

## **The Digital Transformation of Work: A relational View**

Carlos Rodriguez-Lluesma  
Full Professor  
Department of People Management  
IESE Business School – University of Navarra  
Camino del Cerro del Aguila, 3. Madrid 28034. Spain  
+34912113000  
[clluesma@iese.edu](mailto:clluesma@iese.edu)

Pablo García-Ruiz  
Associate Professor  
Department of Sociology  
Universidad de Zaragoza  
Gran Vía, 2. Zaragoza 50005. Spain  
+34976761999  
[pgruiz@unizar.es](mailto:pgruiz@unizar.es)

Javier Pinto-Garay  
Assistant Professor  
School of Business and Economics  
Universidad de los Andes  
Mons. Alvaro del Portillo 12455  
Santiago de Chile  
+5622618 1000  
[jpinto@uandes.cl](mailto:jpinto@uandes.cl)

## *ABSTRACT*

Conversation about the current and potential effects of digital technologies on the nature of work is raging within scholarly and practitioner communities. Artificial intelligence, robotics, data analytics, digital platforms and automation, among other technologies, are prompting a swift and profound transformation of work. Building on Pierpaolo Donati's relational sociology, we examine the changes these technologies are likely to bring about in work as a human relation. Despite the very real threats of unemployment, job insecurity, precariousness and surveillance, technology may also encourage the emergence of a work culture that shifts the scales toward a relational realm rather than a transactional one. To this end, we argue that work should be understood as a social relation with four dimensions: exchange value, intrinsic extra-economic purpose, communication for reciprocal services, and correspondence with primary human needs according to use values. Understanding the digital transformation of work from this point of view requires comprehending the differentiation and integration of these four dimensions.

*Social relations are closely bound up with productive forces. In acquiring new productive forces, men change their mode of production; and in changing their mode of production (...) they change social relations. The hand-mill gives you society with feudal lord; the steam-mill [gives you] society with the industrial capitalist (Karl Marx, The Poverty of Sociology, chapter II).*

## **Introduction**

Proponents of the ideas of existence (Heidegger, 1993), eccentricity (Plessner, 1975), mind (Mead, 1934) and transcendence (Maslow, 1971; see also Frankl, 1959; Lips-Wiersma, 2002) claimed, albeit in different ways, that humans are subjects because they can look at themselves from the outside and, consequently, are constitutively relational. As a characteristic human activity, work is also inherently relational and contributes to human flourishing “when individuals can subordinate themselves to groups, experiences or entities that transcend the self” (Rosso et al., 2010, p. 112). Said relationality is so important that, when unduly curtailed, work becomes alienating (Heidegger, 1993; Marx, 1932/2009).

However, despite a rapidly growing *corpus* of research on the changing nature of work (see Bailey et al., 2019), a sufficient understanding of the transformation that emergent technologies currently propel – a regime to which some authors refer as the “Fourth Industrial Revolution” (4IR) (Schwab, 2016; see also Lasi, 2014; Wilkesmann & Wilkesmann, 2018) – still seems to elude us. Unprecedented amounts of data, increasingly autonomous technologies and a higher speed of technological diffusion are ushering in exponential changes. Artificial intelligence (Agrawal, Gans & Goldfarb, 2018; Faraj et al, 2018; von Krogh, 2018), robotics (Beane, 2018), data analytics (Lazer

& Radford, 2017), digital platforms (Hall & Krueger, 2017) and automation (Brougham & Haar, 2018; Hodgson, 2016), among other technologies, are prompting a swift and profound transformation of work. Some authors have studied our fear of technological unemployment (Ford, 2015; Kaplan, 2015) and the attendant polarization of the labor market, with numerous workers at the bottom and the top of the skilled continuum, and fewer jobs in between (Acemoglu & Autor, 2011). Others have explored the shift toward more transient and non-linear careers (Inkson, Gunz, Ganesh, & Roper, 2012), a phenomenon associated with the increasing prevalence of precarious work (De Stefano, 2016). A third group of researchers has focused on the labor consequences of platform-based business models and, in general, the gig economy. A debate has arisen regarding whether those actually rendering a given service are employees or independent contractors, with rights and benefits like minimum wage, full unemployment insurance and severance pay on the line.

Yet another hotly debated topic involves the increasing levels of control and surveillance that ubiquitous, continuous data analytics afford (Ajunwa et al., 2017; Levy, 2015; Zuboff, 2019), in addition to competition among workers, often through gamification (Deterding et al., 2011; Espeland & Stevens, 2008). Taken as a whole, these studies tend to laud the efficiency that smart technologies bring about, but also decry their possible effects on both work and the job market, noting that digitalization generates new relational forms not only between workers and machines but also among producers, distributors and consumers.

In this paper, we contribute to the literature on the nature and meaning of work by advancing the concept of “relational work” and signaling its emergence as a consequence of digitalization. Our argumentation proceeds as follows. Building on relational sociology (Donati, 1991; 2011; Donati and Archer, 2015), we first examine what social relations

(and, consequently, work as a particular type thereof) are “made of,” that is, their structural, symbolic and agentic dimensions. Second, to contextualize our discussion of work as a social relation, we briefly sketch its most basic features across the four industrial revolutions, concluding that, despite such well-documented threats as mass unemployment and deskilling, other resulting configurations are possible. The following section explains how the structural, cultural and agentic dimensions of work interact in a non-deterministic way, opening up configurations of work that may not be defined *ex ante*, but only empirically. We then focus on the agentic side of the transformation of work as illustrated by the increasing importance of talent and the rise of autonomous work. Finally, we spell out our theoretical contribution by (a) pinpointing the specificity of work vis-à-vis other social relations, and (b) detailing its four specific meanings. We finish by offering our conclusions and suggesting further research opportunities.

### **Technology and work as a social relation**

Technology enables and constrains agency (DeSanctis & Poole, 1994) along with social relations. Most conspicuously, Marx claimed that certain technologies determine the social order, normally to reproduce the dominant-dominated dialectic (Alexos, 1976; Israel, 1979; Schwalbe, 1986). As a consequence, workers become alienated (i.e., estranged) from the product of their work (powerless over what becomes of it), from productive activity (feeling out of touch with their lives by losing connection to the work process), from their species being (the characteristically human creative capacity), and, finally, from other human beings because capitalism induces them to act as competitors, not cooperators. For Heidegger, technology’s alienating power is also traceable to conditions of modernity associated with industrial capitalism. Specifically, Heidegger claimed that the essence of modern technology reduces both nature and human beings to a “standing reserve” by ordering everything “to stand by, to be immediately on hand,

indeed to stand there just so that it may be on call for a further ordering” (Heidegger, 1993: 322). Hence, these two authors agree that technology alienates agents by objectifying them and, as a consequence, depriving them of social relations.

