

Nina Chala / Нина Чалая

Oksana Poplavska / Оксана Поплавская

**SPOŁECZNA ODPOWIEDZIALNOŚĆ BIZNESU:  
WYZWANIA REWOLUCJI PRZEMYSŁOWEJ 4.0**

**СОЦИАЛЬНАЯ ОТВЕТСТВЕННОСТЬ БИЗНЕСА:  
ВЫЗОВЫ 4-Й ПРОМЫШЛЕННОЙ РЕВОЛЮЦИИ**

**SOCIAL RESPONSIBILITY OF BUSINESS:  
THE CHALLENGES OF THE 4TH INDUSTRIAL REVOLUTION**

**Streszczenie:** W niniejszym artykule autorzy rozpatrują, jak cykliczne zmiany w systemach społeczno-gospodarczych i przemysłowych, związane z 4 rewolucją przemysłową, wpływają na zmianę na rynku pracy. Autorzy twierdzą, że na przejawy rewolucji przemysłowej 4.0 w różnych krajach wpływają istniejące (uformowane) już modele zachowań ekonomicznych, wartości i inne zjawiska społeczno-ekonomiczne. W rezultacie zachodzi dziś na świecie specjalizacja krajów, tworzenie ośrodków innowacji i pasa infrastruktury. Autorzy analizują przejawy czwartej rewolucji przemysłowej na Ukrainie i odnoszą się do pasa infrastruktury. Przeprowadzona analiza pozwoliła autorom zidentyfikować skuteczny mechanizm zarządzania przedsiębiorstwami w warunkach czwartej rewolucji przemysłowej – CSR. Jednocześnie autorzy proponują nowy model CSR. Jego właściwościami są: nowe zadania (harmonizacja, zrównoważenie), zasady (partnerstwa, zaufania, myślenia strategicznego i innowacyjność), instrumenty, a także ścisła współpraca centrów nauki i kształcenia z przedsiębiorstwami. Wśród podstawowych przyczyn, motywujących przedsiębiorstwa do przyjęcia zaproponowanego przez autorów modelu CSR są: zmiana struktury społecznej, powstanie płaskich modeli biznesowych wspólnego użytkowania/konsumpcji, które powodują naruszenia i ryzyko związane z ochroną praw konsumenta i etyki biznesowej.

**Słowa kluczowe:** 4. rewolucja przemysłowa, krajobraz rynku pracy, model społecznej odpowiedzialności biznesu (CSR), gospodarka cyfrowa, czynniki społeczno-ekonomiczne, partnerstwo, wartości.

**Аннотация:** В статье авторы рассматривают, как циклические изменения социально-экономических систем, связанные с 4 промышленной революцией влияют на изменение ландшафта рынка труда. Авторы доказывают, что на особенности проявления 4 промышленной революции в разных странах влияют уже существующие (сформированные) там модели экономического поведения, ценности, другие социально-экономические явления. Как результат сегодня происходит специализация стран, формирование в мире центров новаций и пояса инфраструктуры. Авторы анализируют проявления 4 промышленной революции в Украине и относят ее к поясу инфраструктуры. Проведенный анализ позволил авторам выделить эффективный механизм управления компаниями в условиях 4 промышленной революции – КСО. При этом авторы предлагают новую модель КСО. Ее особенностью являются: новые задачи (гармонизация, сбалансированность), принципы (партнерства, доверия, стратегического мышления и новаторство), инструменты, а также тесное сотрудничество центров науки и образования с компаниям. Среди основных причин, которые мотивируют корпорации к принятию предложенной авторами модели КСО, выделены: изменение социальной структуры общества, рождение плоских бизнес-моделей совместного пользования/потребления, которые провоцируют нарушения и риски относительно защиты прав потребителя и бизнес-этики.

**Ключевые слова:** 4-я промышленная революция, ландшафт рынка труда, модель корпоративной социальной ответственности (КСО), digital экономика, социально-экономические факторы, партнёрство, ценности.

**Abstract:** In this article, the authors examine how the cyclical changes in socio-economic systems associated with the 4th industrial revolution affect the changes within the labor market. The authors demonstrate particular manifestations of the 4th industrial revolution in different countries to be influenced by existing (set) there models of economic behavior, values, and other socio-economic phenomena. As a result, today we see the specialization of countries, the formation of innovation centers and infrastructure within the world. The authors analyzed the aspects of the 4th industrial revolution in Ukraine and applied them to the infrastructure domain. This allowed the authors to highlight an effective management mechanism in the context of the 4th industrial revolution, namely CSR. Furthermore, the authors recommend a new model of CSR. Its key elements are the following: new aims (harmonization, sustainability), principles (partnership, trust, strategic thinking and innovation) and tools along with close cooperation between centers for science and education and companies. Among the main reasons that motivate corporations to approve the given CSR model are the following: the change of the social structure within the society, the emergence of two-dimensional joint use/consumption business models that can cause violations and risks in the protection of consumer rights and business ethics.

