



World Scientific News

An International Scientific Journal

WSN 104 (2018) 227-244

EISSN 2392-2192

Immaterial labour - impact of ICT upon new modalities of labour in digital economy

Joanna Kasza

Institute of Culture, Jagiellonian University, Cracow, Poland

E-mail address: joanna.kasza@o2.pl

ABSTRACT

The main focus of this article is the reflection upon the contemporary changes (paradigm shift) within labour modalities, both in the context of defining and understanding the contemporary concept of labour, as well as its modes of organisation within new dynamic environment of global 'digital economy'. The starting point refers to the dynamics of 'disruptive changes' evoked by information-communication revolution, that fundamentally change (transform) simultaneously: economic, social and cultural sphere, evoking the effect of interference (unintended consequences) difficult to predict. This results in paradigm change within analysis of the contemporary changes in labour modalities, transition from classical approach focused on the structural changes within the economy (described in terms of transition from fordist to post-fordist modes of labour) to post-modern approach with new paradigm of immaterial labour (2.0) as a result of fundamental changes within technology (digital disruption). This article mainly focus on the emergence of new concepts of 'immaterial work' (Lazzarato; Hardt and Negri), 'digital labour' (Fuchs; Dyer-Witheford, Scholz) and 'labour 2.0' (Cote, Pybus), indicating fundamental changes within the nature of work itself, currently based on digital, social and intellectual competences (transition from physical work based on industrial processing of physical goods and services to digital and cognitive work, processing mainly immaterial goods: information, knowledge, symbols) and its consequences within economy, social relations and culture (contemporary lifestyle/ identity). To start with, first part of the article focus on the broader context of the assumed 'radical change', evoked by ITC revolution, described by many scientific disciplines in terms of 'paradigm change', bringing the interdisciplinary context necessary to understand this phenomena. Second describes new concept of 'immaterial work', fully discussed by M. Lazzarato (1996, 2004) Hardt and Negri (2000, 2004), and more recently by Fuchs (2010), Dyer-Witheford (2010), Scholz (2012), both in the context of defining and understanding notion of immaterial labour,

as well as its modes of organisation within dynamic environment of global economy, bringing forth the transition from classical, stable modes of employment to more flexible forms of employment (flexicurity), mainly on the basis of the unstable employment model(s). Third part, brings the conclusion noted within second part, underlying (often unintended) consequences coming from the emergence of ‘immaterial work’, or (digital) ‘labour 2.0’, in form of increasing inequality and asymmetry (enormous disparities), in terms of accumulation of wealth (capital) and power (defined in terms of access to diverse social, cultural and digital experiences or required skills or qualifications), evoking the notion of ‘precarity’: symbol of fragile and precarious existence of constantly increasing number of the world's population (Neilson, Rossiter 2008).

Keywords: digital disruption (disruptive change), paradigm change, immaterial labour (2.0), digital labour, cognitive, creative and affective labour, flexibility, precarity (precariousness), social factory with no walls

1. INTRODUCTION: RADICAL TECHNOLOGICAL BREAKTHROUGH (DIGITAL DISRUPTION)

Often, when talking about information and communication revolution, described also in terms of 'third industrial revolution' [Rifkin 2011], ‘third wave’ civilization [Toffler 1980] or 'global episteme' [Kumon and Yamanouchi 2008], we have the tendency to compare it with the dynamics, that have taken place within industrial revolution. While industrial revolution focused mainly on the automation of mass production (industrial economy, based on production of industrial, tangible goods), the current information and communication revolution is characterised mainly by the rapid growth of information and knowledge (post-industrial economy based on the production of cognitive, intangible goods). Described changes can generally be related to three main megatrends of informational revolution, fully discussed by Wierzbicki (2000)¹, the technical megatrend of digital integration (technological convergence), the socio-economical megatrend of digital integration (interconnected conditions based on the complex requirements of network connections) and last but not least the cultural and cognitive megatrend (based on digital culture and communication, change of the way of perceiving the world). According to Toffler [2007] accelerative curve of knowledge-acquisition, fuelled by new technologies, impacts ever increasing pressure of ‘rapid changes’, bringing forth ‘future shock’,² along growing sense of uncertainty and

¹ The introduced concept of megatrend(s) is defined slightly different than the original definition of J. Naisbit (1982) referring to the megatrends as new directions - according to Wierzbicki (2000, 2015) this third (intellectual and/or cultural) megatrend brings the greatest challenge(s) of conceptual revolution - the process of destruction of old episteme, resulted in a divergent development of differing epistemai of three cultural spheres (technical sciences: more pragmatic than paradigmatic epistemai, natural ‘hard’ sciences more paradigmatic (Khun 1962) and ‘soft’ social sciences & humanities epistemai) to say it in other words the paradigm shift (Tapscott, Caston 1993)

² According to Toffler (1970) the acceleration of change(s) in our time is, itself, an elemental force, that has personal and psychological (individual) as well as sociological, economical and cultural (collective) consequences, thus leading to ‘future shock’: shattering stress and disorientation induce upon individuals by subjecting them to too much (too rapid) change in too short a time, or massive adaptational breakdown on the collective side. As such, concept of future shock, and the theory of adaptation that derives from it, strongly suggests balance, not merely between rates of change within different spheres or/and sectors, but rather between the pace of environmental change and the limited pace of human response (potential).

impermanence, reflected in a way we relate to people, things, values and ideas. When imposing such an increasing pace of overlapping, ‘rapid changes’ on growing complexity and interdependence of the contemporary world (dynamic and turbulent global environment), we come across the area of ‘perfect storm’: convergence (interference) of intersecting waves of change and innovation, creating turbulent conditions with a high level of instability and unpredictability.³ This applies in particular to the concept of radical technological breakthrough or disruptive innovations, which J. Schumpeter (1934) wrote about that they have the power of ‘creative destruction’,⁴ destabilizing both the economical and social operational modes, strategies, or institutions ("from the inside constantly destroying the old and creating the new").

New information and communication technologies confers on contemporary world such a dynamics, that none of the current modes, strategies or institutional repertoires, can be considered as fully closed and/or effective, instead they rather require constant ‘re-defining’ or ‘re-structuring’, as well as search for new alternatives. This syndrome of impermanence (inadequacy) applies not only to the existing models or strategies, or institutional arrangements, but also to their current description of knowledge. As such, we could simply say about dissipation of the current cognitive paradigm, as the intellectual categories we used to describe or understand the existing reality have been coined in different circumstances, and therefore can hardly grasp what is new (the future) by referring to the past. Alvin Toffler in his book *Future shock* (2007) talks about "breaking with the past", in which spatial and temporal restrictions has been aborted (disrupted), underlying the impermanence syndrome of existing models or strategies (modes of operations) as well as form descriptions (modes of knowledge). Thus there is the urgency for a new approach (paradigm shift) to understand economy, culture, and society in which we live ‘here and now’, characterized by almost instantaneous flow and exchange of information, capital, and cultural communication. Both the flows and the traffic they carry are largely outside traditional modes & regulation, all becoming diverse expressions of a process of multidimensional, structural and cultural (disruptive) change(s), overcoming traditional limitations of forms of organization to manage complexity beyond a certain size of the network.