Though advancements in technology increase the risk of alienation, they may also play a crucial role in enabling relationality. Technological innovations across different historical stages have helped overcome existing limitations to human transformational activity, be it labor, work or action (Arendt, 1958). Such technologies as the steam engine, home appliances, the car and artificial intelligence have freed up time once spent on repetitive toil, and allowed for greater devotion to family life, leisure or productive work. Technology-induced jolts of self-awareness can also open up the door to questioning old categories of experience, thereby creating a window of opportunity for seeking insights into the nature and character of the working experience (Zuboff, 1989). Data availability and transparency may also open up opportunities for firms to engage in deeper dialogue with their stakeholders (Schultz & Seele, 2020). In other words, technological shifts constitute an occasion to re-question the meaning of work and its connection with the phenomenon of relationality (Gibbs, 2008), a phenomenon worth exploring.

Relational social theory as proposed by Donati (1991; 2011) aptly fits our research purpose. Based on a critical realist epistemology, relational sociology claims that a social relation is a meaningful bond between agents that emerges as a consequence of specific courses of their reciprocal actions. Examples include kinship, friendship, and being colleagues or neighbors. Each relation is distinctive since it entails specific goals, appropriate means, expected patterns of behavior and legitimating values. These are the four basic elements of every social relation.

Once emerged, a social relation conditions future interactions among the linked agents, and between those agents and other people. Agents may be more or less aware of

the relations that link them to other people and of how those relations condition (enable and constrain) their projects and courses of action. This awareness triggers “relational reflexivity” (Donati and Archer, 2015): the more conscious people are about their social relations, the more they can act upon them.

Detaching itself from both methodological individualism and structuralism, Donati’s theory defines social relations as a combination of symbolic and structural components. First, a relation is a symbolic reference (*à la Weber*), because it refers to cultural meanings. To illustrate, this dimension tends to be specially marked for archetypical vocational occupations (e.g., doctor, teacher), and for those seeking a job for the first time; indeed, the latter’s quest may well also be a search for existential meaning given the commitment to a line of work that a decision of this sort early in life likely entails (Terkel, 1974). Second, a relation is a bond (*à la Durkheim*), a “pipe” (Podolny, 2001) that channels resources and connects agents in a system of rules, reciprocal expectations and common interactive patterns. The interaction between these two dimensions (symbolic and structural) induces an emergent effect of exchange (*à la Simmel*) which constitutes the relation.

This emergent effect refers to the specific social context in which the interactions take place, but is a phenomenon with its own qualities and causal powers (Archer, 2000; Gulati, 2007). De Rivera’s (1992) concept of “emotional climate” is a good illustration of this third dimension. An emotional climate arises out of the actors’ experience of their environment, and even more so on their perception of what others think and feel about the situation. These perceptions then feed into one’s perception of the environment, moderating or enhancing one’s reaction. In other words, emotions’ tinting of perception is reciprocally and collectively gathered into an assessment of the situation that then works its way back onto agents. A social relation entails the agents’ subjective

understanding of the objective conditions in which their reciprocal action takes place. In time, this understanding may evolve, triggering innovative courses of action. As a result, relations also evolve when they embody the objective consequences of change. In turn, objective conditions also influence agents' intentions. Both dimensions affect each other throughout the successive stages of a relation.

To analyze this mutual influence in detail, we may break down symbolic and structural components further into four fundamental dimensions synthesized with the acronym AGIL (Donati, 1991). A (*adaptation*) points to the means or resources involved in the relation; G (*goal-attainment*) refers to situational ends or goals; I (*integration*) indicates the norms regulating the actions or operations within the relation; and, finally, L (*latency*) refers to the assessment criteria characterizing the relation. The L-G axis constitutes the referential or symbolic dimension of the social relation, its sense in terms of meaning (L) and directionality (G). The A-I axis may be read as the structural or bonding dimension of the social relation, that is, its adaptive capacity based on available resources (A) whose use is regulated by norms (I) pertaining to the relation or system under study. The changes in social relations stemming from any of these dimensions will affect the other ones. For example, a change in available technological resources will induce changes in other areas, such as to which goals to aspire to, which norms should regulate the use of new resources, which interpretation of the situation legitimates the new state of affairs, and so on. In turn, these changes in goals, norms and values also will influence the evolution of those available technological resources. AGIL helps in understanding that the origin and direction of social changes are not determined beforehand, and may only be established empirically. Applied to work, A refers to material conditions (resources and technical means); G to the set of situational objectives that the agents pursue; I to the contractual and informal norms of work; and L to the



meaning of that work in reference to its ultimate value. Figure 1 shows the basic elements of work as a social relation and their reciprocal interaction.

-----  
Insert figure 1 here  
-----

This relational approach seems useful for studying the digitalization of work because it allows tracing any social change from its origin in one of the four dimensions through its reverberations in one or several of the others. Observing the digital transformation of work through a relational lens helps us understand the changes that technology (located in part A of the AGIL acronym) has induced in the other social dimensions. To understand the ongoing digital transformation of work, the next section will briefly and purposefully characterize key aspects of the current work system and how it shapes “relational work”, i.e. a kind of work in which reflexive agents become more aware of the emerging relational configuration and act upon it to advance their courses of action.

### **The Changing Nature of Work**

The invention of the steam engine led to radical changes in the organization of work during the nineteenth century. Increased operational power and an augmented scale of operations led the factory to replace the putting-out system – a form of production distributed across private homes in which craftsmen, apprentices and family members produced for merchants – as the main mode of production. The latter, a market-like organization based on implicit commercial agreements, was largely substituted by relationships based on labor contracts and hierarchical monitoring of the process of production (Langlois, 2003; Kapás, 2005). The need for an increased scale of production

due to new technology (Leijonhufvud, 1986) and for more complex, specialized knowledge (Mokyr, 1990) led to a time-, rather than task-oriented (Thompson, 1967), division of labor. The first generation of factory workers was subjected to the clock and, as a consequence, to a renewed appreciation for discipline and wage incentives. Rationalization in the organizational realm meant behavioral methodization, mass production and an increased division of labor enabled by the concentration of the rural workforce in urban-based factories. The rise in productivity did not flow so much from the skilled professional, but rather from a new division of labor, which led to the higher risk of alienation expressed in Adam Smith's (1776) example of the pin factory, and later echoed by Marx (1932/2009) and Durkheim (1982).

