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OPPORTUNITIES OF DIGITAL ECONOMY: FLEXIBLE ORGANISATION OF LABOUR

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Abstract

The digital economy and spread of new technologies create opportunities and challenges. It will contribute to both job formation and job elimination, have an impact on enterprise competitiveness, employment relationships and the types of jobs available, and require new competencies. This study aims a) to analyse factors influencing to nature of work in the context of the digital economy and b) to reveal main pillars of flexible organization of labour in the context of the digital economy. This study focuses on the opportunities of digital economy; a new doctrine of flexible organization of labour centered round human communities, digital ecosystems and economic organizations. Considering the digital economy as multiple interplay ecosystems, economic organizations and human communities, flexible organization of labour tries to find ways in which economies could have been made more humane. This study demonstrates the practical relevance of flexible organization of labour to two fields: first, the socio responsibility problematics and, second the question of how to form economic policies which serves real development. The aim of this research is to study the new doctrine of flexible organisation of labour. The outcome is to reveal the multifarious labour factors in the context of the digital economy along with how as new nature of work, institutional co‐ordination vary socio‐spatially. The creation of flexible organisation of labour is fundamental to sustainable digital economy. It provides an emerging new paradigm for which serves real development.

Keywords: Digital economy, Industry 4.0, work, labour standards, flexible organisation of labour, digital ecosystem.

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1. Introduction

Over the past decade, the world of work has been confronted with many new challenges. Industry 4.0, global network, new infrastructure considerably change the traditional concepts of labour (O'Connor, 2015; Gratton, 2011). Robots and other machines make the elements of the work, in which they have a competitive advantage; digital technology is paving the way for increasing productivity. The work time saved may be employed in altogether new tasks. A rise new types of jobs has been facilitated, above all, by the introduction affixed term contracts, part-time contracts, temporary job contracts, etc. At the same time, such innovations in the job marketplace raise important fear with regard to the shortened degree of social protection in the context of the new economy, where workers have essentially become a contractors, who no longer benefits from social security (Nübler, 2016). Considering the main opportunities to be seized and main challenges to be addressed in the coming years, it is necessary to creation of new doctrine of flexible organisation of labour, which serves real development.

2. Problem Statement

Technological and demographic development and the continued globalization mark the world of work today. The spread of new technologies creates opportunities and challenges. It will contribute to both job formation and job elimination, have an impact on enterprise competitiveness, employment relationships and the types of jobs available, and require new competencies (Nübler, 2016). There have been numerous numbers of social and economic studies conducted in developed and developing countries. Schwab (2017), Elsner (2004), Piasecki and Wolnicki (2004) are example of studies conducted within the scope of developed countries while studies such as Salazar-Xirinachs, Nübler, & Kozul-Wright (2017), Zemtsov & Maskaev (2017), Dyatlov, Tcvetkov, Vasiltsov, & Vasiltsova (2014) are conducted in developing countries particularly in Russia.

The findings show increasing new markets and interdependencies among digital systems of production. Preconditions for such systems are multi-skilled workers, programmable digital equipment and a flexible organisation of labour. On the other hand, as far as workers are concerned, the flexible organisation of labour offers a better combination of their working life with their vocational training and their family needs.

Based on the review of past researches, it can be concluded that there is still a gap in the social economic literature looking of new doctrine of flexible organisation of labour. Therefore, this paper aims to examine of flexible organisation of labour within the context of factors such as new nature of work, institutional co-ordination, "human cloud".

3. Research Questions

Given the gap in the existing literature, research questions for this present study are:

- What factors influence nature of work in the context of the digital economy?
- What principles underlie a flexible organisation of labour?

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4. Purpose of the Study

The objectives of this study are:

- To analyse factors influencing to nature of work in the context of the digital economy and
- To reveal main pillars of flexible organisation of labour in the context of the digital economy.

5. Research Methods

The study benefited from logic analysis, sociological methods, inductive and deductive methods. Working papers of international organisations, researches of Russian, European and American scientists lighting the problems of labour and digital economy, served as theoretical background for the data analysis in this study. The study benefited from working papers of discussions carried out during a 107th Session of International Labour Conference (Geneva, 27 March 2018). The ideas of Klaus Schwab, Carl Benedikt Frey, Sarah O'Connor, Michael Osborne, Lynda Gratton, Wolfram Elsner, Ryszard Piasecki, Miron Wolnicki are presented as the most important antecedents.