In fact, we could simply talk about the new development paradigm shift, referred by Manuel Castells (2010) in terms of information society, associated primarily with, moving for the first time, beyond the physical limitations of ‘time and space’- transition from ‘space of places’ (territorial contiguity) to ‘space of flows’, in which physical space is partly replaced, partly extended by space of communication: symbolic and virtual. As a result, access (exchange) to goods and services, as well as knowledge and information is almost immediate, available (open access) for all ‘here and now’ in the virtual space “through streams and flows nodes”. According to Castells, all major social changes are ultimately characterized by

³ ‘Perfect storm’ is created by a field of turbulence with high level of instability and unpredictability, in which the dynamic nature of the changes does not result from the interaction of the individual elements, but is rather based on the structure of the field itself : increasing pace of dynamic changes cause more dynamic changes, becoming self repeatable, and as a result even more unpredictable [Kołodko 2008]

⁴ The theme of disruptive innovation or ‘creative destruction’ as well as their impact on economy described by J.A. Schumpeter (1934, 1939, 1960) - “a perennial gale of creative destruction” as an immanent trait of capitalism- presents itself differently within contemporary post-modern world in refers to the original conception, underlying mainly the disruptive results (on-going innovations in technology) and discontinuous, yet systemic character of the process (innovation systems), based on the networks and open innovations (cooperation and exchange) , more : E. G. Carayannis, J.E. Spillan, Ch. Ziemnowicz (2007), Wierzbicki (2000)

a transformation of space and time in the human experience. Assuming that the that space is not a tangible reality, but rather the concept constructed on the basis of human experience, he underlines that “if we look at space as a social form and a social practice, throughout history space has been the material support of simultaneity in social practice” (Castells 2010: 30). That simply means the development of new ICT technologies radically transformed the spatiality of social interaction by introducing the phenomena of simultaneity or any chosen time frame in social practices, regardless of the location of the actors engaged in the process. Thus moving the whole civilisation from the previous ‘space of places’, where physical space become the significant barrier limiting development, mainly because that access to goods and services, as well as information or knowledge was limited in time and space (in large part distributed in local communities, and accumulated in the urban space) to the current ‘space of flows’, where within a global network of communication, the access to goods and services or information and knowledge is almost immediate (instant, interactive and synchronic), and open access, taking place in ‘timeless time’ within the ‘virtual space through streams and flows’.⁵

2. IMPACT OF ICT UPON LABOUR MODALITIES: PARADIGM CHANGE

Coming back to the analysis of contemporary changes in labour modalities, *classical approach refers mainly to the paradigm (concept) of industrial labour*, thus emphasizing the transition from the traditional fordist to post-fordist modalities of labour as a result of fundamental, structural changes within the economy - the transition from industrial economy (production of material, tangible goods) to the economy of services (mostly intangible) into the post-industrial economy: defined in terms of informational or digital economy, knowledge-based economy, or creative economy (informational capitalism). This classical approach is mainly focused on the analysis of the structural transformation of labour within the economy, described previously by D. Ricardo (20 XIX) or J. M. Keynes (30 XX) in the context of industrial capitalism, or more recently by D. Bell in terms of post-industrial society, A. Toffler third-wave society (civilization), or J. Rifkin as the third wave of the industrial revolution (as cognitive capitalism: Vercellone, Pasquinelli, Boutang, Peters or informational capitalism: Hardt and Negri, Castells, Fuchs).

Fordist modalities of labour associated with the industrial economy, molded in 20's of 20 century, refer to production of homogeneous industrial (material) goods, based on the economy of scale (mass production and mass consumption as an accumulation regime; manufacturer's market) or “particular configuration of technical and social division of labour involved in making long runs of standardized goods” (Jessop 1992).⁶ Fordist's mass

⁵ This new form of spatiality, defined by M. Castells as the space of flows: material support of simultaneous social practices communicated at a distance, embrace both the transmission and processing of flows of information or culture (symbolic goods) as well as the connectivity of activities located in the local nodes of global communication networks. As such the key feature of the networked connection is the relation, or rather increasing tension, between the local and the global (glocal) : micro-network of the high-level decision-making process, based on the face-to-face relations (space of places) linked to a macro-network of decision implementation, based on global digital communication networks (space of flows) - Castells (2010 : 37-38)

⁶ When describing Fordism and post-Fordism concept (along with it's terminology) from the point view of political economy, in order to avoid the popularised (vulgarised) version, one should distinguish four levels on which it has been analysed within the literature: the labour process, the regime accumulation, it's modes of

production, based on the rigid technology of the assembly production line and standardised 'taylorist' work routines, brings the phenomenon of the mass worker on one hand, with homogeneous mass consumption (homogenisation of the working class) on the other, to provide a market for mass commodities.⁷ Classical Fordist model of labour, symbolized by a qualified industrial worker (usually male), was based on stable employment model on the basis of permanent employment contract (for an indefinite period/duration), mainly because companies then operated in a stable, durable and sustainable environment. In the Fordist model of labour, employee (worker) perceived his environment, in which he functioned, both in the social (male as a dominant figure on the labour market: the sole supporter of the family) and economic sphere (low level of unemployment, steady economic growth, low inflation) as stable, with the remuneration enough to ensure the stability not only to himself, but also to his family, accessing various entitlements or allowances in the field of social security as a derivative of employment. In short, Fordist modalities of labour can be summarized as a model assuming far reaching subjugation (compliance) of employee to employer in return for far-reaching social protection and employment security, with socio-economic system relatively predictable (based on the predictability, linearity and materiality of the processes of production, consumption and exchange within industrial economy focused mainly on material goods).