**Key words:** the 4th industrial revolution, the landscape of the labor market, the model of corporate social responsibility (CSR), digital economy, socio-economic factors, partnership, values.

**JEL: O15**

## INTRODUCTION

Innovations constantly change the shape of economies, also significantly affecting the labor market. Today's wave of technological progress creates many social challenges. Those challenges affect both each employee within a company and the state at large. However, it should be noted that these changes are quite predictable. The interconnection between economic and technological development can be traced down to the works of J. Shumpeter. Later, this topic was of interest to M. Kondratjev and D. Shmyhula. The vast majority of economists and researchers agree with Shumpeter's theory of large industrial cycles, the shifts of which are associated with changes in production technology. Developing this very theory, M. Kondratjev calculated the interval period of these cycles, determined the duration of phases within each cycle and described their characteristic features. Based on Kondratjev's methodological approaches, we live in an industrial revolution today, but are slowly shifting towards a post-information age. This usually happens at the start of a new great cycle.

Robotic automation, the introduction of digital technology and artificial intelligence, the development of cyber-physical production systems has several advantages. Apart from reducing expenses, it also excludes errors due to human factor, enables dynamic response and development of personalized suggestions. The review of the 4th industrial revolution as a transition phase in Kondratjev's system concerns scientists all over the world. Several works describe the paradigm, features and characteristics of industry 4.0 and the 4th industrial revolution, namely: Brettel M., Friederichsen N., Keller M. and Rosenberg M. (2014); about new skills of employees and their integration with cyber-physical systems: Goresky D., Schmitt M., Loskyll M. and Zühlke D. (2014); about creating interactive portals and maps of the industry 4.0 distribution: Levkowitz L. (2018), Wortmann A., Combemale B. and Barais O. (2017). However, some authors see not only the start of a new cycle (an upward trend of the cycle). They also emphasize the great impact of innovation on society in general, its structure, and value orientation (distinguishing the social perspective and globalism of involvement). Scientists believe the 4th industrial revolution to cause a major change in society, requiring new social policies (Morrar, Arman & Mousa, 2017). Due to the fast development of digital technologies and their introduction in most industries

(including traditional hand labor areas, for instance, agriculture) we can already observe a change of management models and the liquidity of labor. The impact of Industry 4.0 and the new industrial revolution on social processes may be accompanied by local and global social conflicts.

Despite the complexity and volatility of the world's current socio-economic image, every company tries to be competitive. To achieve this, the trends and limitations imposed on the state administration and the education system in view of the 4th industrial revolution are to be taken into account. We need to adapt to the challenges of the labor market in a skillful way. The emergence of a new model of market agents' interrelation becomes obvious (Kolot & Poplawska, 2016, pp. 6-29); the roles are redistributed and the company is responsible for development and influence. That is why social responsibility of business becomes so essential. We need to establish a successful model of socially responsible business. Complying with the standards (administrative, environmental, qualitative) is not the priority in making a business competitive; customer loyalty and a positive HR-brand of the company needs to be taken into account as well.

#### **FACTORS CONTRIBUTING TO THE CHALLENGES OF THE 4TH INDUSTRIAL REVOLUTION AND INFLUENCING THE GLOBAL ENVIRONMENT OF THE LABOR MARKET**

The vast majority of authors consider the distinctive features of the 4th industrial revolution to be represented by the development of Big Data and cloud technologies, robots and artificial intelligence, the Internet of things and computer assisted teaching, modeling and 3D printing, quantum computing, virtual reality, horizontal and vertical integration, cyber security, block chain and alternative energy sources. However, the question of how these technologies affect different levels of socio-economic processes is yet to be answered.

The authors of the article suggest to consider the impact of the 4th industrial revolution on 3 levels: the macro level of the state, the micro level of enterprises and organizations, and the individual level (the medium of human capital). Such a division is determined by the fact that each level can be distinguished by a certain area of expertise and responsibility for decision-making. Thus, we can draw a line between areas of responsibility (including social) among different actors on the market and determine the most effective tools to use the manifestations of the 4th industrial revolution. In addition, we believe it necessary to consider the peculiarities of the existing socio-economic environment in each state. It is not always the result of innovative changes, yet closely connected with them; the peculiarities of workplace relations and culture in one way or another can affect the transition rate of innovation. For example, the introduction of new treatment practices or, on the contrary, the creation of additional barriers for employment, the acquisition of knowledge, etc. In Table 1, we present our vision of the main problem areas that are intensified by the impact of the 4th industrial revolution.

