THE FEMALE ELEMENT IN A DIGITAL ECONOMY

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Abstract

The so-called digital economy is one of the products of the Fourth Industrial Revolution called Revolution 4.0. In common understanding, it is a concept which describes the possibility of transferring some activities of daily life to the Internet while reducing costs and increasing comfort. In addition, the possibility of replacement work by robots could also fundamentally transform working groups, increase worker confidence, enhance the joy of work and relieve (or even eliminate) alienation within work. Or will the impact of Revolution 4.0 instead not be so positive and optimistic? And what should and could be the role of women in this context? Does the above indicated contribute to the further emancipation and independence of women? Are gender differences scientifically significant in terms of the vision of the 4.0 society? Will 4.0 or "smart factory" function only for men or women? Are differences in female and male thinking and male and female rationality related to the current phases of digitization and robotics? And so you can continue. The text attempts to indicate possible ways of thinking about the issues raised above, while respecting not only purely economic perspectives on today's contemporary world and its problems, but also the ethical and moral aspects.

Key words: Industry 4.0, Internet, Digital economy, female element, sustainability

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Introduction

The current globalized world and economy are characterized by high volatility and increasing competitive pressure. The key to gaining the competitive advantage is the continuous innovation and optimization of production, the development of new smart technologies with literally massive expansion of the Internet. The so-called digital economy is supposed to be one of the products of the fourth industrial revolution. The Industrial Revolution 4.0 causes a dynamic interaction among complex cybernetic-virtual systems, physical world systems and social systems. In general, it is a concept that should allow to move some of the common

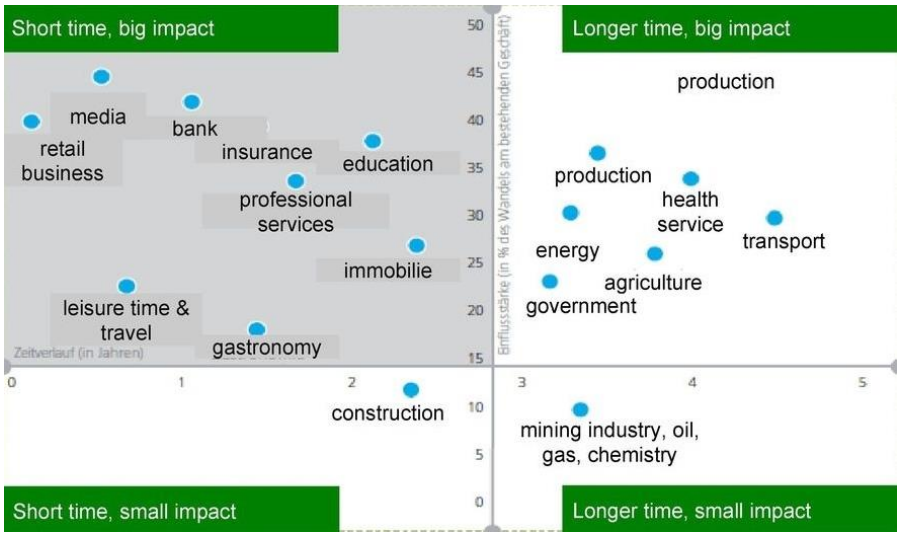
daily activities to the Internet while reducing costs and increasing comfort. The expected replacement of human work by robots will significantly affect labour markets. It could fundamentally transform working teams, increase confidence, strengthen the joy of work, and mitigate (or even overcome) alienation of work. However, at the same time the effects of Revolution 4.0 may not be as positive and optimistic. One of the determining factors of today is the growing influence of the female element in all areas of life. This is a result of both a real growing number of women and, above all, of the technological and socio-cultural changes brought about by a global society. What should and could the role of women be in the context of Revolution 4.0? There are several questions in this frame. Will it contribute to their further emancipation and increasing their autonomy, which is now exaggerated and perhaps even counterproductive for many people (men and women themselves)? Are scientifically substantiated gender differences also significant in terms of vision of society 4.0? Will be work 4.0 or "smart factories" only for men (or only for women)? Will the differences between women's and men's thinking and female and male rationality also be reflected in relation to the current phases of digitization and robotization? How could women contribute to sustainability and development of society from the point of view of Revolution 4.0? The following paper indicates some possible ways of thinking about the above-mentioned issues, while respecting not only the purely economic views of current world with its problems, but also the ethical dimension. In order to achieve this, the methods of description, comparison and qualitative analysis have been employed, making use of secondary data from specialist literature sources and results of available research on the topic.