Post-fordist modalities of labour, associated with the post-industrial economy, have been shaped by technological changes, mainly the development of information and communication technologies (ICT) and related economic, social and demographic changes, especially changes in the family structure and women entering the labour market. The primary determinant of this model is the transition from the dominance of the sphere of production (tangible/industrial goods) into sphere of services (mainly intangible) towards the symbolic goods (information, knowledge, culture/symbols), described often as a transition from industrial to post-industrial economy, where both the production and consumption is personalized (customerization and customization) and flexible, based on a wide range of niche products tailored to variables and specialized needs of narrow target audiences (segmented, niche production and consumption, consumer's market).⁸ Post-fordism, determined by

regulation and societalization (more : Jessob 1992, 1995) .. At the same time, it's worth noted, that Fordism, when talking about the labour process, was actually quite limited in diffusion and never fully realized even in Ford's own plants in North America, not to mention those in Europe. As such only a small part of manufacturing output has been produced in Fordist conditions along with a small proportion of labour force employed in Fordist modalities of work, mainly because every economy develops its own technically optimal labour process to match its pattern of industrial specialization and development stage.

⁷ Fordist modalities of labour, achieved overall balance between supply and demand through Keynesian macroeconomic policies, with the overall balance between wages and profits achieved through collective bargaining, superintended by the state – as such they have been usually described or viewed as a perfect example of 'Keynesian Welfare State' with social democratic vision of a society, that combines the economic dynamism of capitalism with the political values of socialism (with education, training, socialisation and after-care of the mass worker organised through the mass institutions of a bureaucratic welfare state) (more : Jessob 1992, 1995)

⁸ When talking about Post-Fordism and its new modes of regulation, its concept derives entirely from the promise of overcoming the limits of Fordism - technical limits defined by reduced possibility of raising productivity through economies of scale, de-skilling workers and intensifying labour; social limits defined by the growing pressure on profitability, managerial prerogative and public finances imposed by the growing demands of the mass worker; economic limits defined by falling rate of profit as a results of organic composition of capital, rising wages in the face of declining productivity growth, or the limited market for homogeneous consumer goods as incomes rise.

changes brought by new technologies, has been much tainted by an ideology of innovation, that glamorized technology as well as knowledge economy, presenting liberating and progressive potential coming with incoming changes : flexibility, breaking down of hierarchy, cultural diversity (proliferation of subcultures), individual autonomy, and irreverence for tradition, bringing forth the public participation both in science and technology (developed later within STS research studies). Along with the flexibility as a main characteristic of Post-Fordist modalities of labour (flexible production and appropriately flexible workforce)⁹ comes the unstable employment model -the transition from classical, stable mode of employment (for an indefinite duration on a full-time basis) to unstable, flexible mode of employment (fixed-term contract, or others form of contract under civil law i.e. the contract orders or managerial contract). Often referred in literature as so-called “junk contracts”, mainly because they not only offer unstable employment model, but also do not include any social or security benefits. In other words,

Post-Fordist modalities of labour bring forth so called ‘process of individualization’ of employment, that can grant us a sense of independence and freedom in the pursuit of our professional aspirations, but at a ‘certain cost’ of greater responsibility for our own career as well as social security and stability of employment (often depriving employees of the continuity of his/her own biography: performed job, grown profession, or place of residence), that only further exacerbates the process of uncertainty and discontinuity as a symbol of so called ‘liquid modernity’ (Bauman 2000). In short, Post-Fordist modes of labour can be summarized as a model bringing increasing flexibility of employment on one hand, with the lack of stability (erosion of the traditional employment relations) on the other, with the part of the risk of employment projected from the employer to the employee (transition from model of subordination/subjugation of the employee, specific to classic model of employment, to the economic dependency from the employer). With the post-industrial economy, focused mainly on production and consumption of immaterial goods (along with process of financialization of economy or finance-dominated capitalism), presented socio-economic system becomes more unpredictable and unstable (with growing instability and insecurity of relation not only within the company, but what’s more important, within institutional links ‘in between’ the company and (national) economy).

When coming to the paradigm change, often described in terms of *post-modern approach to the analysis of the contemporary changes in labour modalities*, one could observe emergence of new paradigm (concept) of ‘immaterial labour 2.0’ as a result of fundamental changes within technology, using the metaphor of 2.0 (in refers to civilization 2.0, economy 2.0, society 2.0),¹⁰ as a reference point of the world after the information and

⁹ In some literature, mostly overseas (Australia), Japanese work organization has been related mostly to Post-Fordist modalities (Kenney and Florida 1988)- Japanese work organization is often described in terms of ‘lean production’, ‘Toyota production system’, and ‘Toyotism’ (Wood, 1991) or less positive in terms of ‘management by stress’, ‘management by blame’ and even ‘management by fear’ (Sewell & Wilkinson, 1992). The key objective of ‘lean production’ is to push responsibility far down the organizational structure, meaning freedom to control one’s work at one hand, but also increscent anxiety and stress while taking the responsibility for increases productivity on the other (additional responsibility formerly acknowledged as middle-management function) with Kaizen (‘continuous improvement’) as a central concept of so called ‘lean production’.

¹⁰ O’Reilly (2005) uses this term 2.0 to describe second generation networked services, giving the example of Google as a leading Web 2.0 entity with the efficacy of its search engine largely depending upon the collective activity of its users. We could say, that web 2.0 happens when the accretion of cultural knowledge, or the ‘general intellect’ - in networked relations - becomes the primary dynamic of the internet. Another example of

communication revolution (McAfee 2006, Tapscott 2006, Cote & Pybus 2007, Cook 2008). Paradigm or concept of work 2.0, unlike the concept of 1.0 based on one-way flow of information, brings forth the dynamics of two-way, interactive flow (exchange) of information, knowledge and experience, based on non-hierarchical and user-centric models, thus granting the control over 'how, what and where' we are able to gain information/knowledge, with the possibility to share/ mash-up/remix knowledge, we become not only prosumers, but rather co-creator(s) and collaborator(s) (Kamenetz 2010). That's why post-modern approach underlines the progressive process of digitalisation of economic, social and cultural sphere as a result of fundamental (disruptive) changes within technology (digital revolution), imposing constant transition (moving 'in between') two different environments simultaneously: the physical environment, embedded in real space and time continuum, and digital environment, embedded in virtual time and space (timeless time and space of flows in refers to Castells). As such, new paradigm of network society (informational society) introduces quite a new categories for the analysis of labour relations 'in between': human-tool- object (described in research trend STS science-technology studies, exploring the relations between science-technology-society), visible in the theory of actor-network ATN (Latour 2005, 2010)¹¹ as well as in the new science of networks (Barabási 2002 studies of social networks, multi-agent system analysis, or Reingholt 2000 research on technology cooperation networks, including research on algorithms and artificial intelligence). This new paradigm, focuses mainly on the dynamics of the relations (constantly shifting networks of relations) 'in between' objects, ideas, processes as well as actors, or rather actants (expanding the existing definition of human actor(s) with nonhuman categories of: tools, technologies or objects), both in the context of the individual and collective, launch quite a new areas of study (tension) in between: the real/physical and virtual (environment, organization or identity), as well as humans and non-humans: machines/new technologies (algorithms or AI artificial intelligence).