The impact of the 4th industrial revolution on labor productivity, and, consequently, on the labor market is also of scientific interest. It is known that labor productivity significantly impacts the efficiency of enterprises and is an indicator of a healthy economy. The dynamics of productivity indicates the problems on the labor market (e.g. the lack of labor force with required qualifications provokes a reduction in productivity). Having researched this matter, we noticed that in the last five years, the labor productivity of leading countries has not been significantly affected (Figure 1).

Table 1. Factors that intensify the impact of the 4th industrial revolution at different levels of decision-making (management)

The level of decision-making	The areas of challenge manifestation	Challenges (factors) of socio-economic nature related to the peculiarities of the countries
State	The independence of state government	Strengthening of international corporate governance; The impact of corporations on the development vector of the state;
	Culture	The formation of a new value and ethical model; The exacerbation of cultural and religious conflicts;
	Social area	Low mobility of education programs, their non-conformity to the needs of the economy; Low accessibility to health services (best practices); Demographic problems (including ageing of the population);
	Economy	Changes in the structure of the economy, the emergence of new industries; Changes in the structure of demand and supply on the labor market; The intensifying impact of external non-economic growth factors (ratings of expert communities, the expectations of shareholders, etc.); Increased income inequality; Increased pressure on the pension system budget; The risk of shadow economy; The need to use new reserves of labor productivity;
Company (organization)	Planning	The complexity of developing long-term forecasts; The variability of the market, consumer needs, shareholders and stakeholders needs;
	Operational management (production)	Diversification of production; The change of organizational structures (the need to build project management systems); Reforming the quality requirements, new quality and management standards;
	Personnel	The difficulty of selecting appropriate personnel (lack of skills, knowledge and practice); The need to reduce personnel costs and optimize its structure; New approaches to staff motivation, the ability to combine various motivational systems; Low staff mobility;
	Sales, marketing	Extending the requirements of calculations transparency during the purchase and the speed of order processing; Enhancing the role of brands and PR companies;
	Environment	The increase of responsibility (in front of the global community); Climate changes that require new technologies, facilities and resources;
Individual (human capital medium)	The labor area	The emergence of vulnerable employment which leads to a decrease in income; new forms of employment (including remote employment); Increasing personal responsibility for professional growth and the need to learn throughout life;
	Family, personal priorities	Individualization; The instability of family values; The change of value orientations.

Source: compiled by the authors.

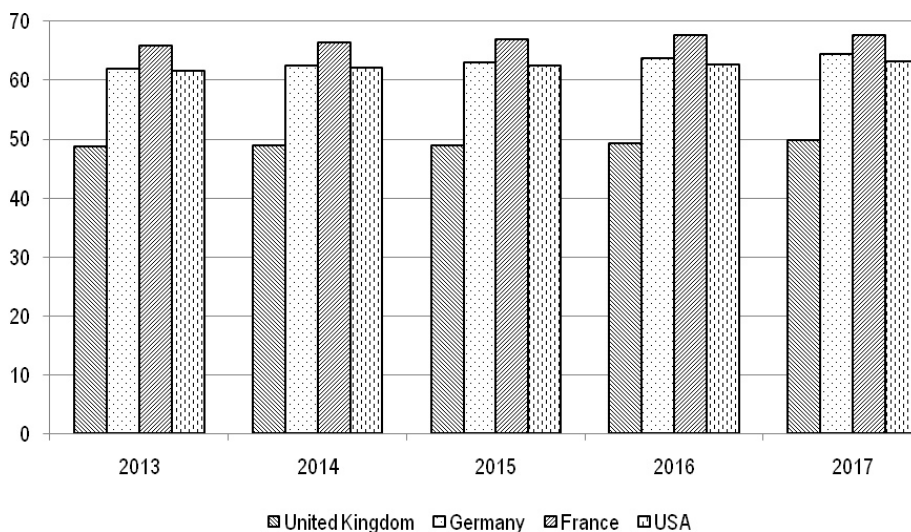


Figure 1. Dynamics of labour productivity<sup>1</sup> in the leading countries, \$ /hour

Source: compiled by the authors from websites: (World Bank, 2018).

The phenomenon of low growth in global labor productivity is singled out by most European researchers (Gay, Ng, Cheng & Vergara, 2017). This indicates that the digitalization, robotization, etc. had no effect on the productivity of labor in general. However, this is not entirely true. Having examined the change in labor productivity in the United States during the third and fourth industrial revolutions, Siverson concluded that it changes unevenly. In addition, its expected growth in the near future will not necessarily be confirmed (World Bank, 2016). All of this suggests the existence of other factors affecting economic growth (not only increasing labor productivity by means of technological and technical innovations). Even more, it confirms the assumption about existing factors that enhance or reduce the impact of the 4th industrial revolution on the labor market and the economy in general.