6. Findings

6.1. Extending digital ecosystems

The spread of new technologies has grown to a scale unprecedented lately. Through digitalization and computerization, movement of human resources, finance and goods blurs companies' boundaries, challenging traditional production models and creating an interdependent economic network. Thanks to technical advances in the digital economy, companies can serve markets without having to be physically present in them. In view of this, a new economy needs new forms of cooperation, particularly given the rise of digital platforms.

New business models and digital forms of collaboration find application in young, dynamic firms, which enjoy more flexibility to explore new possibilities, but also in established businesses (Brown & Mawson, 2015; Medovnikov, Rozmirovich, & Oganesyan, 2016; Dyatlov, Tcvetkov, Vasiltsov, & Vasiltsova, 2014; Vinkov, Gurova, Polunin, & Yudanov, 2008; Zemtsov & Maskaev, 2017). Such cooperations, however, are often far from simple (Polunin & Yudanov, 2016). According to Schwab, new collaborations require substantial capital spending to develop strategies, "search for appropriate partners, establish communication channels, align processes, and flexibly respond to changing conditions, both inside and outside the partnership. Sometimes, such collaborations spawn entirely new business models.., which bring together businesses from multiple industries…" (Schwab, 2017, p.57).

An effective business model that allows firms to scale quickly is the digital ecosystem (Yudanov, 2012). This system moves companies closer to different markets, contributing to the creation of new efficient value chains.

A hallmark of the new economy is the appearance of global digital ecosystems, which are closely linked to Industry 4.0 and the material world (Dyatlov, Vasiltsova, Vasiltsov, Bezrukova, & Bezrukov, 2015). Meanwhile, the ecosystem strategy is both advantageous and destructive. In this context, the development of ecosystem-based strategies is changing all sectors, including industry and services, creating new branches of industry.

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One way of doing practical implementation of new strategy is by giving high priority to delivering new services and to promoting digital service systems of customers. According to Schwab (2017, p.58), "an increasing number of consumers no longer purchase and own physical objects, but rather pay for the delivery of the underlying service", which they access via a digital ecosystem.

Several researches have proven that "liquid and open" firms are part of digital ecosystem of value creation (Zemtsov & Maskaev, 2017; Brown & Mawson, 2015; Dautzenberg et al., 2012). Such an approach includes the involvement of various sectoral users of a specific digital ecosystem to identify and put in place specific arrangements for the sustainable use and protection of the ecosystem. These transformations should be made by a harmonious team of educated and highly qualified staff. This novation means that skills have to be rethought in view of requirements of concrete companies and the need to attract the right sort of human resources in digital ecosystems. According to Klaus Schwab, "organizations will increasingly shift from hierarchical structures to more networked and collaborative models. Motivation will be increasingly intrinsic, driven by the collaborative desire of employees and management for mastery, independence and meaning. …businesses will become increasingly organized around distributed teams…" (Schwab, 2017, p.60).

6.2. Creation of new forms of employment and new forms of social and employment contracts

The emergence of an economy, where the basic work concept is a sequence of transactions between workers and entrepreneurs, was outlined by Daniel Pink 17 years ago in his monograph "Free Agent Nation" (Pink, 2001). This process has been extremely forced by digital technologies.

Today, technological innovation is fundamentally changing labour and socio-economic relations: people use smart phones, tablets and other portable electronic devices for implementing their professional tasks and organizing their work in the interactive interfaces. Due to modern information technology, jobs are often created on the Internet, by joining the so-called "human cloud".

According to Klaus Schwab, "…activities are dissected into precise assignments…and then thrown into a virtual cloud of aspiring workers located anywhere in the world. …providers of labour are no longer employees in the traditional sense but rather independent workers who perform specific tasks…" (Schwab, 2017, p.49). In an effort to maximize its incomes, business will move towards a complete virtualization of jobs and growth a virtual infrastructure, as well as "cloud portfolio of things" to reach new levels of efficiency (Manjoo, 2015).

These obvious of digital economy advantages are the essential for firms. As virtual job market categorizes workers as self-employed, companies are free of the demand to pay minimum wages and provide social guarantees (O'Connor, 2015). According to Klaus Schwab, "…for the people who are in the cloud, the main advantages reside in the freedom and the unrivalled mobility… Although the human cloud is in its infancy, there is already substantial anecdotal evidence that it entails silent offshoring" (Schwab, 2017, p.50).

