

The Influence of the Artificial Intelligence on the Development of the Economy - Some Cultural Aspects

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Abstract. In an era of mass digitalization and revolutionary changes in the labor market, more and more people need to change profession and the development of new forms of digital art is a niche with expected growth. The associated reasons are complex, but it is possible to predict and guide them.

Keywords: Artificial Intelligence, Digital Art, Knowledge Economy, Digital Workplace, Data Science.

1 Introduction

Following the development of the civilization, the agrarian economy gave ground to the industrial revolution and there are quite logical reasons for that. On one hand, mechanization alleviates human effort and reduces the need for manual labour, while on the other hand, workers are needed to produce and service these same machines, as well as many other household goods productions. Accordingly, with the advent of large factories, urbanization is accelerating because thousands of people are beginning to migrate from rural areas, where labour demand is declining sharply because of this same mechanization, and at the same time the machinery in factories needed workers. If at the beginning of the industrial revolution, most of the population was employed in the agricultural sector, today in the developed countries, such as the United States, in the agriculture is engaged less than 1% of the population and it is enough to produce the necessary products to feed the whole nation.

Similar processes were observed at the next stage in the industry with the entry of society into the digital revolution - with the advent of more robots and industrial machines, the people in factories become redundant and larger groups of them in turn re-oriented to the field of services, which in the knowledge economy are mainly provided digitally. Accordingly, the cities were filled with offices where thousands of people perform some computer activities - banking, accounting, consulting, legal and other services (Fig. 1)

Despite concerns about job losses, current practice shows that in practice most technological innovations increase rather than decrease labour needs, and the list of citizens' needs is constantly increasing. Evidently, whatever human need arises in parallel with

the development of the civilization (the need for housing, the need for smartphones, the need for medical services), scientific or technological innovations soon appear, which increase the productivity, improve the quality, reduce the costs and respectively - free up the personnel who is reoriented to another niche for the work that is inevitably emerging, and this process seems uninterrupted for the last 3 centuries. However, it turns out that the rapid pace of digitalization in all spheres of public life is about to change that and that will happen rather soon.



Fig. 1. Illustration of the activities in agrarian, industrial and digital economy

2 The Rise of AI

The emergence and the development of systems, based on artificial intelligence (AI), were initially accepted by the society with considerable enthusiasm, but in fact, their power, combined with the cloud technologies (Pavlova, 2019) and the internet of things are about to radically change the labour market. Although it was initially accepted that robots and computers could successfully replace humans only in polluted or life-risking industries or in low-specialized activities, mainly as service personnel in shops or as couriers of shipments, the development of machine learning proved that an ever-widening range of human activities falls within the competence of the machines (Petrova-Antonova, Krasteva, Ilieva, & Pavlova, 2019). In practice, even serious experts nowadays refrain from predicting which jobs would be "reserved" for people, even in the medium term, say 20-30 years. Without claiming to have a human mind, consciousness, or perception of the world, the AI-based systems have proven to be surprisingly effective and can now successfully confront people in quite complex activities such as chess playing (Encyclopaedia Britannica, 2012) or skin cancer diagnosis. There is a growing need to promote the necessity to inform students from an early age about the opportunities of the artificial intelligence and to develop in them skills for successful interaction with big data and computers, most often in the form of computer-based games (Márkus, Paneva-Marinova, & Luchev, 2018).

Naturally, such a development is quite unexpected for most citizens, but the results are already visible even to non-specialists and it is no coincidence that in the top 10 companies with the largest market capitalization in the world, more than half are intensive users of technologies directly related to big data processing and use of artificial intelligence. And this trend is yet to deepen. It is expected that by 2030, more than 2

billion people will have to change their jobs forcibly, as the relevant professions will either disappear or the jobs will be sharply reduced due to the entry of robots, drones and computers.

In essence, the penetration of AI in all areas of the economy at some point may drastically upset the social balance in the society and jobs will be significantly less than the people who need work to support themselves and their families. And unlike the age of industrialization, when the Luddites broke the first looms with the misconception that they would leave them unemployed in the long run, the threat here seems much more serious, precisely because of the unlimited possibilities of artificial intelligence to develop in all possible fields, which for many years seemed reserved for people. The need to seek new market niches, in which computers will not soon be hegemon, is becoming an obvious social necessity.

3 The Impact of Covid-19 on the Labour Market

One of the side effects of the global pandemic was the gradual recognition by the employers that people as a productive force could actually be in the role of a risky asset. Apparently, in a pandemic, all processes related to the implementation of human labor are not safe and it is no coincidence that the entire economy, supply and production chains were significantly confused in the last year due to the Covid effect. The prices of supplies and many productions have risen sharply, and due to the complex multi-component and interconnected nature of world markets, it has practically turned out that there are no unaffected businesses precisely because of their global nature. In this sense, even countries that have managed the pandemic relatively quickly have been affected (either as customers or suppliers) by others who have not done so well, and at least at this stage these processes are far from over. In a sense, the Covid crisis has clearly demonstrated the meaning of the term 'digital workplace' and, in fact, the least affected are the businesses whose workers can carry out their core activities on a computer, without having to travel daily or gather in large groups and specialized locations. Working from home has become a commonplace (Fig.2) even for people who have never worked in this way before and many employers have appreciated the benefits of such an approach. On the other hand, many employees realized that the digital way of working gives a virtually unlimited freedom to be realized in the labor market, as long as there is a critical minimum of computer knowledge and enthusiasm to develop in the respective professional field. At the same time, in a relatively short period of time, many new software applications for digital document flow, work organizers, video communication and teamwork were developed and popularized, giving the average citizen everything he needs for a full professional realization in a wide range of fields.