Another feature of the 4th industrial revolution is the interrelation of depth and level of distributing automation, other characteristic features of the 4th industrial revolution and the demographic structure of the state. As the researchers Acemoglu and Restrepo (2018) point out, robotics is most common in countries with significant aging of the population.

Considering the above-mentioned factors, the image of the labor market will significantly change in the next 10 years. Largely, countries with a traditionally high intellectual potential will become centers for generating innovations. Developing countries will be representing the infrastructure zone of the global labor market in the future, and third world countries will be donor resources (including human capital) and present the recreation area. Thus, there will be a new global labor division with each country's area of expertise in certain types of economic activity on the criteria of knowledge intensity. However, a successful infrastructure system can be developed in those countries that are now at risk of job cuts because of automation: Mexico, Turkey, Chile, Slovakia, India, Malaysia, Poland, Czech Republic, Hungary, Russia (Krasilnikova, 2017).

<sup>1</sup> The labour productivity was calculated as the ratio of GDP to a total number of labour hours among all employed people within the country.

The companies will also both be affected by and at the same time depending on the changes in the labor market. As we noted earlier, innovations open up new tasks (ranging from administrative to social) and prospects for enterprises. They are associated with huge opportunities and new risks. On the one hand, they can reduce the cost of goods, labor input of products and services, develop profitable business with a low start-up capital; yet, on the other hand, they become extremely sensitive to volatility in the stock market, to the existence of high profile, creative personnel. An effective implementation of projects (proposals) with the use of digital technologies can be demonstrated, for example, by SAP. So, Delaware Consulting used automated processes and mobile access to data to improve the service with SAP S/4HANA; the retail company Walmart has used an almost zero downtime methodology to reduce business disruption when combining complex global systems by using the cloud service of SAP S/4HANA; finally, Business ByDesign increased its productivity by more than three times (SAP, 2018). At the same time, companies face a number of problems connected with the automation of business processes. In particular, both non-management employees and top managers can react quite critically towards innovation and 'hold back' the processes of automation and robotization. This can be witnessed in the reports of consulting companies that started implementing new technologies in administration, accounting (Shmuratko & Romanyshyn, 2018).

In addition, the 4th industrial revolution contributed to the spread of non-standard forms of employment that require changes in labor agreements. As noted by O'Reilly, Ranft etc., the flexibility of the labor market combined with new technologies has led to the emergence of hybrid labor agreements in Europe. As a consequence, the scope of common labor relations is narrowed, the number of conflicts between "outsiders" and "insiders" on the labor market is increasing (Neufeind, O'Reilly & Ranft, 2018, p. 12).

### **THE MANIFESTATION OF THE 4TH INDUSTRIAL REVOLUTION IN UKRAINE**

Unfortunately, there is practically no objective and reliable information about projects within the scope of the 4th industrial revolution in Ukraine. Official statistics show a low level of involvement of enterprises in innovative activities: on average, 18.4% of the surveyed enterprises engaged in innovation in 2014-2016; at the same time, only 0.58% of the employed population is involved in research activity (Ukrstat, 2017a; Ukrstat, 2017b). In regard to the nature of innovation activities, the official statistics highlights such areas as scientific research (for internal and external needs of companies), staff training to work with new technology, design development, acquisition of machinery and software (Figure 2). Overall, the innovation market is very small. Thus, information technology equipment accounts for the largest volume of innovative products export. Its volume is estimated as 3.4 billion US dollars (to compare: the global market in general is estimated as 646 billion US dollars) (Aequo, 2017).