Taylorism and Fordism deepened these tendencies in the 20th century. Taylorism's predominant focus on efficiency – with time and motion studies, individual records tracking and incentive payments – equipped engineers with an ideology bent on dominating civilization and propelling the progress of the world (Shenhav, 1995, p. 558). Taylor (1911) advocated for increased productivity through the centralization of knowledge and the standardization of tasks. Workers were directed to perform his/her tasks following strict and centralized procedures. Taylorism pervasively promotes the elimination of all elements surrounding individual judgment, with a concomitant overvaluation of scientific laws and replicable techniques. Its goal is always to ascertain the “one best way” applicable to work processes reconceived in terms of temporal machines, and to workers understood exclusively as instruments used in these machines.

Fordism (Gramsci, 1971) furthered the replacement of a mainly craft-based system in which skilled workers controlled their work conditions towards a mechanized, sequential division of labor reliant on assembly lines to maximize the flow of production. The need for skilled executors of tasks meticulously specified by management led many

workers to dislike their jobs because of the mechanical pacing, repetitive cycling and low level of skill required (Walker & Guest, 1952). Taylorism's demand for the restriction of practical knowledge had a profound impact on the way work is ultimately experienced. The dehumanization of work proved to be a vicious problem (Chinoy, 1955; Walker & Guest, 1952). Introducing line production technology obscured work as a human relation (Blauner, 1964; Chinoy, 1955).

The digital transformation of work that began in the late 1960s relied on increased electronic interconnection. Semiconductors, computing and the internet allowed for the reticular connections of workers, production sites and consumers across time and space, thus relaxing the essential elements of the heavily standardized industrial work system, namely the labor contract, the worksite and working hours (Beck, 1992). The de-standardization of work conditions has allowed for the consistent erosion of full-time employment and a surge in precarious, contingent working profiles assembled by workers in constant need of reinvention (Beck, 2014).

This trend has deepened and accelerated due to the exponential effects of mobility and hyper-connectivity, big data, artificial intelligence and infrastructures like blockchain and cloud computing (Brynjolfsson & McAfee, 2014; Schwab, 2016). These technologies have allowed for the emergence of new business models, whose effects on the standardization of work have proven disparaging (Cherry, 2015). Crowdwork, for example, aims at improving efficiency by breaking tasks down to a very micro level – even down to several-second bits – and deploying algorithms to assign tasks and control contractors' performance without the job security provided by the industrial regime. Unfettered, crowd work – and, in general, jobs in the gig or on-demand economy – may engender a “race to the bottom of deskilling of work and lowered wages” (Cherry, 2015: 27).

Mass unemployment, if realized, would disturb society in more profound ways than de-standardization. Some scholars argue that the connection of devices along the value chain, and artificial intelligence-enabled decision-making systems – a regime known as “The Internet of Things” or “Industry 4.0” – may lead to “a deserted shop floor as humans have become superfluous” (Wilkesmann & Wilkesmann, 2018: 250). The rise of AI and robotics would threaten not only blue-collar, but also white-collar jobs such as auditing, paralegal, and some medical specializations despite the non-codifiability usually attributed to their required skill sets (Frankish & Ramsey, 2014; Müller, 2016; Remus & Levy, 2017; West, 2018). Other scholars (e.g., DeCanio, 2016; Fleming, 2019) predict that robots are likely to drive wages down, particularly in the manufacturing sector. Acemoglu and Restrepo (2019) paint a slightly brighter picture, arguing that automation has a mixed effect on labor by both displacing and reinstating it. Many others, however, warn that these processes’ current development and our understanding thereof are still too elementary to draw a clear picture (Agrawal, Gans & Goldfarb, 2018, 2019; Frank et al., 2019; Furman & Seamans, 2019).

Together with the risks described above, however, the impact of smart technologies may also offer opportunities for work to become more expressive, flexible and autonomous, less instrumental, and more valued for its quality than for its quantity. In the next section, we explore some effects of this kind that emergent technologies have brought about in the structural, cultural and agentic dimensions of work as a relation.

### **Structure, culture and agency in the configuration of work**

Driven by digitalization, changing social and business contexts are rapidly giving rise to contrasting work paradigms. New organizing structures, mediated by interactions between social actors, significantly modify the meaning and functions of work. Three

principal processes are at play (Donati, 2017, pp. 60-75). The first one, in line with the structural dimension of the work relation (corresponding to material conditions and exchange rules. See Figure 1), is the end of the Taylorist-Fordist division of labor. The second one, in line with the cultural or symbolic dimension of the work relation (i.e. its reflexive meaning and situational objectives. See Figure 1), corresponds to the decline of cultural metaphors that previously upheld industrial labor. Finally, a transformation is also underway with the rise of new subjectivities of work. We may therefore speak of a triple morphogenesis – that is, transformation – of work in the digital society. First, there is a structural morphogenesis, that is, the appearance of new forms of work organization; second, a cultural morphogenesis, the configuration of new models of understanding and interpreting work as a human activity; and third, a morphogenesis of agency, which implies the emergence of new subjectivities at work. In what follows, we will examine this three-pronged process in detail.

To begin, the structural morphogenesis of the work system – the social division of labor in Marxian terminology – and of society – the social division of labor in Durkheimian terminology – has taken place as depicted in Figure 2.

-----  
*Insert Figure 2 here*  
-----

The initial situation (T1) is an economic structure, both at the micro (firm) and macro (social) levels, based on Taylorist/Fordist organization. The friction phase (T2-T3) is constituted through interactions between organizational roles and systems, which appear as a consequence of innovations driven by an information- and knowledge-based economy. In the next phase (T4), new work roles and structural forms become visible,

followed by new professions, business models and organizations, which assume increasingly less hierarchical, dependent, specialized and rigid configurations. They instead manifest in increasingly flexible, collaborative, autonomous and adaptive ways.