In view of this, the new challenge is to come up with relevant forms of social and employment contracts that match new nature of labour. Governments and trade unions must limit the downside of the expanding virtual job market in terms of probable exploitation. As the full application of social guarantees for workers of the human cloud is reduce the risks of social and instability in the new world. If

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business, the public and governments are unable to do this, the digital economy could lead to the "dark side of the future of work", which Lynda Gratton, a professor of management practice at London Business School, characterizes as "increasing levels of fragmentation, isolation and exclusion across societies" (Gratton, 2011, p.49).

6.3. Automation and labour substitution

Modern information technology has great potential to improve the living standards of population, but their effects are not always predictable and positive. Despite new opportunities, there are still many failures. For example, the cost reduction of production equipment is threatening to those workers who are engaged in low-paid jobs and perform routine tasks. These are the most affected by automation professions.

As the work by Frey and Osborne shows, specialists doing routine work are the most vulnerable for the automation (Frey & Osborne, 2015). There are many examples. The most robots involved in industrial production work in the electrical (electronic), metallurgical, automotive and engineering branches. A lot of financial companies use big data for some tasks instead of hiring thousands of loan officers or lawyers.

Frey & Osborne (2013) have quantified the possibilities of computerizing various job tasks and then derived a probability of automation for each occupation. The experts were asked to categorize by rating 702 dissimilar professions depending to probability of being automated, from the least susceptible to the risk of automation. The criterion for labelling an occupation 1 or 0 was: "Can the tasks of this job be sufficiently specified, conditional on the availability of big data, to be performed by state of the art computer-controlled equipment?" (Frey & Osborne, 2013, p.30). In Table 01 below, highlights particular professions that are most probably to be automated.

Table 01. Examples of professions most to automation

Probability	Occupation
0.99	Telemarketers
0.99	Tax preparers
0.98	Insurance Appraisers
0.98	Umpires
0.98	Legal Secretaries
0.97	Hosts and Hostesses, Restaurant
0.97	Real Estate Brokers
0.97	Farm Labor Contractors
0.96	Secretaries
0.94	Couriers and Messengers

Source: Frey & Osborne, (2013)

Frey and Osborne (2013, p. 23) note that "… it is largely already technologically possible to automate almost any task, provided that sufficient amounts of data are gathered for pattern recognition."

According to Klaus Schwab, "…algorithms are better able to replace humans. Discrete, well-defined tasks lead to better monitoring and more high-quality data around the task, thereby creating a better base from which algorithms can be designed to do the work…" (Schwab, 2017, p.43).

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Modern wearable technologies when combined with the internet of things provide effective implementing work processes. A result of the automation of many tasks low-skilled workers performing manual tasks are no longer a decisive factor of production. Skills required by new jobs change completely, shifting away from usual manual skills towards non-typical technical and soft skills, such as job engineering, partnership facilitation and communication.

Many businesses were currently funding technology upgrading and special automation programmes. Frey and Osborne (2015, p.44) state that "a critical enabling factor for automation is the fact that companies have worked hard to define better and simplify jobs in recent years as part of their efforts to outsource, off-shore and allow them to be performed as "digital work".

Businesses fuel technological and service innovation by improving existing or developing new processes, products, services and ensuring commercialization. This opens new perspectives assisting firms to blend digital and physical activities to favor business, workers and consumers. The most important challenge in this regard is to achieve stimulus that boosts new job creation and puts the unemployed back to work in the digital ecosystems.

The wide range of prognosis shows the complexity of assessing the impact of information technology on jobs and professions. Expert opinions are important in this matter but they should not be the only guide. In addition, the use of one country's professional categories to assess possible job losses caused by automation in other countries is questionable. Prognosis about possible job losses do not accurately reflect technology adoption rates, which is often quite slow and differ from each other not only in the context of different countries but also by comparing specific companies. For example, the use of mobile phones has spread faster than some earlier technological inventions, but the Internet has spread in many cases relatively slowly, especially among companies of informal sector.

Thus, the rate of technology adoption affects the possibility of transformation or even destruction of jobs through technology. The prevalence of automation versus labor continues to vary across and within countries, depending on the context.

6.4. Implementation of international labour standards

Governance of digital ecosystems does not imply regulatory uncertainty. As researches shows, an economy regulated by fair rules is more efficient and provides gain to everyone (Elsner, 2004; Piasecki & Wolnicki, 2004). Legislation and legal institutions provide enforcement of deals, property rights and security – all legal elements of effectual management without which no economic systems can operate.