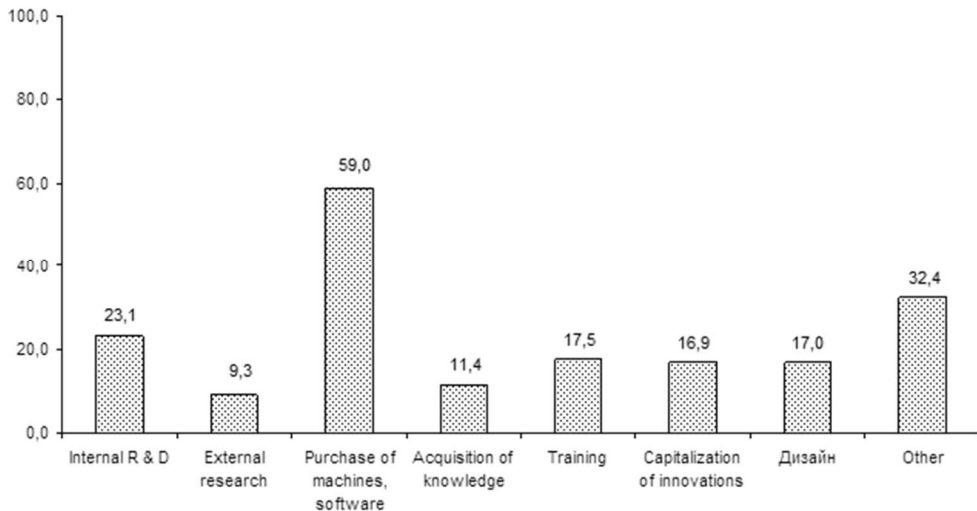


Figure 2. The classification of enterprises with technological innovations (2014-2016) in the spheres of innovation activities in % to all innovative enterprises in general investigation of innovation activity in the economy of Ukraine (according to the international methodology), 2014-2016).

Based on these statistics, we can claim that the 4th industrial revolution has no significant impact on the economy and labor market of Ukraine. However, some truly innovative projects exist in Ukraine. According to global sources, our country is in the 50th place in the ranking for innovation in 2017 (Dutta, Lanvin & Wunsch-Vincent, 2018). Our state is an active provider of the 4th industrial revolution as foreign countries mostly get the results of our activities by using the Ukrainian workforce to solve their own problems. Thus, Ukrainian employees of Luxoft Energy have developed software platforms for energy management in the USA and France (Yurchak, 2016). According to data of IDC-Ukraine, up to 90% of GDP in the industry is taken by export. Another 70% is taken by outsource development (Zaporozhan, 2017).

The most innovative Ukrainian companies in the field of grocery, marketing and management solutions are PrivatBank, Pivdenmash and Nova Poshta (Kornyluk, Kharlamov, & Shyshatskiy, 2016). In addition, since 2016, we have the public movement "Industry 4.0 in Ukraine". It has been established based on the Association for Industrial Automation of Ukraine (AIAU) and the Association for Innovative Development of Ukraine (AIDU).

According to research conducted by the above-mentioned public movement, the 4th industrial revolution manifested itself in Ukraine through projects in visual management, by using a single secure web portal for all stakeholders within companies, by implementing security systems on the basis of a professional platform FT Asset Centre, by creating a single informational network, by processing data on the basis of Business Intelligence, etc. (Paulzp, 2018).

At the same time, after analyzing the experience of companies that introduce Big Data, cloud computing, robots, etc., we can systematize the main problems faced by national companies while implementing respective projects. These include:

1. The group of standard risks:
  - a) limited financial resources;

- b) the lack of a business environment and public sector 'culture', i.e. the inability of top management to adopt innovative solutions;
  - c) the inability to have a holistic vision of the entire automation system and the needs of a complex project (a limited number of system sets for companies to implement because of cost savings or maintenance failure);
  - d) the lack of skilled personnel, the impossibility of its training in Ukraine;
2. The group of internal risks (within a company):
- a) the lack of understanding project objectives, planning and analysis of needs, costs and prospects of the project;
  - b) the sensitivity of top management and the organizational structure of the company to issues of staff and stakeholders loyalty to the company;
  - c) the lack of teamwork on a project.

Unfortunately, yet another problem holding back the innovative growth of Ukraine's economy is a low level of awareness of participants about various innovative projects with foreign partners (including the lack of clear coordination). Very often, the centers of innovation (universities, research institutes) focus on "unnecessary" projects (projects aimed at modernization, such as Industry 3.0) and do not understand what trends are relevant in the world of innovation today. In addition, the cooperation between companies, universities, research centers and business in the country is very limited.

Given the above-mentioned facts, the authors estimate the impact of the 4th industrial revolution on the Ukrainian economy market as not significant. The areas of greatest impact are such as development of software products and telecommunications.

#### **THE CHALLENGES OF THE 4TH INDUSTRIAL REVOLUTION FOR SOCIALLY RESPONSIBLE BUSINESS**

The development of social networks, cloud technologies and algorithms for analyzing big amounts of data gives companies unlimited access to personal information of their potential customers. Access to such data not only imposes responsibility due to the use and storage of such information on the companies, but is also a temptation to use it to manipulate consumer behavior.

Providing more direct models of personalized production, maintenance, and interaction with the consumer (including receiving real-time data from the actual use of the product) and reducing inefficiency, irrelevance and cost of intermediaries in the model of the digital supply chain where possible can directly lead to the transformation of entire industries in the context of building smart enterprises. The development of network technology and rational behavior of a business contributes to building business models that aim at distributing technology, sharing resources or collaborative consumption. The most famous companies built on such model are Uber and Airbnb (Stein, 2018; Baker, 2014). Uber is an Internet taxi service that allows tens of thousands of people to respond to transportation requests. In other words, a virtual platform that ensures the meeting between the customer who needs a taxi service and the seller who offers his services for transportation. Airbnb is an online service that allows people to rent rooms to strangers for short stays. In this business model, companies do not own car parks or real estate. They are simply using information technology and the Internet to provide real-time information about the offer on the market. This helps to reduce middle management, to optimize costs and provide services at a lower price.