Cultural modifications follow an analogous process. Starting at (T1), a general cultural system inspired by a machine metaphor (Shenhav, 1995) progresses in the transformation phase (T2-T3) – through interactions with new cultural models inspired by non-mechanical values, metaphors and representations, which use a less instrumental and more expressive symbolic language – toward a resulting system (T4), in which new meanings of work are established (as a bearer and solver of subjective necessities) along with new ways of constructing professional identities (more fragmented and autonomous). The differentiation of work increases to the tune of its generalization; the generic term “work” comes to include both “employment” and “occupation,” understood as a professional activity.

Finally, the subjects of work are not isolated from these mutations. In this context, and through their free but conditioned actions, agents may create new, more participative and competitive relations. Agents become less bound to the organization, more autonomous, interactive and oriented toward work and life quality. In our information and service economy, a peculiar “subjectivity of work” emerges in the sense that work becomes the protagonist of a society of producers and consumers with greater demands for self-realization and impact on economic processes, rather than of a salaried, passive society. These changes rest on configuring work to obtain qualitatively better products in many significant aspects, both for workers and for those consuming the results of that work.

As a consequence of this three-pronged morphogenesis, novel forms of organizing business are now emerging and incorporating different power relations, diversified

professional expectations and a growing individualization of labor relations. Reasonably documenting these transformations is well beyond the scope of this paper. In the next two sections, however, we illustrate two changes at the agentic level – the increasing importance of talent and of autonomous work – to provide an overview of their reach.

### **Individualized organizations: The power of talent**

The demand for flexibility in all productive industries has driven the transformation of large matrix- or division-style organizations into networks of temporary teams whose existence is limited to the project for which they have been assembled.

Project-based work is gaining legitimacy among not only occupations as gaffer or consultant, but also among other jobs traditionally considered continuous and formalized in long-term or permanent job contracts. The digital economy's labor model is similar to that of the cinema industry, subsequently extended to sporting groups, the arts and other creative sectors (Slavich & Svejenova, 2016). Each project (e.g., a film, a season) requires hiring the most suitable team based on its members' personal and relational abilities. Once the movie premieres or the season ends, outcomes are evaluated and the team is essentially disbanded and renewed; while some maintain continuity from project to project, many are substituted. The advantage of this model is flexibility in terms of cost, as well as in terms of the abilities and competencies available for the competitive tasks at hand. This flexibility also allows for agile responses in the face of environmental changes or potentially disruptive innovations.

Both the knowledge and innovation economy make talented people especially important for businesses. Many projects revolve around one person's special talents (Susskind & Susskind, 2015). This is true for soccer teams whose matches typically revolve around one star, as well as for radio or television networks whose audience depends on a popular anchor. These workers enjoy a high level of negotiating power and

can make decisions both on tasks and on team composition. The more an organization's success depends on its star collaborators' talent, the greater the polarization of the professional structure and the asymmetry of power relations between people with in-demand talent and people without it. Those with high-value talent negotiate better salaries and conditions, but on the condition that they continually achieve results. The pressure for short-term results that has always been present in football, basketball, the movies, radio or theater has been transferred to ad agencies, software programming, strategic consulting, online marketing and robotics engineering, to name just a few examples.

Companies design their hiring and dismissal processes to ensure that they have the right talent at the right time. However, talent is expensive. Consequently, companies seek ways to use it efficiently, minimizing costs and the risk of failure. Digitalization allows companies to match labor costs and the value of tasks evenly and efficiently. For this reason, some professions are segmenting into separate pieces, giving rise to new professionals who take care of piecework and tasks that add less value (McAfee & Brynjolfsson, 2017). For example, some specialist doctors have started assigning certain tasks to qualified nurses, thereby freeing themselves to focus on highly complex tasks. Major corporate human resources departments are being segmented into smaller, more specialized departments constituted by tasks such as recruitment and hiring, compensation or evaluation. The number of generalists among personnel policy professionals is decreasing, and specialists with a single function, who supposedly work more efficiently, are on the rise. In this way, less important or strategic functions can be outsourced.

Organizations are configured as smaller, more specialized networks with autonomous workers who contribute their singular talent (Gee, 2018). Members of these networks tend to be bound by horizontal and collaborative relationships rather than



hierarchical ones. Some businesses are organized as centerless networks whose projects emerge based on their employees' individual and collective initiative. Subsequently, more or less self-managed teams emerge, committing resources and justifying their use with tangible results within a reasonable timeframe. In this way, we can speak of organizations without directors that function not as hierarchies, but as "internal markets" (Malone, 2004). W.L. Gore (the creator of Gore-Tex) and Valve (videogames) present interesting experiences in this regard. Certainly, this type of structure needs a specific mindset and motivation, along with an enormous capacity for flexibility and creativity, which may not be possible in other businesses where employees prefer to continue working under a hierarchy with fixed decision-making channels.

The division of labor in a digital society is not preponderantly polarized between owners and wage laborers (as was the case during the first Industrial Revolution), or stratified between white- and blue-collar workers (as was the case for the first mega-corporations). Rather, it acquires a reticular grid form composed of interdependencies between labor roles that are relatively more autonomous and, simultaneously, more interconnected than in the past. Thus, a vast network full of highly decentralized communications and transactions develops.

Alongside this new division of labor, a generational mindset clash occurs (Hines, 2011). Since talent replaces hierarchy as a source of organizational legitimacy, the younger generation challenges other groups' qualifications to make decisions and hold responsibilities. The younger generation expects and aspires to have an impact via significant work and, simultaneously, to make their professional and personal lives compatible (Taylor & Luckman, 2018). Salary is no longer the main (or sole) reason to work hard. For many millennials, the goal is, rather, to have enough money to lead their preferred lifestyle. This value shift directs greater attention to having an "interesting and

meaningful” job and working with interesting and attractive people. Their professional projects are more oriented towards intrinsic motivation rather than extrinsic factors such as remuneration.

### **Autonomous work: Opportunities, risks, inequalities**

The digital economy values expertise. However, companies have decreasing incentives to invest in specialized employee training (McAfee & Brynjolfsson, 2017). For one thing, high rates of product and process change entail the significant risk that any training may quickly become obsolete. Additionally, talented professionals have higher rates of organizational mobility, and companies thus face the possibility of losing their training investment. Current conditions encourage companies to perceive employee relations as based on a contingent, short-term, results-based link that every employee must continually justify to maintain their position in the organization.

