



Republic of Bulgaria  
ECONOMIC  
AND SOCIAL COUNCIL

**OPINION ON THE SESSION**

**on**

**THE FUTURE OF LABOR: CHALLENGES OF THE FOURTH  
INDUSTRIAL REVOLUTION**

(own-initiative resolution)

**Sofia, February 2018**

The Economic and Social Council (ESC) included in its Action Plan the elaboration of an opinion on **"The Future of Labour: Challenges of the Fourth Industrial Revolution"**.

The elaboration of the opinion was assigned to the Labour, Income, Living Standards and Industrial Relations Commission.

Plamen Dimitrov, member of the ESC Group 2 - Trade Unions and chairperson of the Labour, Incomes, Living Standard and Industrial Relation Commission, was appointed rapporteur on the opinion.

At its plenary session held on 19 February 2018, ESC discussed and adopted this opinion.

## 1. CONCLUSIONS AND RECOMMENDATIONS

1.1. The Economic and Social Council (ESC) subscribes to the opinion of the European Economic and Social Committee (EESC) of 4 July 2016<sup>1</sup> on the benefits and risks of the Fourth Industrial Revolution, confirming the conclusion that this is a process in which the role of the public sector and regulators will be of key importance.

1.2. ESC also shares the opinion expressed in the concept presented by the Bulgarian government<sup>2</sup> on 11 July 2017, that there will be processes which will change the image of the Bulgarian economy and we as a state must respond to the new challenges in the best possible way. Most of these challenges are related to the digital transformation of the economy, which is not only technological but also with profound societal consequences.

1.3. ESC recommends to the state as soon as possible and together with the social partners and leading representatives of scientific institutions to develop a long-term strategy to meet the challenges of the Fourth Industrial Revolution and to prepare our country with adequate solutions.

1.4. ESC believes that striving for a collective future that reflects common goals and values as well as knowledge sharing among countries will be key to how we will approach and enter the new industrial revolution. Changes are so fundamental that, historically, humankind has never been in an era that has so much prospect of prosperity but also of potential danger.

1.5. ESC believes that it is essential to have a reliable and predictable environment for the future of labour market developments protected from the emergence and impact of serious non-systemic structural changes throughout the whole period of transition.

1.6. In addition to the many challenges and difficulties faced by workers, attention should also be paid to gender-sensitive measures to eliminate digital divide in the context of the Fourth Industrial Revolution

---

<sup>1</sup> <http://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/industry-40-and-digital-transformation-where-go>

<sup>2</sup> [https://www.mi.government.bg/files/useruploads/files/ip/kontsepsia\\_industria\\_4.0.pdf](https://www.mi.government.bg/files/useruploads/files/ip/kontsepsia_industria_4.0.pdf)

both in Europe and in Bulgaria. Existing gender gaps in learning and education may mean that women will benefit less from employment opportunities in professions related to science, technology, engineering and mathematics; greater flexibility in work can increase women's employment but also have a negative impact on the quality of their jobs<sup>3</sup>.

1.7. ESC notes that the major challenges faced by individual economies are: insufficient and inadequate qualification of employees; new areas and commercial practices that require regulation; the risk of losing jobs without finding alternative employment for the workers, in particular low-skilled ones; lack of adequate skills to accelerate the transition to the Fourth Industrial Revolution as well as the risk of high and lasting structural unemployment.

1.8. A large part of the factors that are currently changing the outlines of the global industry will have a significant impact on the labour market. World Economic Forum (WEF) analysis<sup>4</sup> shows that 65% of the children who are now starting their primary education will ultimately work entirely new jobs that do not even exist at the moment. With electronics and robotics that capture many of the processes in forward looking and innovative companies, smart systems will fundamentally change the economy, but they will not prevent the loss of millions of jobs. The probability of high economic growth, not creating enough new jobs is completely real. The new industrial revolution has the potential to improve productivity as well as the life and quality of jobs, if it is duly accompanied by a stable mix of policies for inclusive and sustainable innovation-driven growth.

1.9. At the same time, ESC notes that there are a number of benefits from the Fourth Industrial Revolution, such as: creation of quality new jobs, opening new sectors, products and services, digitization, intelligent machine interface, new forms of integrated management and, last but not least, a sharp increase in labour productivity.