However, in this business model, the company does not directly provide services used by the customer; it only provides information about the subject that is ready to provide the services in question.



This means that the company itself is not responsible for the quality of services. In this business model, there is also no state regulation, and the services themselves may not even be recognized, which leads to tax evasion. In addition, the interests of other people and parties concerned are not taken into account. For instance, in the case of Airbnb, there is no information on whether the neighbors want to live next to a mini-hotel. Thus, a company that focuses on providing the consumer with the best-personalized service provokes violations and risks itself. In this situation, social responsibility regarding the protection of consumer rights and ethical business practice lies on the company alone.

Technological changes in the workplace have deep social consequences, such as risks of job loss, high rate of unemployment, lower income levels. Researchers identify different numbers of job losses due to the development of robotics; from 47% in the US up to 40-60% in the EU (Degris, 2016). In general, we can say that all kinds of jobs and functions in the workplace that can be clearly described in algorithms will be robotized in the future. This can lead to social unrest, migration, an increased inequality of access to the labor market and social services, discrimination and radicalization of the society. Industry 4.0 creates new jobs while shutting down many traditional jobs. Therefore, the level of stress load on one workplace in the new conditions is yet undefined.

While the 4th industrial revolution leads to a significant increase in productivity, in a context of a less labor-intensive economy medium-paid and middle-term jobs are to disappear on the whole. This "washout" of the middle class will create an increasingly polarized society. On the one hand, highly skilled and difficult jobs in computer science, engineering, networking, etc. will be covered. On the other hand, we will witness a critical deficiency of low-skilled workers (for example, employees of entry/sorting/filtering data).

Therefore, in order not to lose its marketing outlet, business needs to ensure the adaptation of its employees to the new technological conditions. It is clear that employees must possess new technical skills and competencies. The understanding of strategy will help the business to reeducate employees in accordance with the new conditions.

Access to the Internet and email through a smart phone creates an illusion of the employee's continuous availability. Thus, his right to rest might be violated. The desire of business to optimize and control the situation in the office by installing web cameras can seriously worsen an employee's emotional state. At the same time, the Internet is a means of access to the global labor market for the employers. In addition, it is quite poorly controlled.

Yet, in general, technological innovation promotes social inclusion, thereby improving the quality of life and expanding the opportunities of professional fulfillment for each person, regardless of their physical capabilities. At the same time, it represents a test for the government, business and citizens of their ability to fully use the results of this progress and respond quickly to the emerging challenges. Let us define the problems that are most often mentioned as aftermaths of the 4th industrial revolution. Firstly, it is unemployment along with the lack of skilled and qualified employees. Secondly, the increased duration of professional life results in difficulties for employment and the growth of unemployment among young specialists. Thirdly, the development of information and digital technology allows people to work remotely, without personal presence in the office. It expands the economic opportunities for people who are restricted in movement. For the growth and stable existence of business, it is very important to understand the development vector of technology, society and the impact of megatrends. Figure 3 presents the challenges that emerge in a socially responsible business

because of the 4th industrial revolution. Only a society of trust and responsibility can find an adequate solution to these problems. This means responsible behavior of citizens, business and government.

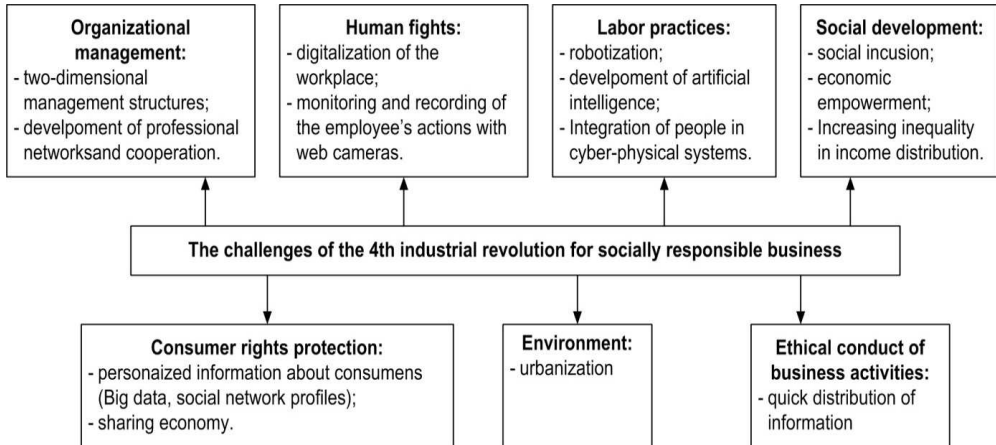


Figure 3. The challenges of the 4th industrial revolution for socially responsible business

Source: compiled by the authors.