3. IMMATERIAL LABOUR: NEW MODALITIES OF LABOUR WITHIN DIGITAL ECONOMY

New paradigm (concept) of immaterial labour, defined by Maurizio Lazzarato, underlines two different aspects of labour: "On the one hand, as regards the 'informational content' of the commodity, it refers directly to the changes taking place in workers' labour processes in big companies in the industrial and tertiary sectors, where the skills involved in direct labour are increasingly skills involving cybernetics and computer control (and horizontal and vertical communication). On the other hand, as regards the activity that

Web 2.0 would be wikis (open user-generated content sites like Wikipedia) and folksonomy (user defined categories or 'taxonomy from below' with practices commonly known as 'tagging' as a central feature on social networks like Flickr or de.licio.us).

¹¹ Actor-network theory (ANT) is both theoretical and methodological approach to social theory describing social and natural worlds exists in terms of constantly shifting networks of relationship (constructivist approach based on 'material-semiotic' method reflecting maps of relations, that are simultaneously material (between things) and semiotic (between concepts). As such nothing exists outside those relations, all the factors involved in a social situation are on the same level, thus, objects, ideas, processes are seen as just as important in creating social situations as humans, bringing new definition of actants (expanding the existing definition of human actor(s) with nonhuman categories of: tools, technologies or objects) more : Latour 2005

produces the 'cultural content' of the commodity, immaterial labour involves a series of activities that are not normally recognized as 'work' - in other words, the kinds of activities involved in defining and fixing cultural and artistic standards, fashions, tastes, consumer norms and, more strategically, public opinion. Once the privileged domain of the bourgeoisie and its children, these activities have since the end of 1970s become the domain of what we have come to define as mass intellectuality” (Lazarotto 1996: 133). First aspect relates to the shift in capitalism defined by Hardt and Negri (2000: 291) as ‘informationalization’, impression that our lives are increasingly dominated by new technologies: “Today we increasingly think like computers, while communication technologies and their model of interaction are becoming more and more central to labouring activities”, thus bringing “homogenisation of labouring processes” (Hardt & Negri, 2000: 290).¹² Second refers to the shift from industrial to post-industrial capitalism, based on cognitive or symbolic goods: information, knowledge, culture, with immaterial labour, that “produces the informational and cultural content of the commodity” (Lazarotto 1996: 133), coming from ‘great transformation’ related to the process of ‘mass intellectuality’, dominant in early 1970s.

Of course, Lazzarato’s concept of immaterial labour differs from the one described by Hardt and Negri’s (2000) in terms of “labour that creates immaterial products, such as knowledge, information, communication a relationship, or an emotional response” (Hardt and Negri, 2004: 108), but there are core elements of similarity to be found. Both Hardt and Negri underline, that there are two kinds of immaterial labour, one is “primarily intellectual or linguistic, such as problem solving, symbolic and analytical tasks, and linguistic expressions.” The other is affective, linked to both body and mind, “labour that produces or manipulates affects such as a feeling of ease, well-being, satisfaction, excitement or passion.” (Hardt and Negri, 2004: 108). Such description underlines 'retaylorisation' and 'proletarianisation' of both intellectual and cultural work, along with the transformation of labour as such, that becomes more and more dependent on communicative (social) and emotional capacities. So we could say that first differentiation has to do more with concept of cognitive and creative labour (widely discussed within public discourse in refers to cultural or creative industries, Florida’s concept of creative class or concept of creative cities, Fuchs 2009b, 2010).¹³ Typically, such cognitive or creative labour can be found both within technological sector of new digital economy (based on digital and social skills within real and virtual space of global digital network) as well as within creative or cultural industries (based on the intellectual/cognitive, as well as cultural and creative potential or capital) – the key is that production and

¹² What does means is simply not only work, but more and more most of the activities in our very lives are mediated through (via) new ICT technologies, which require certain communicative, cognitive and co-operative capacities, thus becoming central to the accumulation strategies of ‘informational capitalism’ (Fuchs 2010). Taking into account that the above mention capacities (especially communicative ones as a way to search (encoding and decoding of) meaning, are central for the individuation and articulation of the self as a socially constituted agent within network of social relations, this heavily imprint onto both : out work (labour) as well as our lives’ activities to be materially mediated and articulated through this new digital technologies, as a capitalist application (accumulation strategy) of ICT technologies.

¹³ Florida in *The rise of Creative Class* (2002) describes creative class as a kind of avant-garde of the society, a model to follow by other social classes, which aims to reduce the grade divisions through the inclusion of natural creativity to potentially large number of people, so that eventually all will be included within the creative economy. However, this kind of assumption seems rather utopian, because the so-called ‘creative class’ as the vanguard is usually in the minority, with its existence possible only thanks to the majority, forced to take a less creative and more oppressive regimes of labour. Excessive emphasis on creativity and creative class leads rather to further polarization and social tension ‘in between’ creative class and those less creative. [Kasza 2017]

consumption shifts from the material realm of the factory (industrial production) to social and symbolic production and consumption of information, knowledge and symbols.¹⁴ Second differentiation has to do more with the production of affects, with the affective labour referring to those forms which manipulate “a feeling of ease, well, being, satisfaction, excitement or passion” (Hardt and Negri 2004: 108), resulting from the basic notion (core value) of creativity (as a source code of knowledge economy or creative economy) within post-fordist modalities of labour. The direct result is the emergence of the creative ethos (Florida 2010) and artistic modes of labour (creative class), that strongly emphasizes individualism, creative expression and commitment (almost dedication) to creativity, as well as non-conformism, openness and tolerance, along with experimental life style, distinctive for artistic bohemia. This new artistic mode of labour, allow to define work in terms of pleasure, commitment or passion (affective binding), as a part of self-expression or self-realization through work (linked to the identity of the creative labourer). As such, modality of artistic labour: usually unpaid or poorly paid self-organised creative work, that was still the exception on the labour market in the last decade of 20th century, become the dominant modality of labour in 21th century, being perceived and implemented as a new and attractive ‘artistic’ modalities of labour.