---

<sup>3</sup> OECD (2017). Going Digital: The Future of Work for Women. Information document on the future of labour.

<sup>4</sup> WEF. The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution. January 2016

1.10. ESC shares the assertions of a number of analyses that labour reality is changing and becoming more and more complex and undefined<sup>5</sup>. Some professions can be automated by using artificial intelligence robots, others can be modified to new forms of work<sup>67</sup>. In this sense, traditional legal labour relations will also undergo major changes<sup>8</sup>. Moreover, indications of such transformations already give the so-called "platform economy", where the currently legitimate notions of employer, worker, and employment contract are hard to recognize. To respond to these challenges to the skills of employees, it is necessary to ensure access to training and qualifications.

1.11. ESC believes that further analyses of legal, economic, social and any other effects from faster online platforms are needed to identify and, if necessary, prevent and address undesirable societal consequences.

1.12. On the other hand, ESC considers that the development of ICT technologies will in future provide governments with new tools for e-government, which could have a beneficial effect on tax systems (towards increasing collection rates) and on social security systems, and from this point of view, a mediated beneficial effect on the reduction of the grey economy.

1.13. ESC believes that the development of Bulgaria's strategy for transition to the Fourth Industrial Revolution should address the following key issues:

- What will happen to the labour market?
- Which professions will disappear and what new ones will emerge?

---

<sup>5</sup> Artificial Intelligence and Robotics and Their Impact on the Workforce, IBA Global Employment Institute, April 2017

<sup>6</sup> <https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/manufacturing/ch-en-manufacturing-industry-4-0-24102014.pdf> - Industry 4.0 : Challenges and solutions for the digital transformation and use of exponential technologies, Deloitte 2014

<sup>7</sup> [http://www.ey.com/Publication/vwLUAssets/ey-disruption-digitalization-disintermediation/\\$FILE/ey-disruption-digitalization-disintermediation.pdf](http://www.ey.com/Publication/vwLUAssets/ey-disruption-digitalization-disintermediation/$FILE/ey-disruption-digitalization-disintermediation.pdf)

<sup>8</sup> <http://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/industry-40-and-digital-transformation-where-go>

- What are the necessary skills and specialties in universities and in secondary vocational schools?

"What will be the effects of the lack of regulation in some new areas on the labour market?

- What new forms of legal relationships can arise between employers and workers?

- What new forms of worker protection should be adopted?

- What would the new social security systems look like?

1.14. However, the debate on how to respond to the digital revolution politically will be one of the most decisive discussions over the next decade. Whether the universal basic income could respond to the challenges of changing labour market needs, or public policy makers should think about employment schemes that would complement the normal labour market, or redistribution of residual labour by reducing the working week would make sense as an initial tool for rebalancing - these are just some of the options of political decisions that are subject to debate and pilot experimenting today<sup>9</sup>.

1.15. In this regard, ESC considers it necessary to create an Alliance "For the future of labour and society" - in line with one of the seven initiatives related to the celebration of the 100th anniversary of the International Labour Organization (ILO) in 2019. The Alliance should include representatives of the state and the social partners, research institutes, universities, non-governmental organizations, civil society and individuals to contribute to defining the parameters of future change by building up a national network and organizing key elements and regulatory mechanisms. management of ongoing processes.

## **2. CONCEPT FOR THE "FOURTH INDUSTRIAL REVOLUTION"**

---

<sup>9</sup> Social Europe: Understanding The Digital Revolution And What It Means by [Henning Meyer](#) on 12 June 2017

2.1. Over the past few years, a number of official studies have emerged on the challenges of labour in the context of the Fourth Industrial Revolution<sup>1011</sup>. Against this background, many views of individual institutions in the European Union (EU), including the European Economic and Social Committee<sup>1213</sup>. The Economic and Social Council of the Republic of Bulgaria considers it necessary to enter the speeding-up public debate at the national and supranational level.

2.2. Industrial revolutions are based on scientific and technical discoveries and qualitative leaps in the development of technology and production. The first was the invention of the steam engine, the second that of electrification and mass production, the third that of the computer, the fourth is the digital revolution, consisting of the development of information technologies, combined with robotization, automation of tasks, the Internet, 3D printing, unmanned cars, genetics, in the fields of defence and counter-terrorism - the drones, unmanned airplanes, cyber weapons, etc.