## RECOGNIZING THE NEW GOALS OF CORPORATE SOCIAL RESPONSIBILITY IN THE ERA OF DIGITAL ECONOMY

Today, the understanding of corporate social responsibility (CSR) is inextricably linked to global sustainable development goals (Goals in the field..., 2015). In this regard, social responsibility of business is understood as an internal strategy for the implementation of these goals. Moreover, each of the goals is transformed in a specific task within the company. For instance, the CSR strategies of Target include the following tasks:

- ensure team members and manufacturing supply chain workers thrive (to invest in team members and support manufacturing supply chain workers so they can take care of themselves, each other and their families);
- deliver value with values (to offer products, services and experiences that meet all families' needs for value and values);
- accelerate economic development (to increase economic prosperity wherever we operate);
- embrace future forward design (to take the circular economy mainstream) (Target, 2018).

Microsoft, which took the 2nd place in the ranking of CSR in 2017 (Hahn-Griffiths & Southwick, 2017), declares the following objectives:

- to endeavor to respect and champion human rights, and seek to advance those rights by applying the power of technology;
- to recognize privacy as a fundamental human right; to preserve our customers' ability to control their data and make informed choices to protect their privacy;
- to work to ensure that our suppliers uphold high standards for responsible business practices and how they treat the people who work for them;
- to bringing out the best in people, supporting their goals, and allowing them to find deep meaning in their work;

- to committed to designing products and services that can be used by people of all abilities;
- to drive greater economic opportunity, inclusion, and empowerment of people around the globe;
- to committed to leveraging technology to solve some of the world's most urgent environmental issues;
- to committed to transparency to help our users make informed choices about how they use our products and services, and to help our stakeholders evaluate how we're meeting our commitments to corporate social responsibility (Microsoft, 2017).

Having analyzed the reports of the other well-known companies (CISCO, BMW, Sell, Sony, Bosch Global, Toyota), we concluded that the main goals of CSR programs are related to environment and cooperation with customers and managing staff. Sometimes the necessity of using tools of Industry 4.0. is declared (for example, in Bosch Global). At the same time, the CSR programs of some organizations do not have tools for dealing with the above-described problems associated with the 4th industrial revolution. In other words, it still remains an open question on how to take the challenges of the 4th industrial revolution in the CSR programs into account.

First, the authors believe that the CSR model needs to change. It should be based on cooperation not only with customers and personnel, but also with government, NGOs, scientific and educational centers. In fact, the main point of the new CSR model will change from "just do everything good" and "guide the employee throughout his whole career" to educating the personnel up to the moment when the role of business in socio-economic environment will be changed. The new CSR model can be based on the following values:

- the inalienable right of ownership by the owner of capital (including human capital);
- recognizing the diversity of needs and interests of stakeholders;
- balanced development of the company;
- harmonious development of a company within the society and nature;
- high-quality and responsible production (service, work);
- the access to information about the innovative product and availability of the product itself for everybody;
- responsibility and security of everyone.

Thus, the development of a new CSR model is directed primarily towards the company's harmonious cooperation with the economic, environmental, social systems of the country and the world in general; thus, innovations are introduced and operated in order to develop a better future. In this model, the company is an equal partner of the state and shares the same amount of responsibility for the quality of the environment, decent working conditions and the development of labor potential. Using the potential of the 4th industrial revolution, companies should focus not only on economic results, but also on the contribution to the society. The author's model of CSR is presented in Figure 4.