The freelance economy has flourished in the digital society. Labor markets employ communication technologies to establish new contact channels and work practices among both job suppliers and job seekers. Digital marketplaces for independent workers, such as Upwork, Freelancer, oDesk and TaskRabbit, are multiplying, along with many others that contribute to global labor markets for digital jobs with wide-ranging degrees of specialization. The impact these online platforms have on workers' professional lives and employment is ambiguous. Platforms charge a fixed fee for access to work opportunities that are (mostly) low-paying and low-skilled and that offer no continuity or prospects for a professional career. However, many participants seek precisely this type of work because it allows them to control their time, personal investment and the specific tasks they wish to carry out.

Among other functions, digital platforms grant freelance workers the ability to access interesting projects, offering opportunities for recognition and the development of

a certain professional identity. This is one reason explaining participation in crowdsourcing initiatives. We can define crowdsourcing as an online call for a crowd of strangers to complete a task voluntarily, using their knowledge and resources (Estellés & González, 2012; Howe, 2006). Organizations use crowdsourcing for activities as diverse as brainstorming, financing, producing new products, evaluating, discussing and selecting solutions or predicting scenarios, among others. In response to this call, anonymous people donate their labor, ideas and time with no guaranteed compensation in exchange. To foment participation, some companies offer a little payment. However, when crowdsourcing participation is established as a mere platform for effective transactions, it often becomes insufficient and, frequently, problematic. In terms of mere economic exchange, crowdsourcing can easily become “the new cheap labor pool” (Howe, 2006: 2), only seeking participation from those in need or who lack better alternatives. However, a crowd's motivations and expectations for reciprocity are not only or always economic in nature.

The most successful crowdsourcing initiatives are those that, beyond enabling some type of transaction, achieve long-term relations with, and between, participants (Prpić et al., 2015). Examples include business wiki technologies, such as Wikipedia or the Linux Project, and online citizen participation platforms for social projects and policies. These relations include exchange beyond mere transactions. *MindSumo*, for example, is an online problem-solving platform created by participants in the Stanford Student Startup Accelerator. It positions itself as a student-centered open network, a kind of online innovation hub that offers mini-internships (Fedorenko et al., 2017). Companies submit problems they are facing and students generate solutions. Implemented solutions result in cash rewards. However, beyond the monetary incentive, *MindSumo* leverages temporal events that are important to students. For example, it links problems and

challenges to courses the students may be enrolled in, as well as to their intended professional careers. Hiring managers consistently rank problem-solving, communication and creative thinking as the top skills that they look for in hiring new college graduates. MindSumo's main goal is to contribute to students' professional skill development and networking for them to gain more experience. At the same time, MindSumo also provides companies with short-term solutions and access to a future talent pool.

In sum, the digital transformation of work presents the distinct possibility of a progressively clearer manifestation of work as a relational nexus, that is, as a significant link that unites producers, distributors and recipients of goods and services (Donati, 2017). Work is becoming increasingly autonomous, which comes with both positive and negative aspects, as well as with attending opportunities and risks. Work presents growing opportunities to become more creative and less dependent, more flexible and less rigid, more expressive and less instrumental, more valued in terms of quality over quantity. Simultaneously, greater risks associated with insecurity and precariousness grow because of these new types of labor relations.

The next section returns to theoretical considerations to argue that we should understand work as a social relation with four dimensions: exchange value, intrinsic extra-economic purpose, communication for reciprocal services, and correspondence with primary human needs according to use values. Understanding the digital transformation of work from this point of view requires comprehending the differentiation and integration of these four dimensions.

### **Redefining the meaning of work as a relation**

A relational theory of society invites us to observe work as a reality whose subject is no longer an individual that belongs to an abstract category, but rather a person who participates in social exchange networks (Donati, 2002). From this perspective, we may

define “relational work” as (i) an interpersonal activity directed toward a socially useful purpose, and as (ii) a task performed to obtain life resources, which the worker may then redistribute to other people. This definition may appear obvious, but there is more to it than meets the eye.

Some scholars deny implicitly or explicitly the intentional nature of work, and instead merely see it as a functional performance, pre-established by the production system, where human beings increasingly become an appendage of or accessory to technology (Floridi, 2015). On the other hand, other authors recognize the targeted nature of work, but by exclusively defining its purpose in terms of instrumental compensation (e.g., money and prestige), they adopt a purely utilitarian perspective. The empirical observation that many people only think of their jobs in terms of their utility does not negate the relational definition of work. This becomes clear when observing that the effects of unemployment go beyond the economic realm and resources, and are often experienced as an interruption of social life.

What distinguishes work and grants it a meaning that is separate from other human relations is the fact that obtaining life-critical resources depends on work itself, both for the worker and for the people who receive the product of that work. Modern society only focuses on the connection between work activities and the resources obtained through market relations, where these activities are regulated by the political system and channeled through collective organizations, such as guilds and unions. The novelty in the digitalization of work lies in the fact that this market connection is increasingly indirect and mediated by third parties. These intermediaries guarantee the procurement of life-sustaining resources under certain conditions. In recent decades, the welfare state has taken on this third-party role but has simultaneously absorbed guarantor and mediator functions, thereby generating perverse effects and serious management problems.

Smart technologies are ushering in a new social configuration (Donati & Archer, 2015). Work cannot be disconnected from its defining feature as necessary for securing workers' necessities, but the connection between producers and consumers is increasingly mediated by new social relation systems that reconfigure the freedom to work, on the one hand, and biographical stability, on the other, through new associative subjects that are distinct from the state (Donati, 2017). Corporations will continue to be critical, but networks of producers, and of producers and consumers, will become increasingly central. The concept of "relational work" helps understand the making of this new configuration.

### **Differentiation of work's meanings**

Work is morphing because its borders are shifting and intertwining with activities beyond modern definitions of work (Donati, 2002; 2017). Pluralistic, mutually competing narratives and practical cultures of work coexist. This diversity is noticeable and can be classified as a function of the meanings emphasized (see Figure 3, from Donati (2017, pp. 93)). Work is configured as exchange value (merchandise), as an activity legitimized by its own ends, unconditioned by markets, as a communicative mutual service relation, or as an action oriented toward meeting primary human needs. In this final sense, a certain "re-enchantment" of work as unconditional value seems to be present.

-----

Insert Figure 3 here

-----

Read analytically, these meanings correspond to work's four fundamental dimensions as a social relation. Work implies – sometimes latently – an exchange value

(A), an intrinsic extra-economic purpose (G), a form of communication for reciprocal services (I), and correspondence with primary human needs according to use values (L).