To conclude our reflection upon concept of immaterial labour, it’s important to underline that Hardt and Negri acknowledge, that immaterial labour in itself is material, it’s rather the products of this labour that are immaterial. Taking into account the ambiguity of the term, they suggest “biopolitical labour” as an alternative description, that indicates the general tendency of paradigm change within labour modalities within post-industrial economy. Stating that, it’s worth noted, that neither they suggest the dominance of immaterial work within contemporary global economy, nor that immaterial labour reduce workplace hierarchy or labour market polarization, but rather that the immaterial labour “has become hegemonic in qualitative terms and has imposed a tendency on other forms of labour and society itself” (Hardt, Negri 2004: 109), within the contemporary era of ‘informatization’ (digitalisation) and ‘economic postmodernization’. Coming back to Lazarotto, for him immaterial work “constitutes itself in immediately collective forms that exist only in the form of networks and flows”, mainly because “cycle of immaterial labour has come to assume strategic role within global organisation of production. The various activities of research, conceptualisation, management of human resources and so forth, together with all the various tertiary activities, are organised within computerized and multimedia networks” (Lazarotto 1996: 136). Lazarotto argues further that “activities of this kind of immaterial labour force us to question the classic definition of work and workforce, because they combine the results of various different types of work skills, as regard the cultural-informational content, manual skills for the ability to combine creativity, imagination and technical and manual labour, and entrepreneurial skills in the management of social relations and the structuring of social

¹⁴ It’s worth noted, that this fundamental change does not rely only on the increasing production and consumption of symbolic goods - a significant shift in the direction of symbolic goods, both on the supply (production and ways of production) and the demand side (consumption and the ways of consumption), but rather on fact, that symbolic sphere takes over the role within the mechanisms of socio-economic development, so far performed by material sphere. As such, we could say with some simplification, that “the one that is material provides a framework and limitations, while the one that’s symbolic becomes a factor stimulus of social and economic change, however, that what’s contemporary ‘material’ and ‘symbolic’ creates rather inseparable amalgam, there is no one without the other” Hausner (2010)

cooperation of which they are the part. This immaterial labour constitutes itself in forms that are immediately collective, and we might say that it exist only in the form of networks and flows. It's not defined by the four walls of the factory. The location in which it operates is outside in the society at large, at a territorial level that we could call 'the basin of immaterial labour'... As such "immaterial labour appeal as a real mutation of 'living labour' ... (and).. Find itself at the crosswords (or rather in the interface) of a new relationship between production and consumption .. (mainly because) ... the cycle of immaterial labour takes as its starting point a social labour power that is independent and able to organise both its own work and its own relations with business entities. Industry does not form or create this new labour power, but simply takes it onboard and adapts it" (Lazarotto 1996: 137).

4. CONCLUSION: PARADIGM OF 'IMMATERIAL LABOUR 2.0' AND ITS CONSEQUENCES

Let me now come to the final conclusion coming from described "three types of labour that drive the postmodernization of the global economy" (Hardt and Negri 2004: 293). First and foremost, let's start with 'informationalization' (Hardt and Negri) or 'informational content of the commodity' (Lazarotto), determined by the increasing dominance of new ICT technologies (result of fundamental and disruptive changes -digital disruption- within technology itself). The most important is the substantial change of the relations between agents or actors within the production process, as the dominant so far subjectivity or efficacy of human labour is accompanied by ever-increasing labour power of nonhuman (actants: tools, technologies or items). As such, we can observe the tendency of post-modern analysis of labour to highlight the growing productivity and efficiency of machines (technologies), thus weakening the existing position-subjectivity and agency- of human labour (Rifkin 2011, Brynjolfsson and McAfee 2011). The result is the increasing tension between "dead work" objectified by the machines, that do not progress (evolve) in itself (proceeding automation of labour) and "living work" performed by human creative and subjective (but linked with physical and cognitive limitations and lower efficiency of the labour process). According to B. Arthur (2011), author of the concept of 'second economy', within the digital economy traditional, physical analogue processes are converted into the algorithms, executed by communicating machines within the framework of inter-algorithm communication. As a result, in the labour process more and more functions: research, cognitive or analytical are taken over by the machines, which due to its productivity and efficiency are becoming dominant over humans, in most cases slowing down (constricting) the efficiency of the machines (Brynjolfsson and McAfee 2011). This leads directly to structural unemployment, exposing the basic contradiction of technological capitalism: in post-industrial economy jobs are generated mainly by the consumption, meanwhile, in order to produce more goods, we could see the increasing replacement of human labour by more efficient technologies, significantly reducing existing workplace. As such the question arises: who would consume more production surplus: machines? In the context of the digital economy arises the dilemma of effective investment in network development: in whom to invest more: the employee (human) or technologies (machines). No wonder that in the context of increasing 'human gap', we could find more and more hybrid models or solutions, combining the subjectivity of human and non humans in order o to increase the cognitive potential of humans (emergence

of trans-human or cyborg: fusion of the human and the machine: Kurzweil 1999, Allenby & Sarewitz 2011). The end result is, that we become more and more dependent on (influenced and/or defined) the relations with the tools/objects- this applies not only to digital networks, but in general to cooperative networks in which we participate alongside the inhuman(s) - creating techno human collectives, where human(s) and nonhuman(s) form a symbiotic system engaged in the process of learning (Levy and Murnane 2004, Hirschhorn 1986, Rotman 2013).¹⁵

The other two aspects of immaterial labour: 'the cultural content' of the commodity', anchored in 'social labour power' (Lazarotto) and differentiation in between 'intellectual labour' (primarily intellectual, symbolic and analytical tasks, and linguistic expressions) and 'affective labour' (involving both body and mind, that produces or manipulates affects such as a feeling of well-being, satisfaction, excitement or passion). Paradigm of cognitive and creative labour, widely discussed in literature as well as public discourse in terms of cultural or creative industries, creative class or creative cities [Ulrich Beck (2000); Leadbeater and Oakley (1999); Florida (2002); Pratt and Gill (2000); Peck (2005); Pratt (2002, 2005)]¹⁶ links directly to transformation into post-fordist modes of production, resulting from the emergence of increasingly intellectualised labour force in the 1970s. The direct result of the notion of creativity or innovation as the source code for creative economy or knowledge-based economy within post-fordist modes of labour is the rise of the creative ethos along with artistic mode of labour, that starts to define work in terms of pleasure, commitment or passion as well as self-expression or self-realization. As a result, creative employees within this new modes of labour are forced to prove, that they work for pleasure, satisfaction or self-realization, rather than for professional growth, higher position or financial satisfaction, mainly because creativity, passion and commitment has become basic skill or qualification required, regardless of position (in this way employees are engaged in additional work required to hide, immanent for capitalism nature of labour, taking the effort to transform ambivalence of the relations in between: sovereignty and subordination, competition and cooperation, autonomy and co-dependency).