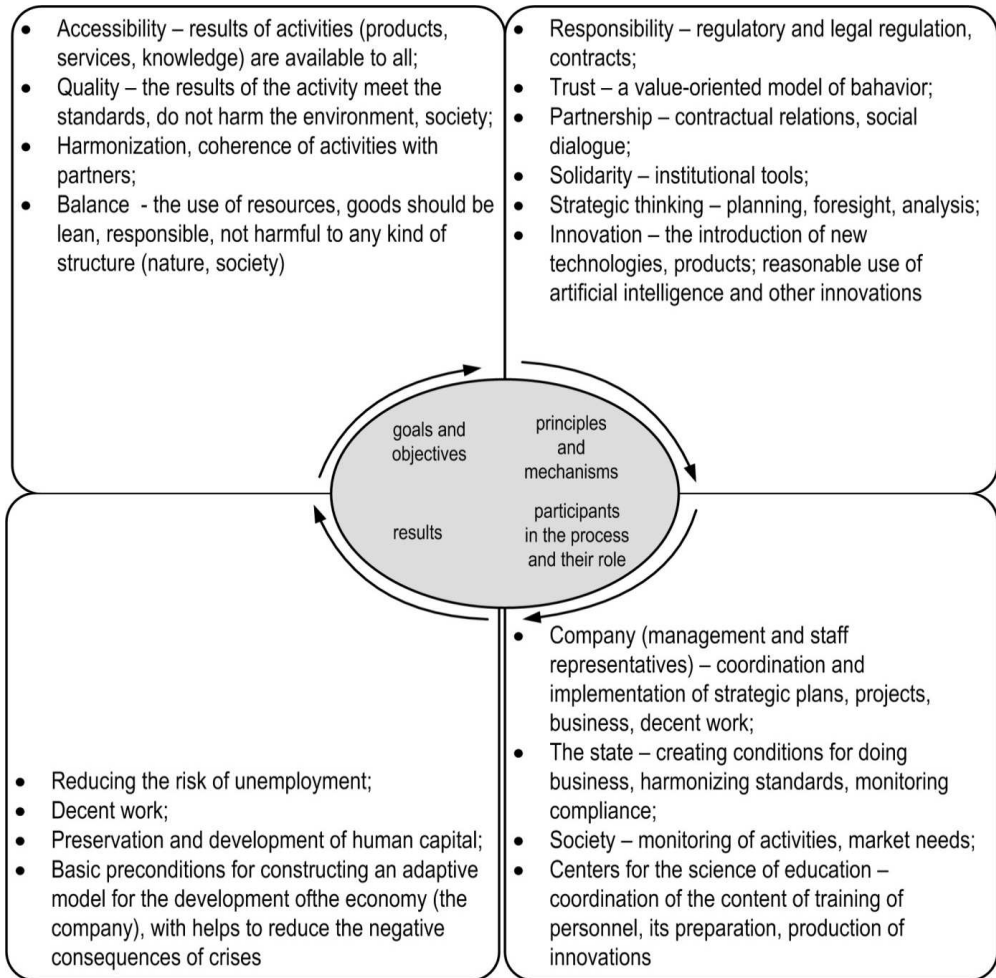


Figure 4. The CSR model in context of the 4th industrial revolution

Source: compiled by the authors.

A distinctive feature of the new CSR model is a close connection with scientific and educational centers. This is very important in terms of data aging during the 4th industrial revolution. This cooperation of science, education and business needs to be built on a permanent ground of openness and accessibility. The result of such cooperation should be a rapid response to the needs of the labor market in highly-specialized personnel (we do not have to educate an expert “from scratch”; a simple extension and updating of knowledge, skills, etc. should be enough). In other words, the education and training programs of personnel and the population in general should be long-term, consisting of various modules with different requirements that can be updated and modified without damaging the quality of training.

In conclusion, we want to point out that the new CSR model is based on trust. In this model, the responsibility to make decisions is increased for everyone. Therefore, the issue of corporate culture and further selection of personnel becomes a priority. Personnel management must also shift towards

partnership. For this to happen, the culture and values of the company should coincide with value orientations of each employee.

## CONCLUSIONS

The development of countries and companies is inextricably linked to the results of the 4th industrial revolution. By correctly using the provided technology, humanity can solve most of the tasks set for the global development of the UN. To achieve this, it is necessary to identify the challenges of the 4th industrial revolution and find effective mechanisms for managing innovations. In addition, the authors insist it necessary to consider features of the internal socio-economic systems of countries. They can impact the particular nature and the means of introducing the 4th industrial revolution. These factors help to form the world's centers of innovation and infrastructure. For instance, Ukraine will sooner become a donor of innovative ideas and knowledge rather than a generator of finished projects (in the future our country will most likely shift to the system of infrastructure). Thus, the structure of the countries development priorities has changed, new values and needs are being formed, the structure of the labor market is being reformed.

It is difficult to consider all the factors. However, in this situation, CSR becomes the most appropriate mechanism for managing companies. At the same time, CSR cannot remain static. It is important to reorganize its model given the challenges. Among the main reasons that motivate corporations to reconsider their CSR programs, the authors identify the following:

1. The development of technology is rapid; it changes the social structure of society, business models and poses new challenges for the government and other actors on the market.
2. The desire to provide the customer with the most personalized offer and the development of information systems leads to the emergence of two-dimensional business models of joint use and consumption. They provoke violations and risks regarding the protection of consumer rights and business ethics.

Having analyzed the needs of companies and the requirements of the 4th industrial revolution towards the management of companies, organizations and staff, the authors suggested their own CSR model. It is based on core values that are proper for the digital economy. Thus, the current CSR model is being transformed and takes on new tasks (harmonization, balance), principles (partnership, trust, strategic thinking and innovation) and tools. A distinctive feature of the new model should also be close cooperation between centers of science and education and companies.

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