of NWW. These trends have already raised concerns about the nature and implications of the 'new' ways of working and the future of work. Whether working in a front line as essential workers or working from home, workers experienced intensification of work

and increased levels of control and surveillance. While these trends have been already observed before the pandemic (Kelliher and Anderson, 2010; Edwards and Ramizrez, 2016) their acceleration during the pandemic and the emerging workers' responses raise serious questions about the future of work.

During the pandemic many essential workers in retail, healthcare, emergency services, food production and distribution, or various call centres, continued to operate in physical workplaces. Increased digitization and automation of these workplaces resulted in intensification of work and increased electronic control and monitoring (Taylor, 2020; Hoddar, 2020). For instance, as online retailers faced exponential increase in sales, workers were subjected to higher control and electronic surveillance in a push for higher productivity (e.g. Sainato, 2020). Unprecedented demand on many services and organizations during the pandemic forced companies to accelerate work processes through digitization, automation and robotization. Workers subjected to such 'new' ways of working are experiencing detrimental working conditions, intensified work, tighter monitoring and control, and job insecurity (Satariano, 2020; Hoddar, 2020).

On the other hand, all non-essential workers, in banking, consulting, IT and many more, were overnight forced to an almost global experiment in homeworking and online working, which in various countries has been monitored by government agencies. For instance in the Netherlands it became clear, perhaps not unexpected but unambiguously, that in 2020 the number of people working at home doubled from 3.6 million to 6.5 million workers (Jongen et al., 2021). Whereas from the homeworkers only 6 percent used to work almost completely from home in 2019, almost all homeworkers worked completely from home during the lockdowns.

The alleged advantages of home working include increased efficiency because of a decrease in commuting time, a better focus on work (less interruptions), and an improved work-life balance, which may all lead to work satisfaction, less absenteeism (!) and employee retention (Waizenegger et al., 2020). On the downside, homeworking is also associated with intensification of work, due to increased pressures of presentism and an 'always on mentality', social and emotional isolation, more work in evening hours and during weekends, and a decrease in work and organizational commitment, all dependent on personal circumstances such as age, nature of work, gender, household etc. Therefore, in order to overcome the contradictions, many prefer and predict a hybrid future with new standards in which paid work at the office is combined with two or three days a week working at a different location.

While we can see many pre-existing trends, NWW a la Covid-19 accelerated digital transformation and amplified management practices that helped coping with the crisis but also led to intensification of work, longer work hours, tightening of managerial control and increasing electronic surveillance. The march of the brave new ways of working toward higher efficiency and productivity levels seems to be unstoppable. Or is it?

Employees across the world and across industries are leaving their jobs, what has been dubbed the 'great resignation'. In the US more than 19 million workers left their jobs in five months (April-Sept 2021) (De Smet et al., 2021). Forty percent of the employees according to McKinsey survey in five countries (Australia, Canada, Singapore, the United Kingdom, and the United States) are considering quitting their jobs in the next three to six months irrespective of having another job lined up. Work experiences during the pandemic, whether from homeworking or from working in reconfigured and time-pressured jobs in healthcare, retail, production or distribution, prompted many to reflect on their work and life, the meaning of work and what is important for them. Some workers started their own businesses or embarked on searching for a different job. Some are joining the digital nomads'

movement, pursuing a lifestyle of work and perpetual travel. Stories in the media testify to workers' search for meaningful work, work-life balance, self-realization, autonomy and personal development. Many are seeking to find jobs in which they feel valued and respected. While options vary depending on profession and skills, family obligations and the means to create new businesses, it seems that the great resignation is not limited to a professional elite (Norman, 2021).

As workers are quitting, companies are facing significant labour shortages that are predicted to get worse in the future especially in developed countries (De Smet et al., 2021). The current work practices and ever more advanced NWW seem to have disenfranchised and alienated many workers beyond the critical point. The future of work designed to be even more efficient and productive, with greater digitization, automation and robotization, maybe disregarded 'only' one element – the workforce. The great resignation suggests that the workforce is waking up to the prospect of NWW with Tayloristic tendencies in the post-Covid era. Are these the signs that the workers are voting with their feet while opting for the future of work towards 'Workers autonomy paradigm' and away from 'Digital Taylorism paradigm'— the two extremes on a spectrum of possible future scenarios proposed by Wang and colleagues (2020)?

As ideal-typical future scenarios, the two extremes delineate a wide range of possible and plausible futures of work and NWW. 'In the first future vision – authors propose – the Digital Taylorism paradigm brings with it a cyborgized nature of knowledge work in which digital technology decomposes, measures, and optimizes work toward maximum efficiency. In the second future vision, the Worker Autonomy paradigm empowers knowmad workers that engage in fluid work arrangements and take charge of technology, their education, and their life trajectories in a democratized workplace that supports workers creativity' (Wang et al., 2020: 1392) (see also Zuboff, 2019). While the original development and ideology of NWW in the 1990s has promoted empowerment and democratization of workplaces tending towards the Autonomy paradigm, the recent developments of NWW are paradoxical – as this SI shows in many ways – and may trigger contradictory responses. NWW creates winners and losers, and the latest developments of NWW seem to lean towards Digital Taylorism. The great resignation might sow the seeds of a different future of NWW.

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[ii] Hannes Meyer was the second director of the prominent Bauhaus school of architecture in Weimar, Germany (operated from 1919 to 1933 in three cities). Combining crafts and fine arts while using new materials, inventions and scientific principles, the Bauhaus movement became famous primarily for the design of the modern house, furniture and housing equipment. In a subsequent short essay, titled 'Building', Meyer Meyer H. (1965 [1928]) Building [Translated from German by D.Q. Stephenson]. In: SChnaidt C (ed) *Hannes Meyer: Building, projects and writings.* Teufen AR/Schweiz: Arthur Niggli Ltd., 3. specified the modern requirements and principles for housing design, including the necessity that modern designs to be 'determined by life' and the 'function' of housing consequently to predominate form. Meyer was keen not to reduce building to technical processes. Instead, he argued that 'the function diagram and economic program are the main guiding principles in the building scheme and explicitly used the notion of 'organizing' to address this modern concern with building. For Meyer building is 'the deliberate organization of the processes of life'. Even more pertinent: 'building is only organization: social, technical, economic, psychological organization'. Indeed, the 'new world of forms' is, according to Meyer, based on 'pure construction', i.e. organization.

[iii] Jared Spataro, "2 years of digital transformation in 2 months," Microsoft, April 30, 2020, microsoft.com.