¹⁵ According to Castells, the price for inclusion or exclusion to the mode(s) of digital 'network society' is the adoption to its (new) digital logic, its language, its points of entry and encoding and decoding on which the whole system operates (binary mode of the presence/absence, in other words cybernetic order)- as such both the entry points as well as the decoding and encoding modes become the critical cultural battles, the outcome of which predetermines the direction of symbolically mediated conflicts in this new system. 'CyberNetic order' (digital logic) discussed by A. Rothert (2005) is a contemporary mechanism of control of hybrid units (cyborgs) within the network flow of information and accumulated 'knowledge/power'- referring to the dynamics of complex systems, balancing on the border 'in between' order and chaos, and further developing (evolving) on the base of 'the sudden leap' from one state to another (with the emergence of the new order/level)

¹⁶ This paradigm of "entrepreneurial selfhood 'creatives' became nowadays the apple of the policymaker's eye" (Lovink, Ross 2007) or in other words tool for the political economy of creativity (evoking 'cultural political economy' described by B. Jessop and S. Ngai -Ling (2006, 2008), thus becoming a contemporary mantra, slogan often evoked and used in different contexts, that has more to do with a typical post-modern „enchchantment" of reality, rather than, with more or less quantifiable results within social, economical or cultural realm [Kasza 2017]. Nevertheless, its perceived rather from practical (instrumental) perspective as value generator for the economy with art products as "the object of intense financial speculation; cultural production being top hit-maker in the new jackpot economy; 'cultural districts' posited as the key to urban prosperity; and creative industries policy embraced as the anchor of regional development by governments around the world. In the business world, creativity is viewed as a wonder stick, transforming workplaces into powerhouses of value, with intellectual property: the lucrative prize of creative activity, increasingly regarded as the "oil of the 21st century" (Lovink, Ross 2007)

The rise of so defined immaterial labour has profound consequences within contemporary economy, social and cultural sphere. First, it's breaking down the division (blurring the boundaries) between work and non-work or leisure, clear-cut in fordist factory, but not in post-fordist social factory without walls (diffusion of private and professional qualifications or experience: digital, social, cultural and symbolic, acquiring private life to become professional asset or capital and vice versa). In that sense immaterial labour become biopolitical, not only because it makes life inseparable from work, but also because it does produces "not the means of life but social life itself" (Hardt and Negri 2004: 146).¹⁷ According to Lazzaratto today capital seeks not to simply produce commodities, but rather to 'create worlds', evoking the tendency that is away from mere economic production to a society where production itself becomes biopolitical. In other words, looking through the concept of immaterial labour we can clearly see how the convergence forms of economy, new media, culture, information, knowledge and subjectivity becoming an active articulation of informational or cognitive capitalism, inseparable from the social order (Cote, Pybus 2007). Secondly, it brings the unstable, flexible mode of employment (with increased labour mobility and freedom of expression or self-realisation on one hand, and lack of stability or continuation of employment: erosion of traditional employment relations on the other), often described in literature in terms of precarity (Neilson, Rossiter 2008).

The notion of precarity becomes the symbol of post-fordist modalities of labour, encompassing the characteristic polarisation of both: low skilled 'chain-workers' always 'on the verge of social exclusion' and high skilled 'brainworkers', that do make above standard wages, but if they lose their job they are thrown into poverty', thus pointing to potential solidarity between them. In macro scale such polarization reflects increasing inequality and asymmetry (enormous disparities), both in terms of accumulation of wealth (capital) and power (defined in terms of subjectivity and access to diverse social, cultural and symbolic experiences and/or required skills or qualifications). As such the notion of precarity, defined in terms of: instability, uncertainty and continuous change as a condition characteristic to post-Fordist modes of labour, traverse not only through most traditional class divisions within society, but also through socio- economic breaks on developed and developing countries, thus becoming the very real experience of constantly increasing number of the world's population. Symbol of the fragile and precarious existence in the world of 'liquid modernity', in which the only constant thing become the continuous change of work, occupation or profession, place of residence, as well as social roles or private identities. Last but not least, it leads to emergence of commonality as shared (collective) and social nature of immaterial labour, based on 'performativity, communication and collaboration' - according to Hardt and Negri "immaterial labour has the performative features of language, being rooted in, creating and conducted in common" (Hardt and Negri 2004: 201). This has more than profound consequences for the notion of both the immaterial labour and its products, bringing forth 'immaterial (common) forms of property' outside of the regime of private property and

¹⁷ ICT Technologies not only blurs the boundaries between work and non-work or leisure (life itself) (process of integration work and non-work time through ICT use within the framework of re-creating social relations network), but also between waged and unwaged labour as ICT technologies tend to maximize the communicative and co-operative capacities of digital labour, both intensive (as workers are expected to accomplish more with the use of ICT 'within the traditional time and space confines of their job') and extensive (because it has become 'much easier for individuals to work longer hours' (Manzerolle 2010), thus intensifying the rhythms of informational capitalism .

copyright policy, that has been immanent for both industrial and post-industrial neoliberal capitalism (as such immaterial labour is increasingly functioning and placing itself outside the control of capital). This of course does not mean, that immaterial labour is not exploited by the capital, but rather that the nature of exploitation has changed along with the relations between labour and value (as value and surplus value no longer can be conceptualized on the basis of quantitative, temporal units of labour time, the exploitation becomes “the private appropriation of part or all of the value that has been produced as common” (Hardt and Negri 2004: 204).

References

- [1] Allenby B., Sarewitz D. (2011), *The techno-human condition*, MIT Press, Cambridge, London
- [2] Arthur B. (2011) *The Second Economy*. *McKinsey Quarterly* 4, pp. 91–99.
- [3] Barabasi A.L. (2002) *Linked. The New Science of Networks*, Perseus Press, Cambridge
- [4] Bard A. Soderqvist J. (2002) *Netocracy -The New Power Elite and life after Capitalism*, Reuters/Pearsall UK
- [5] Baudrillard J. (1995), *Simulacra and Simulation*, Michigan Publishing, University of Michigan Press
- [6] Bauman Z. (2000) *Liquid Modernity*, Polity Press, Cambridge
- [7] Beck, U., Ritter, M. (1992). *Risk society : towards a new modernity*, Sage Publications, London
- [8] Beck, U. (2000). *The brave new world of work*, Polity Press, Cambridge
- [9] Bell D. (1973) *The Coming of Post-Industrial Society: A Venture in Social Forecasting*, Basic Books, New York
- [10] Boutang Y. M. (2012), *Cognitive Capitalism*, Polity Press,
- [11] Brynjolfsson E., McAfee A. (2011) *Race Against the Machine, How the Digital Revolution is Accelerating Innovation Driving Productivity, and Irreversibly Transforming Employment and the Economy*, Lexington Digital Frontier Press
- [12] Brynjolfsson E., McAfee A. (2014) *Second Machine Age. Work, Progress, and Prosperity in a Time of Brilliant Technologies*
(http://d3n8a8pro7vmtx.cloudfront.net/secondmachineage/pages/24/attachments/original/1386738780/SecondMachineAge_Ch1.pdf?1386738780).
- [13] Castells M. (2000, 2010) *The information Age: Economy, society and culture*, Blackwell Publishing, Oxford
- [14] Carayannis E.G., Spillan J.E., Ziemnowicz Ch. (2007), *Introduction: why Joseph Schumpeter’s creative destruction? Because everything has changed in: Rediscovering Schumpeter, Creative Destruction Evolving into “mode3”*, Palgrave MacMillan, Houndmills-Basingstoke