1 Industry Concept 4.0

Worldwide, industry is currently undergoing major changes due to the application of new technologies (information, cyber-physical systems, artificial intelligence, etc.) into production processes, services, and the entire economic and political system. According to K. Schwab (2017), the fourth industrial revolution is a follow-up to the digital revolution and is beginning to show signs of breakthroughs in several areas where robotics, artificial intelligence, nanotechnology, biotechnology, the Internet of Things, 3D printing or autonomous vehicles play a key role. The qualitative distinction of 4IR from previous ones is repeatedly highlighted. The fourth industrial revolution is led by industry, supported by projects as Industrie 4.0. or Industry 4.0 (see Lasi et al., 2014). The platform Industrie 4.0 was launched

at the Hannover 2013 fair. Basic visions appear in Hanover 2011 as a project for the Future in the frame of High-Tech Strategy which follows Smart Factory Research Platform from 2005. The project is supported by the German government and companies as Siemens, Volkswagen and Bosch participate on it. The basis of the project is the intensive propaganda of new technologies for automation of industry and households. The main objective is to keep up the demand for new technologies and accelerate the development of robotic automation and fully automatic control systems, while maintaining competitiveness (see Nečadová, 2016). The project relates to concepts of information, knowledge, digital and network economics. Subsequently, other countries (not only European) join the project and a phenomenon emphasizing the breakthrough of automation, digitization and robotic automation is created. The Czech response to challenges "4.0" is "Národní iniciativa Průmysl 4.0" or "Aliance Společnost 4.0"[1] (Mařík et al., 2016). Also "Draft strategického rámce ČR 2030" (or more precisely Strategic document Česká republika 2030 mentions the impacts of digitization .

Fig. 1: Which areas will be influenced by 4th Industrial Revolution?



Source: Delloite digital.

1.1 Changes on the Labour Market

Towards a knowledge-based society in the spirit of Industry 4.0's vision will essentially affect the required qualifications and the labour market. New principles of work organization will be promoted and the role of the employee will change. There will be changes in the structure and

[1] It is a co-ordinating platform in which representatives of the state, economic and social partners and academics will be able to discuss the intended measures.

job descriptions of most professions. Informatization and cybernetization of production, services and the functioning of the state will require completely new skills, which will affect the development of employment and unemployment. It will be necessary to adapt the labour market, education and social policies to new requirements, which should prevent the growth of tensions and economic and social losses.

There are growing demands for education. The inflew of undergraduates will gradually replace the outgoing generation of high school educated practitioners. The Digital Revolution will bring whole new jobs. Many current professions will disappear. They will be hit especially less skilled positions in industrial production[2]. The exact nature and structure of new jobs will not be predictable over the long term. The future labor market will be significantly more dynamic than today. Future workers will need to have the flexibility to be able to play new roles in new jobs. The education system must provide high digital literacy, communication skills, knowledge of foreign languages and the ability to learn on a continuous basis. The possibilities of using the technologies of industry 4.0 and the speed of their expansion will be affected by the size and quality of the human resources base educated in ICT (Information and Communication Technologies).[3]

2 Female Potential

Women in developed countries are actively involved in economic life and fundamentally affect most of the purchasing decisions. Women also invest more in future generations. Women gradually become more and more important in globalized markets, not only as a workforce, but also as consumers, entrepreneurs, managers or investors. Women's approach to reality and the use of women's abilities offers new solutions of existing problems. It contributes to a more balanced economy and sustainability. The frequent engagement of women in labour markets and the use of female talent, in addition to supporting long-term economic growth offers a solution of the threat of aging or shrinking population (Džbánková & Sirůček, 2012). However, the impacts may be negative as well. For example the phenomenon of "overfeminized" education (deficits of male pattern), a lower birth rate, a crisis of traditional relationships and values, including fears of the extinction of a traditional family.