Read empirically, various meanings feed into specific work forms where one of the four dimensions prevail: (A) market work, in business corporations, (G) civic work, within political-administrative system entities, (I) work in associations, NGOs, private social areas and solidarity economies, and (L) domestic work and informal networks.

How are these various meanings of work differentiated and integrated? From a relational point of view, work can be interpreted through the three main semantic codes mentioned in our theoretical section, namely through symbolic reference, bond and emerging effect of exchange. As a symbolic reference, work is a quest for meaning, according to a variety of situational objectives and legitimation criteria. As a social bond, work is conditioning and, simultaneously, the structural resource that connects agents in a network of expectations, rules and specific interactive patterns. As an emerging effect, work is the reality that emerges from mutual interaction between those who work, and those who benefit from work's results. Work displays its supra-functional character (not just as mere functional efficiency) as a regenerator of social relations between members of each production, distribution and consumption network.

Saying that changes in work increasingly configure it as a significant social relation means claiming that labor activity is increasingly socially mediated since it presupposes relations, takes place within relations and generates new social relations. Therefore, society increasingly intervenes in work activity and grants it value (rewards and sanctions) through new rules (Donati, 2017). Also, modern society accentuates work activity's importance in those relations between the working subject and the person to whom they direct themselves (employer, colleague, client or user, generally) and the type of bonds that exist between certain creators of goods and the consumers thereof.

Following this logic, new forms of the civil economy (i.e., fair trade, circular economy) are born and experienced as relational goods. Relational goods, like trust and reciprocity, are those shared by members of the network that produce them, and cannot be sold or bought. They consist of relations that can only be generated and enjoyed when all those who participate in them also enjoy them. Otherwise, those goods rapidly vanish.

Work may become a relational good, but can also generate relational ills. For example, subjective implication and emotional labor can, under certain conditions, give satisfaction and a sense of fulfillment, for instance, to someone working as a hospital cleaner (Wrzesniewski et al., 2003), a neighborhood hairdresser (Rose, 2004) or a call center operator (Grant, 2014), which, in principle, may seem like low-skilled work outside of the realm of vocations (Schwartz, 2018). However, subjective implication and emotional labor can also become commodified and manipulated, as is often true in care service commodification (Hochschild, 2012) or professions with high public exposure, such as supermarket cashiers and servers (Barranco, 2011). This makes it necessary to consider these new mediations, along with the changes generated in the appreciation and depreciation processes of certain work cultures and forms.

In summary, work and economies differentiate alongside one another. This process engenders work in market economies, work in the welfare state's political economy, work in the reciprocal social economy, work in the informal gift economy and, more generally, in new forms of collaborative economies. Undoubtedly, these are different and often distant worlds. However, amidst them, work as a connector – as relational networking labor – is born. Work becomes a new criterion for “making society” or “consuming society.” Economies that “consume society” are isolated within their own operations, while economies that “generate society” exchange their resources and values with other economies, thereby producing relational goods.



## CONCLUSION AND FURTHER RESEARCH

The impact of smart technologies on human work is giving rise to both fatalist and optimistic narratives. The former warns, among other claims, that machines will perform almost half of all current jobs in a relatively brief time span. The latter understands that technology, far from threatening work, will benefit it. A growing economy, partly driven by technology and its contributions to productivity, will give rise to new types of occupations, as has already happened throughout history.

In this paper, we have contributed to the literature on the nature and meaning of work by advancing the concept of “relational work” and signaling its emergence because of digitalization. Our relational approach understands work contracts as the regulating expression of a relation that is not merely of an instrumental, but also of a “communitarian,” nature (Sison & Fontrodona, 2013). Building on relational sociology (Donati 2002; 2011; 2017), we have explained the structural, symbolic and agentic dimensions of work, and how digitalization is prompting new structural conditions, new symbolic meanings and new subjectivities of human work. As a result, we have argued that organizations will increasingly depend on talented people who, in turn, will become more autonomous. Increasingly, work will refer to mediation tasks and interchange circuits that suppose the generation of a common good (of a relational type) in a network of producers and consumers who fulfill ever more interactive and even reversible roles.

We have also argued that the reality of human labor consists not only or principally in an instrumental transaction around economic resources, but also and importantly in a mediation and exchange relationship between people who constitute increasingly complex social networks. Work is not, in this sense, a burden from which people and society should be freed. Rather, work can be freed from a reductive, merely instrumental definition and reconfigured as a substantive reality open to significant ends.

Future research may benefit from the concept of relational work to gain a deeper understanding of collective agents of work, such as external crowds collaborating on gig assignments or intercultural networks in multinational corporations. The connectivity enabled by emergent smart technologies allows for an increasing division of labor not only in terms of the radical breakdown of work into minute tasks but also in terms of geography, stages and roles, in such a way that the subject of work seems to be transitioning to networks as assemblages of actors. Further study on these collective agents and the consequences of digitalization on individual workers' motivation, engagement and burnout seems necessary.

Further research could also study how processes of structural, cultural and agential changes in the civic and collaborative economic realms may constitute an occasion for the emergence of relational goods. This exploration may help us understand better the preconditions enabling the emergence of solidary-economy networks, such as the British Ethical Junction (Bradley & Ziniel, 2017); or how the social relations of economic and human development arise from local subjects' initiatives and experiences in developing countries.

A third line of exploration may apply relational sociology to understand better the links between the different components (resources, goals, normative requirements and values) of the relation between for-business organizations and their social environment. To illustrate, digitalization broadens corporations' scope for deliberative public participation (Schultz & Seele, 2019), therefore augmenting those firms' potential responsibilities toward public goods. In this sense, a relational approach poses the need for firms to consider not only the resources and efficiency available to them through digitalization but also, and mainly, the goals and values that technological advance allows them to further.