- [15] Cote M., Pybus J. (2007), Learning to immaterial labour 2.0: MySpace and social networks, *Ephemera*, 7(1), pp. 88-106.
- [16] Cook N. (2008), *Enterprise 2.0: How Social Software Will Change the Future of Work*, Gower Publishing, Hampshire
- [17] Dawson M, Foster J.B. (1998) Virtual capitalism. Monopoly Capital. Marketing and the informational Highway, in: McChesney R, Meikesens Wood, Foster J.B. *Capitalism and the Information Age: The Political Economy of Global Communication Revolution*, Monthly Review Press, New York
- [18] Dyer-Witheford N. (2010) Digital Labour, Species Being and the Global Worker, *Ephemera* 10 (3/4), pp. 484-503
- [19] Dyson E. (2001), *Release 2.1. A Design for Living in the Digital Age*, Penguin, London
- [20] Fisher E. (2012), How Less Alienation Creates More Exploitation? Audience Labour on Social Network Sites, *tripleC – Journal for a Global Sustainable Information Society* 10 (2), pp. 171-183.
- [21] Florida R. (2002), *The rise of the Creative Class*, Basic Books, New York
- [22] Fuchs C. (2009a), Information and communication technologies and society: A contribution to the critique of the political economy of the internet, *European Journal of Communication*, 24(69), pp. 69-87.
- [23] Fuchs C. (2009b), Class, knowledge and new media, *Media, Culture & Society*, 32(1), pp. 141-150.
- [24] Fuchs C. (2010), Labour in informational capitalism and on the internet, *The Information Society*, 26, pp. 179-196
- [25] Fuchs, Christian and Sevignani, S. 2013. What is digital labour? What is digital work? What's their difference? And why do these questions matter for understanding social media? *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society*. 11 (2), pp. 237-293.
- [26] Gill, R., A. Pratt (2008), In the social factory? Immaterial labour, precariousness and cultural work, *Theory, Culture & Society*, 25(7-8): pp. 1-30.
- [27] Hand M. (2008), *Making Digital cultures. Access, Interactivity and Authenticity*, Ashgate Publishing, Hampshire
- [28] Hardt M., Negri A. (2000), *Empire*, Cambridge MA, Harvard UP London
- [29] Hardt M., Negri A. (2004), *Multitude: war and democracy in the age of Empire*, The Penguin Press, New York
- [30] Heim M. (1999) *The Digital Dialectic in: The Digital Dialectics: new essays on new media*, MIT Press, Cambridge
Hirschhorn L. (1986) *Beyond Mechanization: Work and Technology in a Postindustrial Age*, MIT Press, Cambridge
- [31] Hollan J. Hutchins E., Kirch D. (2000) Distributed cognition: towards a new foundation of human-computer interaction research, *ACM Transactions on Human-Computer Interactions*, Vol. 7 (2) pp. 174-196

- [32] Jameson F. (1991), *Postmodernism, or the Cultural Logic of late Capitalism*, Verso, London
- [33] Jessop B (1992), *Fordism and Postfordism: a Critical Refomulation*, in : *Pathways to Regionalism and Industrial Development*, Editors: Allen J. Scott, Michael J. Storper, pp. 43-65, Routledge
- [34] Jessop B. (1995), *The regulation approach, governance and post-Fordism: alternative perspectives on economic and political change?*, *Economy and Society*, vol. 24 (3), p. 307-333
- [35] Jessop B., Ngai-Ling S. (2006) *Towards a Cultural International Political Economy in: International Political Economy & poststructural Politics*, Plagrave MacMilian, New York
- [36] Kasza J. (2017) *Creativity in creative economy. Critical analysis of (the rhetorics) of creativity from the point view of cultural political economy*, *Word Scienfitic News* vol. 72, pp. 604-618
- [37] Kenney M., Florida R. (1988), *Beyond Mass Production: Production and the Labour Process in Japan*, *Politics and Society*, vol. 16, no. 1, pp. 121-58.
- [38] Kuhn T. S. (1962), *The Structure of Scientific Revolutions*, The Chicago of University Press
- [39] Kumon S, Jamanouchi Y. (2008). *The globalizing phases of the world system and modernity w: Modelski G.*,
- [40] Kurzweil R. (1999), *The Age of Spiritual Machines. When Computers Exceed Human Intelligence*, Viking, NY
- [41] Lacoff G., Johnson M (1980), *Metaphors We Live By*, University of Chicago, Chicago
- [42] Lash S. (2002), *Critique of Information*, Sage, London
- [43] Lash S., Larry C. (2007), *Global Cultural Industry*, Polity, Cambridge
- [44] Latour, B. (1996) *Actor Network Theory. A Few Clarifications*, *Soziale Welt* vol. 47, nr 4, pp. 369–381
- [45] Latour B. (2005), *Re-assembling the Social. An introduction to Actor-Network Theory*, Oxford University Press
- [46] Lazarotto M. (1996), *Immaterial Labour in: Hardt, Virno Radical Thought In Italy: a potential politics*, University of Minnessota Press, pp.133-147
- [47] Lazzarato M. (2004), *From Capital-Labour to Capital-Life*, *Ephemera* vol. 4(3), pp. 187–208.
- [48] Lazzarato M. (2001). *Towards an inquiry into immaterial labour*. Makeworlds, <http://makeworlds.org/node/141>
- [49] Leadbeater C. (1999), *Living on Thin Air. The New Economy*, Viking, London
- [50] Leadbeater, C., Oakley, K. (1999). *The new independents - Britain's new cultural entrepreneurs*, Demos, London