[2] In 2014 24% of all employees worked in the manufacturing industry in the Czech Republic . These are mainly low-tech industries..

[3]These are technologically demanding services, including telecommunication activities, information, automation and cyber technology, research and development.

The engaging of women in the work process plays an important role in women's life. , The industiral revlution and mainly wars of the 20th century influenced working focus, but also the position of women in society. Until then, female employment has been low. In fact, women's employment today is mostly 35-60% (applicable to European countries) aged 15-60. In the Czech Republic, almost 51.3% of women over 15 are economically active (compared with 68% of men) (Džbánková & Sirůček, 2012; ČSÚ, 2016). The most women are employees, ie 87.2% (compared to 79.1% of men). Women as employers or "self-employed" women are 11.8% (20.6% men) of the economically active population and 1.0% (0.3% males) are women in the position of so-called "assisting family members". Most women are employed in organizations and institutions and in households, the most common areas are the manufacturing and health and social care sectors. Most men are in construction and mining and quarrying, including manufacturing industry (ČSÚ, 2016; Kubálková ed., 2016).

Even though the women in the Czech Republic are economically active, the Czech Republic is among the mature countries where women's potential is most wasting. One reason is that the Czech labour market is relatively rigid and less open to mothers, including mothers with university education. One of the main social barriers and at the same time a challenge to empower women in the labour market in modern society is the harmonization of a family life and professional careers - the WLB[4]. In this respect, the situation in the Czech Republic slightly improved and indicated the possibilities of building careers of pairs. There has been a reform of preschool institutions, an introduction of kindergartens, children's groups etc. The most important solution of harmonization of family and professional life represent flexible forms of employment (part-time work, job sharing, flexible working hours, home office, etc.).

3 Women and the digital economy

Digitization offers several opportunities for more equal participation of women in the labour market, in financial markets and in business, and for the empowerment of women in general. Women appear to face lower risks of replacing them with a machine compared to men's workforce. The often-highlighted social skills of women also represent a comparative advantage in the digital age. Especially if these skills are complemented by higher education

[4] Work-life balance "represents the creation of a balance between work and life. This is the FFP or "Family-friendly policy" - a culture or politics of a friendly family. The issue of family and professional careers has been incorporated into the legislation of developed countries as well as international ILO (International Labor Organization).

and advanced digital literacy. However, the same barriers that prevent current progress in many G20 countries can ruin many opportunities in the digital age for women. It is therefore necessary to remove these obstacles by the efforts of the G20 governments. Improving women's access to new digital technologies seems to be a promising starting point for achieving gender equality.

The digital economy can give women the opportunity to earn money even if they are otherwise excluded from traditional labour markets. Whether we mean women on maternity leave or with reduced work capacity. Especially this is true in a developing world where cultural bias, movement restrictions, security and time constraints often prevent women from gaining their rightful place in the work process. The key benefit of the digital economy is that it allows and supports distance work where a gender is irrelevant. It opens the world with opportunities for women in poor countries. However, there are obstacles and limitations that prevent women from benefiting from this "digital advantage". One of the main problems is uneven access to the Internet.[5] Another obstacle is the lack of education in the digital domain.

A common barrier for women while entering the IT sector throughout the developing world is the lack of training.[6] Therefore, the main way to get more women for the digital economy is to provide them with more education. And the only way to reach women in rural areas is through online courses[7]. Although education enables women to get a job in IT, it can be more expensive. For example, that is why the private company CodersTrust comes with an innovative solution. This company provides microfinance and training for IT workers in Bangladesh. They then help them stand out and gain work on fast growing, online, independent portals such as Elance and Upwork.