According to Klaus Schwab, "in a world where essential public functions, social communication and personal information migrate to digital ecosystems, governments – in collaboration with business and civil society – need to create the rules, checks and balances to maintain justice, competitiveness, fairness, …safety and reliability…" (Schwab, 2017, p.69). However, a lot of regulations are not adapted to the occurring changes yet. Digital ecosystems often function in so called "grey areas", where only the minimum standards of quality and safety are maitained. Hence, in the age of the Industry 4.0 is needed is a legislative and regulatory system that can create resilient frameworks. Given of this, the international public has recognized the necessity to build some fundamental rules to ensure that digital economy offers

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a fair opportunity at success for everyone. These rules are law elements in the ILO's strategy for sustainable development and guaranteeing that people can work in dignity and safety.

International labour standards – for the moment – have increase into a universal system of social tools and social policy, supported by a controlling system intended to address of labour questions. It is the law element in the ILO's strategy for steering globalization, stimulating durable growth and guaranteeing that workers can work in dignity and safety (ILO, 2014).

ILO publications note that, "…international labour standards are first and foremost about the development of people as human beings. In the ILO's Declaration of Philadelphia of 1944, the international community recognized that "labour is not a commodity"…" (ILO, 2014, p.10). The labour is not an inanimate object. The labour is field of everyone's daily activity and is important to a welfare and development the people. Growth of digital ecosystems should accompany the generation of jobs and working conditions in which workers can implement labour activity in freedom, dignity and safety. Hence, the economic growth is not considered as the goal itself, but to make better the humans lives; interstate labour standards are there to provide that labour will focus on improving peoples' lives (ILO, 2014).

Reaching the goal of decent work in the extending digital ecosystems demands activity at the interstate level. The international community tries to ensure a level playing field in the digital economy through the development of inter-state legal instruments on Finance, trade, human rights, labour and the environment. The ILO promotes law framework by developing and propagandizing international labour standards oriented making sure that digital ecosystems and virtual markets growth and development go along with the generation of decent jobs (ILO, 2014).

Improvement of the interstate law framework helps entrepreneurs to escape the seduction of decrease labour standards. This is a particularly important issue given that decrease labour standards can promote preserving low-skill, low-wage jobs and prevent digital ecosystems from developing highskilled employment.

Today the international community recognizes that international labour standards are baseline norms adopted by governments and society, it is in everyone's interest to see these norms used widespread by all countries and regions.

Promoting enterprise and creation of decent jobs, ensuring rights at work, widening social security and supporting social dialogue are the four primary elements of the ILO Decent Work Agenda. These are crucial to development of digital ecosystems.

As previously mentioned, the extensive problem of labour legislation and observe for international labour standards will act a defining role in shaping digital ecosystems in which "liquid and open" firms operate. In view of this, an increasing housing of research reveals that implementation with international labour standards frequently accompanies enhancement productivity and economic indicators. Welfare creation through productivity enhancement and compliance with rules and labour regulations will no doubt foster sustainable economic development. Higher wages and reasonable rules on working time, rest and leaves can truly conducive to the interests of workers. Therefore, conscientious labour practices set out in international labour standards and attached through a legal system will guarantee an efficient and stable digital labour market for workers and entrepreneurs.

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The digital economy provides new opportunities for the integration, communication and mobility. It gives possibilities to exchange good experiences and necessary resources for the growth of digital ecosystems and virtual markets. According to Schwab (2017 , p.79), “it is likely that the extending digital ecosystems will have a similar effect, as the fusion of the physical, digital and biological worlds will further transcend time/space limitations” in such a way as to encourage to creation of new digital labour markets. The way digital labour markets and Industry 4.0 develop is in turn central to whether new types of jobs creation.

In view of this, interstate sources of labour obligations urge for the development of tools instruments which can enforce labour rights and security. In conjunction with an aggregate of international rules, legislative acts of governments can help institutionalize the digital economy and create an environment of trust and order. Such an environment would foster the economic growth and social welfare.

In summary, the new doctrine of flexible organisation of labour has four main pillars in the digital economy:

- extending digital ecosystems;
- creation of new forms of employment and new forms of social and employment contracts;
- automation and labour substitution;

implementation of international labour standards.

7. Conclusion

The aim of this research is to study the new doctrine of flexible organisation of labour. The outcome is to reveal the multifarious labour factors in the context of the digital economy along with how as new nature of work, institutional co‐ordination vary socio‐spatially. The creation of flexible organisation of labour is fundamental to sustainable digital economy. It provides an emerging new paradigm for which serves real development. Precisely for this reason the advantages and constraints of the flexible organisation of labour need to explore with the widest possible practical consultation involving technical experts and managers.

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