## References

- Acemoglu, D., & Restrepo, P. (2019). Automation and new tasks: how technology displaces and reinstates labor. *Journal of Economic Perspectives*, 33(2), 3-30.
- Agrawal, A., Gans, J. S., & Goldfarb, A. (2018). *Prediction machines: the simple economics of artificial intelligence*. Cambridge: Harvard Business Press.
- Agrawal, A., Gans, J. S., & Goldfarb, A. (2019). Artificial intelligence: the ambiguous labor market impact of automating prediction. *Journal of Economic Perspectives*, 33(2), 31-50.
- Ajunwa, I. C., & Schultz, J. (2017). Limitless worker surveillance. *California Law Review*, 105(3), 735–776.
- Alexos, K. (1976). *Alienation, Praxis, and Techne in the Thought of Karl Marx*. Austin: University of Texas Press.
- Archer, M. S. (2000). *Being Human. The Problem of Agency*. Cambridge: Cambridge University Press.
- Arendt, H. (1958). *The human condition*. Chicago: University of Chicago Press.
- Bailey, D., Faraj, S., Hinds, P., von Krogh, G., & Leonardi, P. (2019). Special Issue of Organization Science: Emerging Technologies and Organizing. *Organization Science*, 30(3), 642-646.
- Barranco, O. (2011). El papel del perfil social en el consentimiento y la resistencia laborales. El caso de los/as trabajadores/as de un hipermercado. *Sociología del Trabajo*, 71, 26-44.
- Beane, M. (2018). Shadow learning: Building robotic surgical skill when approved means fail. *Administrative Science Quarterly*, 64(1), 87–123.

- Beck, U. (1992). *Risk Society: Towards a New Modernity*. New Delhi: Sage.
- Beck, U. (2014). *The Brave New World of Work*. London: John Wiley & Sons.
- Blauner, R. (1964). *Alienation and Freedom: The Factory Worker and His Industry*. Chicago: The University of Chicago Press.
- Brougham, D., & Haar, J. (2018). Smart technology, artificial intelligence, robotics, and algorithms (STARA): Employees' perceptions of our future workplace. *Journal of Management & Organization*, 24(2), 239-257.
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. New York: W. W. Norton & Company.
- Cherry, M. A. (2015). Beyond misclassification: The digital transformation of work. *Comparative Labor Law & Policy Journal*, 37, 544-577.
- Chinoy, E. (1955). *Automobile Workers and the American Dream*. Garden City: Doubleday.
- De Rivera, J. (1992). Emotional climate: Social structure and emotional dynamics. *International Review of Studies on Emotion*, 2, 197-218.
- De Stefano, V. (2016). Casual work beyond casual work in the EU: The underground casualisation of the European workforce—and what to do about it. *European Labour Law Journal*, 7(3), 421-441.
- DeCanio, S. J. (2016). Robots and Humans – complements or substitutes? *Journal of Macroeconomics*, 49, 280-291.
- DeSanctis, G., & Poole, M. S. (1994). Capturing the complexity in advanced technology use: Adaptive structuration theory. *Organization Science*, 5(2), 121-147.

- Deterding, S., Canossa, A., Hartevelde, C., Cooper, S., Nacke, L. E., & Whitson, J. R. (2015, April). Gamifying research: Strategies, opportunities, challenges, ethics. *Proceedings of the 33rd annual acm conference extended abstracts on human factors in computing systems*, 2421-2424.
- Donati, P. (1991). *Teoria relazionale della società*. FrancoAngeli: Milano.
- Donati, P. (2002). The changing meaning of work: Implications for the new society. *Rivista Internazionale di Scienze Sociali*, 3, 333-366.
- Donati, P. (2011). *Relational sociology*. London: Routledge.
- Donati, P. (2017). *Quale lavoro? L'emergere di una economia relazionale*. Genova: Marietti.
- Donati, P., & Archer, M. S. (2015). *The Relational Subject*. Cambridge: Cambridge University Press.
- Durkheim, E. (1982). *The Rules of Sociological Methods*, New York: The Macmillan Press.
- Espeland, W. N., & Stevens, M. L. (2008). A sociology of quantification. *European Journal of Sociology/Archives Européennes de Sociologie*, 49(3), 401-436.
- Estellés, E., & González Ladrón de Guevara, F. (2012). Towards an integrated crowdsourcing definition. *Journal of Information Science*, 38(2), 189-200.
- Faraj, S., Pachidi, S., & Sayegh, K. (2018). Working and organizing in the age of the learning algorithm. *Information and Organization*, 28(1), 62-70.

- Fedorenko, I., Berthon, P., & Rabinovich, T. (2017). Crowded identity: Managing crowdsourcing initiatives to maximize value for participants through identity creation. *Business Horizons*, *60*(2), 155-165.
- Fleming, P. (2019). Robots and organization studies: Why robots might not want to steal your job. *Organization Studies*, *40*(1), 23-38.
- Floridi, L. (2015). *The online manifesto: Being human in a hyperconnected era*. Dordrecht: Springer.
- Ford, M. (2015). *Rise of the Robots: Technology and the Threat of a Jobless Future*. New York: Basic Books.
- Frank, M. R., Autor, D., Bessen, J. E., Brynjolfsson, E., Cebrian, M., Deming, D. J., & Wang, D. (2019). Toward understanding the impact of artificial intelligence on labor. *Proceedings of the National Academy of Sciences*, *116*(14), 6531-6539.
- Frankish, K., & Ramsey, W. M. (Eds.). (2014). *The Cambridge handbook of artificial intelligence*. Cambridge: Cambridge University Press.
- Frankl, V. E. (1959). *Man's search for meaning*. Boston: Beacon Press.
- Furman, J., & Seamans, R. (2019). AI and the Economy. *Innovation Policy and the Economy*, *19*(1), 161-191.
- Gee, J. (2018). *The New Work Order*. London: Routledge.
- Gibbs, P. (2008). What is work? A Heideggerian insight into work as a site for learning. *Journal of Education and Work*, *21*(5), 423-434.

- Gramsci, A. (1971). Americanism and Fordism, in Q. Hoare, Q., & G. N. Smith, (Eds.), *Selection from the Prison Notebooks of Antonio Gramsci (279-313)*. Pender Harbour: Harbour Publishing.
- Grant, A. M. (2014). *Give and take: Why helping others drives our success*. New York: Penguin.
- Gulati, R. (2007). *Managing Network Resources: Alliances, Affiliation, and Other Relational Assets*. New York: Oxford University Press.
- Hall J. V., & Krueger, A. B. (2017). An analysis of the labor market for Uber's driver-partners in the United States. *ILR Review*, 71(3), 705–32.
- Heidegger, M. (1993). The Question Concerning Technology. In D. F. Krell, (Ed.), *Basic Writings (307-341)*. New York: Harper.
- Hines, A. (2011). A dozen surprises about the future of work. *Employment Relations Today*, 38(1), 1-15.
- Hochschild, A. R. (2012). *The Managed Heart: Commercialization of Human Feeling*. Berkeley: University of California Press.
- Hodgson, G. (2016). The Future of Work in the Twenty First Century, *Journal of Economic Issues*, 50 (1), 197-216.
- Howe, J. (2006). The rise of crowdsourcing. *Wired Magazine*, 14(6), 1-5.
- Inkson, K., Gunz, H., Ganesh, S., & Roper, J. (2012). Boundaryless careers: Bringing back boundaries. *Organization Studies*, 33(3), 323-340.

