

БАШИНСЬКА

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THE IMPACT OF CURRENT TRENDS IN
THE GLOBAL INDUSTRY ON THE
ECONOMIC SECURITY OF THE
ENTERPRISEВПЛИВ СУЧАСНИХ ТЕНДЕНЦІЙ
РОЗВИТКУ СВІТОВОЇ ПРОМИСЛОВОСТІ
НА ЕКОНОМІЧНУ БЕЗПЕКУ
ПІДПРИЄМСТВА

ГОМОНЮК

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Introduction. We live in the era of the Third Industrial (or Digital) Revolution, which began in the second half of the last century and is characterized by the spread of information and communication technologies, but modern world leaders are already actively preparing for a new era – the Fourth Industrial Revolution or Industry 4.0.

The purpose of the article is to study the impact of Industry 4.0 on the economic security of the enterprise.

Results. The main challenges of Industry 4.0 are:

Flexible manufacturing: many companies are involved in product manufacturing, which step by step helps create a product. With the digital network, these steps can be better coordinated, and the use of machines is better planned.

Convertible factory: Production lines will be built in modules in the future. They can be quickly assembled to complete the task.

Customer-oriented solutions: Consumers and manufacturers are moving closer together. Customers themselves can design products in accordance with their wishes.

Optimized logistics: algorithms calculate the ideal delivery routes, machines themselves report when they need new material – smart grid provides optimal flow of goods.

Use of data: Progress data and product status data are aggregated and evaluated. Data analysis provides guidance on how to make the product more effective. Circle economy with efficient resource use: Products are considered to be managed data throughout their life cycle. Even in the construction, it is determined in what form materials can be recycled.

Personnel: the proportion of routine activity will decrease; production's flexibilisation through industry 4.0 will require much more skills in all workflows for all employees. Skilled workers will be more in demand in the future for making decisions that can not be replaced by any algorithm. At the same time, employees must be trained and qualified for new jobs.

A new culture of education – the company needs strong partners. For a successful path to Industry 4.0, there are a variety of opportunities for lifelong learning and organization of work that contributes to learning.

Conclusion. The Fourth Industrial Revolution is steadily moving. It will change the world, because there were no analogues and Ukrainian enterprises in order to ensure their economic security need to prepare in advance.

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Вступ. Ми живемо в епоху Третьої промислової (або цифрової) революції, яка почалася в другій половині минулого століття і характеризується поширенням інформаційно-комунікаційних технологій, але сучасні світові лідери вже активно готуються до нової ери – Четвертої промислової (індустріальної) революція або Індустрія 4.0.

Метою статті є вивчення впливу Індустрії 4.0 на економічну безпеку підприємства.

Результати. Основними викликами Індустрії 4.0 є:

Гнучке виробництво: багато компаній беруть участь у виробництві продукції, яка крок за кроком допомагає створити продукт. З цифровою мережею ці кроки можна краще координувати, а використання машин краще планувати.

Конвертована фабрика: Виробничі лінії будуть побудовані в модулях в майбутньому. Вони можуть бути швидко зібрані для виконання завдання.

Клієнтоорієнтовані рішення: споживачі та виробники зближуються. Клієнти самі можуть оформляти вироби відповідно до своїх побажань.

Оптимізована логістика: алгоритми розраховують ідеальні маршрути доставки, самі машини повідомляють, коли їм потрібен новий матеріал - смарт-сітка забезпечує оптимальний потік товарів.

Використання даних: дані про прогрес і дані про стан продукту агрегуються і оцінюються. Аналіз даних дає вказівки щодо того, як зробити продукт більш ефективним.

Кругова економіка з ефективним використанням ресурсів: нова ера характеризуватиметься більш економічним використанням ресурсів із максимально можливим багаторазовим використанням у виробничих процесах.

Персонал: частка рутинної діяльності зменшиться; гнучкість виробництва через галузь 4.0 вимагатиме набагато більше навичок у всіх робочих процесах для всіх працівників. Кваліфіковані працівники будуть більше затребувані в майбутньому для прийняття рішень, які не можуть бути замінені будь-яким алгоритмом. Водночас, працівники повинні бути навчені та кваліфіковані для нових робочих місць.

Нова культура освіти – компанії потрібні сильні партнери. Для успішного шляху до Промисловості 4.0 існує безліч можливостей для навчання протягом усього життя та організації роботи, що сприяє навчанню.