- [51] Levy F., Murnane. R. (2004) *The New Division of Labor: How Computers Are Creating the Next Job Market*. Princeton University Press, Princeton, NY
- [52] Lovink, G., Ross, A. (2007). *Organic intellectual work: interview with Andrew Ross*. Amsterdam: Institute of Network Cultures.
- [53] Mansell R. (1999) *New media competition and Access: The Scarcity- Abundance Dialectics*, *New Media and Society*, 1 (2) pp. 155-82
- [54] Manzerolle V. (2010), *Mobilizing the audience commodity: Digital labour in a wireless world*, *Ephemera: theory & politics in organization*, 10 (4), pp. 455-469.
- [55] McAfee A.P (2006), *Enterprise 2.0: The Dawn of Emergent Collaboration*, *MIT Sloan Management Review*, vol. 47 (3), pp. 21-28.
- [56] McLuhan M. (1962), *The Gutenberg Galaxy. The Making of typographic Man*, University of Toronto Press
- [57] McLuhan M. (1964), *Understanding Media. The Extensions of Man*, McGraw Hill, NY (MIT Press 1994)
- [58] Naisbitt J. (1982) *Megatrends. The New Direction Transforming our Lives*, Warner Books, NY
- [59] Neilson B., Rossiter N. (2008), *Precarity as a political concept, or, Fordism as exception*, *Theory, Culture & Society*, 25(7-8), pp. 51-72.
- [60] O'Reilly, T. (2005), *What is Web 2.0*, <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>
- [61] Pasquinelli M. (2009) *Google's PageRank Algorithm: A Diagram of Cognitive Capitalism and the Rentier of the Common Intellect*, in: *Deep Search: The Politics of Search Beyond Google*, Transaction Publishers, London
- [62] Pasquinelli M. (2010), *The Ideology of Free Culture and the Grammar of Sabotage*, in: *Education in the Creative Economy. Knowledge and Learning in the Age of Innovation*, Peter Lang, New York
- [63] Peters M. A. (2011) *Cognitive Capitalism, Education and Digital Labour*, Peter Lang, New York
- [64] Postman N. (1985) *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*, Penguin Books, NY
- [65] Postman N. (1992) *Technopoly. The surrender of culture to technology*, Pantheon, New York
- [66] Pratt, A. C. (2000) *New media, the new economy and new spaces*, *Geoforum*, 31(4), pp. 425-436.
- [67] Pratt, A. C. (2002), *Hot jobs in cool places. The material cultures of new media product spaces: the case of the south of market, San Francisco*, *Information, Communication and Society*, 5(1), pp. 27-50.
- [68] Pratt, A. C. (2005). *Cultural industries and public policy: An oxymoron?*, *International Journal of Cultural Policy*, 11(1), pp. 31-44.

- [69] Pratt A.C, Gill R. (2000), *New media user networks*, London: Arts Council of England
- [70] Peck, J. (2005). *Struggling with the creative class*, *International Journal of Urban and Regional Research*, 29(4), pp. 740-770.
- [71] Rheingold H. (2000) *The Virtual Community*, MIT Press, Cambridge, Massachusetts, London
- [72] Rifkin J. (1996) *The end of work: the decline of the global labour force and the dawn of post-market era*, Tarcher
- [73] Rifkin J. (2001) *The Age of the Access*, Penguin Books, London
- [74] Rifkin, J. (2011) *The Third Industrial Revolution: How Lateral Power Is Transforming Energy, the Economy, and the World.*, Palgrave Macmillan, New York
- [75] Robertson R. (1992) *Globalisation : The Social Theory and Global Culture*, Sage, London
- [76] Rotman, D. (2013) *How Technology is Destroying Jobs*, MIT Technology Review, June 2013 <http://www.technologyreview.com/featuredstory/515926/how-technology-is-destroying-jobs/>
- [77] Sandywell B. (1996) *Reflexivity and the Crisis of Western Reason*, Routledge, London
- [78] Schumpeter J.A. (1939) *Business Cycles*, McGraw-Hill, New York
- [79] Schumpeter J. A. (2006) [1939]. *Business cycles: a theoretical, historical, and statistical analysis of the capitalist process*, Mansfield Centre, Martino Pub, Connecticut
- [80] Schumpeter J.A. (1997) *The theory of economic development: an inquiry into profits, capital, credit, interest, and the business cycle [1911, 1934]*, New Brunswick & London
- [81] Scholz T. (2012), *Digital labour: The Internet as playground and factory*, Routledge, London
- [82] Sclove R.E. (1995) *Democracy and Technology*, Guilford Press, New York
- [83] Servon L. (2002) *Bridging the Digital Divide: technology, Community and Public Policy*, Blackwell, Oxford
- [84] Sewell, G., Wilkinson, B. (1992), *Empowerment or Emasculation? Shopfloor Surveillance in a Total Quality Organization*, in: P. Blyton and P. Turnbull (eds), *Reassessing Human Resource Management*, London, Sage.
- [85] Stehr N. (1994) *Knowledge Societies*, Sage Publications, London
- [86] Tapscott D. (1998) *Growing up digital. The Rise of the Net Generation*, McGraw- Hill, London
- [87] Tapscott D., Caston A. (1993), *Paradigm Shift: The New Promise of Information Technology*, McGraw Hill, NY
- [88] Tapscott D (2006), *Winning with the enterprise 2.0 , New paradigm learning corporation (NPLC)*
- [89] Tapscott D., Williams A. (2008) *Wikinomics: How mass collaboration changed everything*, Portfolio, NY

- [90] Taylor P., Harris J. (2005). *Digital Matters*, Routledge, London
- [91] Terranova T. (2000), *Free Labor. Producing Culture for the Digital Economy*, *Social Text* 18 (2). Pp. 33-58.
- [92] Toffler, A. (1970, 1984). *Future Shock*, Bantam Books, New York Toronto London Sydney Auckland
- [93] Toffler, A., Toffler H. (1980). *The Third Wave*. William Morrow, New York
- [94] Urry J. (2000) *Sociology Beyond Societies*, Routledge, London
- [95] Vercellone C. (2007), *From formal subsumption to general intellect*, *Historical Materialism*, 15, pp. 13-36.
- [96] Wallerstein E. (1999). *The end of the world as we know it*, University of Minnesota Press, Minneapolis
- [97] Wierzbicki A.P. (2000) *Megatrends of Information Society and the Emergence of Knowledge Science in: Proceedings of the International Conference on Virtual Environments for Advanced Modelling*, JAIST, Tatsumokuchi
- [98] Wierzbicki A.P. (2015). *Techne: Element of Recent History of Information Technologies with epistemological conclusions*, Springer Int. Publishing, Switzerland
- [99] Winston B. (1998). *Media Technology and Society*, Routledge, London
- [100] Wood S. (1991). *Japanization and/or Toyotism?*, *Work, Employment and Society*, vol. 5, no. 4, pp. 567-600.