2.3. The Fourth Industrial Revolution introduces new ways in which technology is embedded in societies and even in the human body. It is the latest stage in the industrial development of humanity that is going to happen in different regions of the world with varying intensity and amplitude. In general, under this definition is meant the penetration of a set of new technologies that merge the physical, digital and biological world, impact tangibly and cause profound changes in the economic and social spheres.

2.4. ESC shares the opinion of Klaus Schwab (founder and chairman of the World Economic Forum in Davos), who claims that much of this revolution will occupy the so-called "emerging technological breakthroughs"

---

<sup>10</sup> Eurofound (2017), Non-standard forms of employment: recent trends and future prospects, Information document for the Estonian Presidency Conference on "The Future of Labour: The Role of Digitization, 13-14 September 2017".

<sup>11</sup> OECD (2016), Innovative Education and Innovation Education: The Power of Digital Technology and Skills, Paris

<sup>12</sup> EESC (2017), The role and perspectives of the social partners and other civil society organizations in the context of new forms of employment, Exploratory opinion

<sup>13</sup> EESC (2017) Building and developing skills, including digital skills, in the context of new forms of employment - new policies and roles and responsibilities development, Exploratory opinion

in areas such as - artificial intelligence, robotics, the Internet of things, autonomous cars, 3D-printing, quantum computing and nanotechnology.

2.5. According to ESC, the European context, as an external environment for Bulgaria, should be constantly monitored and, according to its dynamics, objective prerequisites for transition to the fourth industrial revolution should be established. In this sense, the deductive method of dealing with the problem is very important in order to clarify the whole process.

2.6. ESC recalls that the term "Industry 4.0" originated from a project of a high-tech strategy of the German government that promoted the computerization of production. In its essence, it can be seen either as a synonym for the fourth industrial revolution or as a more specific dimension. "Industry 4.0" was introduced as a concept in 2011 the traditional since 1947 and world's largest multi-sector fair in Hanover. In October 2012 the Industry 4.0 working group presented to the German federal government a set of introductory recommendations for an easier and more sustainable transition. The members of this working group are recognized as the founding and driving force of Industry 4.0 within the European Union and Europe as a whole.

2.7. ESC notes that parallel to the entry of new technologies in the world and in particular in the EU28, there is a process of increasing inequality in income, wealth, intellectual property, etc. Evidence of this can be found in a number of supranational analyses<sup>14, 15</sup> and EC reports<sup>16, 17</sup>, EESC opinions<sup>18</sup>, official Eurostat data, etc.

2.8. According to ESC, the sense of justice in societies in Europe is decreasing, and the duration of individual political cycles is getting shorter.

---

<sup>14</sup> [http://www.ilo.org/travail/whatwedo/eventsandmeetings/WCMS\\_544236/lang--en/index.htm](http://www.ilo.org/travail/whatwedo/eventsandmeetings/WCMS_544236/lang--en/index.htm)

<sup>15</sup> Bruegel, based of the 2013 survey of Carl Frey and Michael Osborne of the University of Oxford - C. Frey and M. Osborne. The Future of Employment: How susceptible are jobs to computerization, 2013.

<sup>16</sup> <https://ec.europa.eu/research/social-sciences/index.cfm?pg=policies&policyname=inequalities>

<sup>17</sup> [https://ec.europa.eu/research/social-sciences/pdf/policy\\_reviews/policy-review-inequalities\\_en.pdf](https://ec.europa.eu/research/social-sciences/pdf/policy_reviews/policy-review-inequalities_en.pdf)

<sup>18</sup> <http://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/wealth-inequality-europe>



There is a danger that these processes will become the basis for the development of radically different political rhetoric. In this sense, engaging individual member states with specific strategies for transition to the Fourth Industrial Revolution must be long-term, with the necessary continuity and irrespective of the change of the executive power.

2.9. ESC proposes that the approach to the Fourth Industrial Revolution should be not only technocratic but also social. The social aspect of change is extremely important because it balances the process of technological advancement and growth, transferring it to social life, distribution and redistribution of income. The interrelation of the two aspects is a key element of our country's transition to the next stage of industrial development.