- Israel, J. (1979). *Alienation: From Marx to Modern Sociology*. New Jersey: Humanities Press.
- Kapás, J. (2005). Towards and understanding of the variety of firms. *Acta Oeconomica*, 55(1), 43-61.
- Kaplan, J. (2015). *Humans Need Not Apply: A Guide to Wealth and Work in the Age of Artificial Intelligence*. New Haven: Yale University Press.
- Langlois, R. N. (2003). The Vanishing Hand: The Changing Dynamics of Industrial Capitalism. *Industrial and Corporate Change*, 12(2), 351-385.
- Lasi, H. F. (2014). Industrie 4.0. *Wirtschaftsinformatik*, 56(4), 261-264.
- Lazer D., & Radford, J. (2017) Data *ex machina*: Introduction to big data. *Annual Review of Sociology*, 43, 19–39.
- Leijonhufvud, A. (1986). Capitalism and the Factory System. In R. N. Langlois, (Ed.), *Economics as a Process: Essays in the New Institutional Economics* (203-223). Cambridge: Cambridge University Press.
- Levy, K.E.C. (2015). The contexts of control: Information, power, and truck-driving work. *The Information Society*, 31(2), 160–174.
- Lips-Wiersma, M. (2002). The influence of spiritual "meaning making" on career behavior. *The Journal of management development*, 21(7/8), 497-519.
- Malone, T. W. (2004). *The Future of Work: How the New Order of Business will Shape your Organization, your Management Style and Your Life*. Cambridge: Harvard Business School Press.
- Marx, K. (1932/2009). *The Economic and Philosophic Manuscripts of 1844 and the Communist Manifesto*. New York: Prometheus Books.



- Maslow, A. H. (1971). *The Farther Reaches of Human Nature*. New York: Viking Press.
- McAfee, A., & Brynjolfsson, E. (2017). *Machine, Platform, Crowd: Harnessing our Digital Future*. New York: W. W. Norton & Company.
- Mead, G. H. (1934). *Mind, Self and Society*. Chicago: University of Chicago Press.
- Mokyr, J. (1990). *The Lever of Riches: Technological Creativity and Economic Progress*. Oxford: Oxford University Press.
- Müller, V. C. (2016). *Fundamental issues of artificial intelligence*. Berlin: Springer.
- Plessner, H. (1975). *Die Stufen des Organischen und der Mensch. Einleitung in die Philosophische Anthropologie*. Berlin: Walter de Gruyter.
- Podolny, J. M. (2001). Networks as the pipes and prisms of the market. *American Journal of Sociology*, 107(1), 33-60.
- Prpić, J., Shukla, P. P., Kietzmann, J. H., & McCarthy, I. P. (2015). How to work a crowd: Developing crowd capital through crowdsourcing. *Business Horizons*, 58(1), 77-85.
- Remus, D., & Levy, F. S. (2017). Can robots be lawyers? Computers, lawyers, and the practice of law. *Georgetown Journal of Legal Ethics*, 30, 501–558.
- Rose, M. (2004). *The Mind at Work: Valuing the Intelligence of the American worker*. New York: Viking.
- Rosso, B. D., Dekas, K. H. & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in Organizational Behavior*, 30, 91-127.

- Schultz, M. D., & Seele, P. (2020). Conceptualizing data-deliberation: The starry sky beetle, environmental system risk, and Habermasian CSR in the digital age. *Business Ethics: A European Review*, 29(2), 303–313.
- Schwab, K. (2016). *The Fourth Industrial Revolution*. Geneva: World Economic Forum.
- Schwalbe, M. L. (1986). *The Psychosocial Consequences of Natural and Alienated Labor*. Albany: SUNY Press.
- Schwartz, B. (2018). *Why we work*. New York: Simon & Schuster.
- Shenhav, Y. (1995). From chaos to systems: the engineering foundations of organization theory, 1879-1932. *Administrative Science Quarterly*, 40(4), 557-565.
- Sison, A. J., & Fontrodona, J. (2013). Participating in the common good of the firm. *Journal of Business Ethics*, 113(4), 611-625.
- Slavich, B., & Svejenova, S. (2016). Managing creativity: A critical examination, synthesis, and new frontiers. *European Management Review*, 13(4), 237-250
- Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: W. Strahan and T. Cadell.
- Susskind, R. E., & Susskind, D. (2015). *The Future of the Professions: How Technology Will Transform the Work of Human Experts*. New York: Oxford University Press.
- Taylor, F. W. (1911). *The Principles of Scientific Management*. New York and London: Harper & Brothers Publishers.
- Taylor, S. & Luckman, S, (eds.) (2018). *The New Normal of Working Lives. Dynamics of Virtual Work*. London: Palgrave-Macmillan.

- Terkel, S. (1974). *Working: People talk about what they do all day and how they feel about what they do*. New York: The New Press.
- Thompson, E. P. (1967). Time, Work-Discipline, and Industrial Capitalism. *Past & Present*, 38: 56-97.
- Von Krogh, G. (2018) Artificial Intelligence in organizations: New opportunities for phenomenon-based theorizing. *Academy of Management Discoveries*, 4(4), 404–409.
- Walker, C. R., & Guest, R. H. (1952). *The Man on the Assembly Line*. Cambridge: Harvard University Press.
- West, D. M. (2018). *The Future of Work: Robots, AI, and Automation*. Washington, D.C.: Brookings Institution Press.
- Wilkesmann, M. W. & Wilkesmann, U. (2018). Industry 4.0 – organizing routines or innovations? *VINE Journal of Information and Knowledge Management Systems*, 48(2), 238–254.
- Wrzesniewski, A., Dutton, J., & Debebe, G. (2003). Interpersonal sensemaking and the meaning of work. *Research in Organizational Behavior*, 25, 93-135.
- Zuboff, S. (1989). *In the Age of the Smart Machine*, New York: Basic Books.
- Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. London: Profile Books.