Of course, all this did not lead to an immediate transformation of the labour market and the change of profession (especially the transition from mostly analogue to a fully digital) still requires serious effort and time, but a huge percentage of people gradually realized that in extraordinary circumstances such as a pandemic, this is a serious opportunity and at present the digitalisation of jobs is gaining momentum quite rapidly.



Fig. 2. Home office as the new normal (Barrios, 2021)

4 The Digital Creativity

Every workflow ultimately produces a product, be it a good or a service. The fact that the provision of basic goods and services (food, water, medicines, education, etc.) has evolved over the centuries and has well-established chains and a large mass of staff involved, on one hand, should reassure the employed that they will always have jobs, but on the other hand - this long-term need is a major temptation for employers to "optimize" the jobs in these areas, replacing them with robots and computers. We have already mentioned the huge outflow of people from agriculture as a result of the mechanization. The fact is that gradually most essential goods will be produced by machines or with the predominant participation of automation and most entrepreneurs, engaged in this field, come up with a serious social argument, justifying that by the vulnerability and insecurity of human factor as a labour force (Ford, 2015). However, behind the facade of this widely publicized social cause (to protect production, because it provides vital needs) there are no less valid purely business arguments, namely - cheaper production, because workers' wages over time due to the inflation grow, while the cost of automated labour is constantly declining.

Since even in long-standing liberal alliances such as the European Union there is still no consensus on ensuring the so-called unconditional basic income (European Union, 2020), which will allow the existence of every citizen, regardless of whether he is currently employed, obviously the permanent solution to this issue is in the hands of the citizens themselves and they must individually take care to pick professions that will not soon disappear. Given the fact that the jobs related to elementary needs and production of basic products for life and existence are already subject to serious automation and this is understood even by non-specialists, obviously a large part of the "new" professions would target the intangible sphere and would concern intellectual products and services. It is debatable when AI-based systems will be able to successfully replace humans in verse writing or filmmaking, but at least at this stage most

experts are pushing that line beyond the middle of the century, which is an optimistic news for current job seekers in the field of spirituality and creative products.

The reasons are purely expert - machine learning has the highest potential in those areas where processes can be formalized (Frey, 2016), while the creativity and most of all - the impact of one or another work of culture and art on the human perceptions are among the most unexplored and inexplicable niches, especially having in mind the abundance of emerging types of digital forms of creativity, which will be the subject of future research, possible just because of the revolution in technology. Virtually every citizen can now have at home a complete toolkit for creating a full-length documentary, incl. 360 degrees panoramas (one powerful laptop, a mid-range drone with a good camera and various types of free software for video processing is enough), while at the same time, thanks to the Internet and social networks, he could have a potentially immense audience of viewers who by viewing his content could easily pay him the effort from advertisements or subscription. Of course, far not all amateur "creators" would be equally successful, but in general the market for digital multimedia products is constantly growing, especially in situations such as the current pandemic crisis, in which hundreds of millions of people have long been confined to their homes. In practice, it is the explosive development of the technology, which has seriously affected the labour market, while at the same time it provides a powerful tool in the hands of those who tend to show their digital creativity in creating new art products, incl. such, created with the support of AI. The fact that salvation from the invasion of AI in the labour market can happen with the use of AI might sound somewhat absurd, but in fact there is a very pragmatic explanation - those people who manage to master the technology and make good use of its opportunities, might be very competitive on the long run, just because they would be able to combine the potential of human creativity with the capabilities of the artificial intelligence. In fact, the technological knowledge does not kill creativity and does not reduce the spiritual horizons of man, but on the contrary - expands them into new dimensions. So the society must be aware of this fact and should not enter the digital economy with fear. Every challenge creates opportunities and AI is just such an opportunity, so how exactly people will take advantage of it, depends mostly on themselves.

5 Conclusions

The process of creating intellectual products and services, especially in areas such as culture and art, will undoubtedly be significantly influenced by the penetration of new digital technologies and media in the public life. On one hand, these technologies have the potential to repeatedly improve man's ability to digitize the existing art objects and cultural artifacts, thus preserving the cultural heritage of the humanity for the future generations. On the other hand, over time, many new forms of digital expression will in turn be recognized as art and enrich the cultural palette of the humanity, while creating prestigious digital jobs that promote a combination of high technical culture and digital creativity.

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