2.10. ESC believes we are facing a revolution that will radically change the way we live, work and treat one another. By its scale, scope, and complexity, what has already been defined as the "Fourth Industrial Revolution" has no analogue in our past history. Changes are unprecedented in terms of their size, speed and range.

2.11. ESC believes that there are already huge structural and qualitative shifts in all sectors of the European economy marked by the emergence of new business models, the subdued impact on traditional industrial sectors and services, the restructuring of production, consumption, transport and logistics systems. In terms of social relations, there is a profound paradigm shift in the way people work and communicate with each other. It is logical that such shifts lead to changes in government and institutions, education, health care, transport, and many more.

2.12. At the European level, there are four principles for shaping Industry 4.0: interoperability, transparency of information, technical assistance and decentralized solutions. ESC considers that it will be beneficial to transfer this practice to Bulgaria when developing our strategy for transition to the Fourth Industrial Revolution.

### **3. CHALLENGES AND PERSPECTIVES BEFORE THE FOURTH INDUSTRIAL REVOLUTION**

3.1. The Fourth Industrial Revolution is at the same time an opportunity and a threat to producers and workers. With its help, developed industrialized countries intend to improve their competitiveness. It is an epochal step - not only in economic but also in civilian terms. With regard to Bulgaria, typically for the occurrence of any technological leap, a historic opportunity is opening up to improve our position globally, as long as we are sufficiently responsible and resourceful to take advantage of it.

3.2. In order to unlock the possibilities of the Fourth Industrial Revolution, they must be used constructively and creatively to overcome the deepening inequality, which has become a systemic challenge in recent decades. The problems it creates can hardly be purely monetary, as in most cases people are both consumers and producers, so innovation and technology will have a positive and negative impact on well-being and living standards. To do this, the potential of discouraged and disincentivized persons should be freed and harnessed, and employees should be encouraged to increase their skills and productivity.

3.3. More than half of jobs in the EU (54%) are under threat from computerization in the coming decades. This is the study of the authoritative analytical organization Bruegel. It is based on the 2013 survey by Carl Frey and Michael Osborne of Oxford University<sup>19</sup>. According to Bruegel, the risk for individual countries in the EU varies between 40% (similar to the US) and 60%. The lowest is the risk of the Nordic countries - Sweden will be slightly affected (46.69%), followed by Britain (47.17%), the Netherlands (49.5%). The highest risk is observed in Romania (61.93%), followed by Portugal (58.94%), Croatia (57.9%) and Bulgaria (56.56%).

3.4. However, according to other scenarios, the negative effects of automation on employment will be significantly more limited. The forecast of McKinsey Global Institute<sup>20</sup> indicates that for the period 2016-2030 this process of replacing human labour will affect up to 1/3 of the workforce in developed economies (e.g. USA, Germany) and up to 9% in developing

---

<sup>19</sup> C. Frey and M. Osborne: The future of employment: How susceptible are jobs to computerization, 2013.

<sup>20</sup> MGI. Jobs lost, jobs gained: Workforce transitions in a time of automation. December 2017.

economies (India, Mexico). The great fears, according to the authors, are unfounded, "because history tells us that labour markets over time can adapt to the changes in demand for workers affected by new technologies, albeit sometimes at the cost of suppressing real wages". ESC, however, draws serious attention to the experts' warning - a much greater challenge will be to provide the necessary support for workers to acquire adequate knowledge and skills in the transition to new employment, and countries that fail to manage this transition can face rising unemployment and declining wages.

3.5. Undoubtedly, countries that can afford the new technology at the earliest will in practice also get lower labour costs and higher productivity. Various studies expect roughly the same scenarios for the EU's southern periphery and the new Central and Eastern European countries (CEE) as the most risky areas in terms of job losses due to computerization. ESC is concerned with numerous comparative analyses and indicators that testify to the unfavourable position of Bulgaria and the countries in the region in terms of digital development.