Perhaps the biggest obstacle for women while entering the IT area in the developing world is the lack of patterns. If young women and their families do not see other women in these roles, it is difficult for them to reflect on training requests. It is therefore within the training program required that graduates become mentors of potential new applicants. This problem is particularly obvious in countries where the conflict has aggravated traditional

[5] E.g. According to World Bank data, 18 % of African men and only 12% of African women have access to the Internet.

[6] For this purpose, IT training programs for women, including software development and soft skills training are being developer (Andela company in Afrika). Program GirlsGoIT combines teaching in basic programming as well as critical thinking and problem solving. After its initial success in Moldova, especially aimed at rural women, it is now spreading to Ukraine, Turkey and Romania.

[7] The Internet plays an important role in education. We can mention in addition to on-line courses, the possibility to obtain information from digital libraries or fulltext databases (eg see Doležalová, 2009), participate in webinars, etc.

cultural barriers for women in the workplace (Afghanistan, Pakistan). According to J. El-Horr[8] the key to success consists in integrating of the entire community and enabling families to know about opportunities. In this way, it is possible to change the view that the only jobs women can have are teachers or nurses. Ironically, work in digital space in conflict-affected countries can be far safer than working in traditional jobs (Empowering Women through Jobs in the Digital Economy, October 20, 2015).

3.1 Women in ICT of the Czech Republic

It follows from the above that the speed and spreading of new technologies associated with Industry 4.0 are closely related to high-quality ICT professionals. Despite the growing interest of companies in ICT, there is a shortage of women working in ICT in the Czech Republic. With the share of 7% of women employed in IT, we are almost the worst in Europe, and this figure is also declining every year. In fact, there is a demand for women in the labour market of ICT. They are usually more alert, more communicative and motivated than their male colleagues. Their lack has several reasons. The main of them is a small number of information technology students, which is about 16%, and this figure has not changed fundamentally over the last fifteen years. The low interest of girls in technical fields and ICT is predominantly caused by stereotypes[9] in a society. Why, however, do the women who graduating in IT do not participate to a greater extent in employment in this sector? A number of graduates are focused on IT related areas but are classified in a different category (eg ICT in the field of medicine, ICT teaching in secondary schools, etc.). In these branches 33% of women are represented. In typical IT disciplines that are related to programming and development women are represented by three percent. The motivation of women for technical fields and the capture of female technical talents is a challenge for our education system (CSU, 2015, Anonymous, 2016).

Conclusion

The Fourth Industrial Revolution is the key to gaining competitive advantage through the development of new smart technologies that will influence the interaction between the physical world and its social systems. Digitization and robotization forever change the world

[8] Jana El-Horr is a World Bank Specialist for Social Development and she works on two pilot projects to involve women in the digital economy.
[9] Automatic concepts of men and women's abilities and predispositions for certain professions.

of work. Raising qualification and constantly adapting skills to the rapidly changing conditions of the dynamically evolving labour market will be a major challenge to our time for individuals, businesses and the state. The permanent value in this context is the ability of learning and flexibility. A crucial role in the introduction of new technologies will play Information and Communication Technologies.

The use of women's potential and the perspective to address the challenges of a globalized world, including sustainability, is not a new topic. Changes in production and the emergence of new technologies lead to the lack of ICT professionals. Therefore, the largest employers in the ICT field are looking for female talent. An obstacle that hinders technically talented women and reflects them from entering the field of ICT and other technical disciplines are stereotypes. The key in this area is ongoing education. It is up to companies to invest in human capital in the spirit of gender-neutral policies to attract skilled workers of both sexes.

Educational IT programs for women ultimately achieve the female empowerment through participation in the digital economy in the developing world too. The nature of the digital economy brings opportunities to participate in the labor market rather than the traditional economy.The barriers to women's involvement in this area differ from traditional barriers and are not insurmountable. There is need sufficient access to the Internet, adequate education and the provision of ICT female models.

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