3.6. This is to a large extent confirmed by the Digital Economy and Society Index (DESI) used by the European Commission to assess the digital development of the countries<sup>21</sup>. Workplaces in countries with advanced broadband infrastructure and e-skills of workers, as well as widespread use of the Internet and digital public services are likely to be less threatened by digitization than in countries with less developed digital infrastructure. Bulgaria ranks 27th in the EU28 (2015, 2016). Our country falls into the "cluster of lagging countries" (together with Greece and France and all new member states except Estonia and Lithuania) with an index below the EU average and growing more slowly than the EU as a whole.

3.7. ESC believes that the challenges posed by the Fourth Industrial Revolution will be mostly in the sphere of supply, that is to say in the field of labour and production. In the last few years most of the developed countries, and also some emerging economies, such as China, experienced a significant decline in labour as a percentage of GDP. Half of this decline is

---

<sup>21</sup> <https://ec.europa.eu/digital-single-market/en/desi>

due to the decrease in the relative price of investment goods, and it depends on the progress of innovation. The prices of robotic devices drop which make them more attractive to employers. Ultimately, this process of rational economic choices leads to replacing labour with capital from businesses.

3.8. There is a trend for the biggest winners of the Fourth Industrial Revolution to be providers of intellectual or human capital - innovators, investors and shareholders. The growing gap in wealth between those who depend on their labour and those who own the capital of new technologies leads to disappointment among a large number of workers, convinced that their actual earnings may not rise until the end of their working life; also that their children will not enjoy a better life than their own.

3.9. The concentration of benefits and capital in only a small percentage of the planet's inhabitants is exacerbated by the so-called "platform effect" through which organizations operating in the digital environment create networks that connect buyers and sellers to a variety of products and services, such as thus benefiting from ever higher economies of scale.

3.10. The consequences of the platform effect is the concentration of a few but extremely powerful platforms that dominate the relevant markets. The benefits are obvious, especially with regard to consumers - greater convenience and lower costs. However, social risks are also obvious. In order to counteract the continuing concentration of capital and power in the hands of digital giants, ways must be found to balance the benefits and risks of artificial intelligence, digital platforms (including industrial ones) by providing openness and opportunities for a wider range of innovation actors at both micro and macro levels.

3.11. According to the analysis of the World Economic Forum, much of the factors that are currently changing the look of the global industry will have a significant impact on the labour market, but it will not be just in one direction. Innovation will lead to the creation of new jobs and a significant increase in labour productivity but at the same time many jobs will be lost,

and in some areas the employees will suffer a serious discrepancy between the skills they possess and the skills required for doing their work.

3.12. ESC believes that, along with the challenges, there are a number of positive European trends. The European Centre for the Development of Vocational Training (CEDEFOP) forecasts<sup>22</sup>, that in the period by 2020 there will be some 83 million new jobs in the European Union due to a net increase in employment of around eight million new jobs ("increased demand") and about 75 million jobs that will have to be filled because the persons who occupy them will retire or leave the labour market ("substitute demand")

#### **4. PERSPECTIVES AND CHALLENGES TO THE LABOUR MARKET IN BULGARIA**

4.1. ESC believes that changes in the mode of operation due to Industry 4.0 will influence the trends in aggregate demand and the overall link between economic growth, on the one hand, and employment and labour productivity, on the other. The changing nature of jobs increases the risk of a steady decline in labour demand. The link between labour productivity and wage growth is even hard to catch now and, given the upcoming changes, its establishment and regulation will be further compounded.

4.2. Both on a global and a European scale, as well as within our economy, we see a process of shortening of the business cycle. Various studies suggest that it is between 5 and 7 years in individual countries. In this sense, ESC is concerned that the acceleration of technological change will only speed up the process of reducing the business cycle, which will lead to the rejection of many valid principles on the labour market that have been adequate to this moment.

---

<sup>22</sup> CEDEFOP (2012). Future skills supply and demand in Europe. Forecast 2012. European Centre for the Development of Vocational Training (CEDEFOP). Luxembourg: Publications Office of the European Union. ISBN978 92 896 1128 2. ISSN 1831 5860. DOI: 10.2801/93487.

<http://www.cedefop.europa.eu/en/publications/20633.aspx>

4.3. ESC is concerned that the professions which will be threatened with digitization in Bulgaria are - office workers, clerks, wholesalers and retailers, transport and logistics, routine workers in the processing industry, construction, some aspects of financial services, translators, taxi drivers, individual consultancy services, etc. These professions represent a large part of the labour force in the country and there is a risk of being unable to find alternative employment for many people and consequently increase structural unemployment<sup>23</sup>.

4.4. ESC believes that as a result of the new technologies in Bulgaria, the link between economic growth and the unemployment rate will not be the opposite and we will see the so-called phenomenon of "jobless recovery<sup>24</sup>" which many countries have already encountered over the last 5 years. This would create significant labour market imbalances.

4.5. Over the last five years there has been a rapid increase in employment in Information Technology (by 56.2%) and in information services (by 73.3%). Bulgaria is at the forefront of Europe in start-ups in the ICT field. However, in order to obtain the desired macroeconomic effect, these so-called start-ups must be opened to industry, as the European Commission notes in one of the Reflection Papers<sup>25</sup>, following the White Paper on Europe.

4.6. ESC is of the opinion that the state must increasingly support innovation in enterprises and companies in the industrial sector because our country is at a very low base level. In Bulgaria, investment in R&D as a share of GDP is the last place compared to other EU28 Member States. At present, they are still less than 1% at an average European level of around 3%.

---

<sup>23</sup> CEDEFOP (2012). Future skills supply and demand in Europe. Forecast 2012. European Centre for the Development of Vocational Training (CEDEFOP). Luxembourg: Publications Office of the European Union. ISBN978 92 896 1128 2. ISSN 1831 5860. DOI: 10.2801/93487.  
<http://www.cedefop.europa.eu/en/publications/20633.aspx>

<sup>24</sup> Simultaneous increase in economic growth and unemployment. The existence of a positive correlation between the two as a result of the shift of labour factor away from the production process.

<sup>25</sup> EC Reflection Paper on Harnessing Globalisation, 14.05.2017.p.17 "*start-ups and innovators in EU regions should cooperate with leading players to be able to enter the world value creation chains. The productivity benefits of innovative technologies should reach more sectors of the economy.*"

4.7. On the other hand, the impact of human factors on limiting productivity growth will be significant. This is because computers can become more efficient and faster, but humans cannot adjust at the same pace. In this sense, the possibility of adapting human workforce will have some laggard effect on the innovations that come with Industry 4.0.

4.8. Large-scale replacement of jobs with new generations of computers or robots is forthcoming. It is worrying how quickly new jobs will be created and how many they will be compared to those that have been lost specifically for Bulgaria. In this sense, ESC warns against the risk of technological unemployment, which has a long-term effect on the labour market.

4.9. ESC is of the opinion that the education system should be more adapted to the new economic realities, because even now it is lagging behind the needs of the emerging economic sectors and activities that bring ever newer requirements to qualities and skills of the workforce.

4.10. In addition, ESC stresses that, in order to follow the dynamics of digitization, the government and the social partners must offer workers appropriate training for all age groups and sectors by:

- providing a guarantee of training for all workers and ensuring continuous training at the workplace and strengthening vocational education and training systems, as well as for workers in non-standard workplaces;
- fostering interdisciplinary skills, including fundamental knowledge, digital literacy, cognitive and social skills;
- ensuring the inclusion of new training needs in collective learning agreements and evaluation frameworks for e-learning.

4.11. ESC believes that timely prevention of new job security mechanisms is key to the smooth functioning of the labour market in the coming years. The "labour guarantee" could be effectively used to improve the health, short-term and long-term care sectors where, with current demographic trends, more and more human labour will be needed in the future.

4.12. The expert debate also focuses on the search for new solutions related to the distribution of value added between labour and capital and the redistribution through the public purse. If robot owners are "the winners in the new digital world," then adequate alternatives to democratization of ownership (through forms of "employee participation" and the creation of "special financial instruments / state investment funds" the proceeds of which will be used to support the financing of the labour guarantee)<sup>26</sup>.

4.13. ESC underlines that, in the new forms of employment, the employer-employee boundary is becoming increasingly blurred, requiring a complete rethinking of social security and taxation systems (types of sources, actors and financial flows). Reforms in these systems, as well as a number of other regulatory environment issues, should be emphasized in the context of forthcoming societal changes and debates.

---

<sup>26</sup> Social Europe: Understanding the Digital revolution and what it means, by [Henning Meyer](#), on 12 June 2017