Висновок. Четверта промислова революція неухильно рухається. Це змінить світ, тому що не було аналогів і українських підприємств для того, щоб забезпечити їх економічну безпеку потрібно готувати заздалегідь.

Keywords: Fourth industrial revolution, circular economy, convertible factory, economic security of the enterprise

Ключові слова: Індустрія 4.0, Четверта індустріальна революція, кругова економіка, конвертована фабрика, економічна безпека підприємства

INTRODUCTION

The world stands on the brink of technological revolution, which will fundamentally change the way of life, work and attitude toward each other [1-5]. We live in the era of the Third Industrial (or Digital) Revolution, which began in the second half of the last century and is characterized by the spread of information and communication technologies, but modern world leaders are already actively preparing for a new era – the Fourth Industrial Revolution, a term created by Klaus Schwab [1], the founder and executive director of the World Economic Forum Starting with Industry 4.0 (Industrie 4.0) in Germany and the next New Strategy for American Innovation (New Strategy for American Innovation) [6] in the United States and the intelligence (smartization strategy) in Japan, developed countries push national innovation strategies. Similarly, China is pursuing 2025 (the Made in China 2025), and Korea has announced the Innovation Strategy for manufacturing industry 3.0. (the Manufacturing Industry Innovation 3.0). The fact that the Fourth Industrial Revolution will lead to a redistribution of the labor market has been actively debated in Davos for several consecutive years, at the last, said that the analysis of the latest data suggests that the process of substitution accelerates with the development of artificial intelligence.

In terms of scale and complexity, transformation will not look like humanity has experienced before. It is not yet possible to predict precisely how it will unfold, but one thing is clear: the answer to it must be integrated and comprehensive, with the participation of all actors from the global public authorities, from the public and private sectors to academia and civil society.

The revolution can change the way enterprises, economic sectors and even countries integrate into global value chains, the nature of innovation and the conditions for participation in international trade and investment flows.

THE PURPOSE OF THE WORK

The purpose of the article is to study the impact of 'Fourth Industrial Revolution' or 'Industry 4.0' in the global industry on the economic security of the enterprise.

RESEARCH METHODS

Methodological and informational basis of work are scientific works, materials of periodicals, Internet resources.

RESULTS

"Industry 4.0", which is considered as an industry, has the potential to change the existing technological regime. The universal nature of the new industrial model proposed by Industry 4.0, opens up the opportunity for a new industrial revolution, as a result of which "Industry 4.0" will become a new global industrial milestone and a standard for the development of the real sector of the economy all over the world.

There are three reasons why today's transformations are not just the continuation of the Third Industrial Revolution but the coming of the Fourth and Clear: the speed, scale and influence of systems. The rate of current breakthroughs has no historical precedent. Compared to the previous industrial revolutions, the Fourth is developing exponentially, not linearly. In addition, it violates practi-

cally every industry in each country, and the breadth and depth of these changes predict the transformation of entire systems of production, management and management. So the main challenges Industry 4.0:

Flexible manufacturing: many companies are involved in product manufacturing, which step by step helps create a product. With the digital network, these steps can be better coordinated, and the use of machines is better planned.

Convertible factory: Production lines will be built in modules in the future. They can be quickly assembled to complete the task. Improved productivity and efficiency, individual products can be produced in small quantities at affordable prices.

Customer-oriented solutions: Consumers and manufacturers are moving closer together. Customers themselves can design products in accordance with their wishes, for example, the sneakers themselves can be designed and adapted to the individual shape of the foot. At the same time, smart products that are already shipped and used can transmit data to the manufacturer. Using usage data, the manufacturer can improve its products and offer new services to the client.

Optimized logistics: algorithms calculate the ideal delivery routes, machines themselves report when they need new material - smart grid provides optimal flow of goods.

Use of data: Progress data and product status data are aggregated and evaluated. Data analysis provides guidance on how to make the product more effective. More importantly, it is the foundation for entirely new business models and services. For example, manufacturers of elevators can offer their customers "prognostic maintenance": lifts are equipped with sensors, which constantly send information about their condition. Depreciation can be detected and corrected before it can lead to a failure of the elevator.

Circle economy with efficient resource use: Products are considered to be managed data throughout their life cycle. Even in the construction, it is determined in what form materials can be recycled. The benefits are evident: Improved networking of products and machines increases efficiency reduces costs and at the same time saves resources. Thanks to intelligent monitoring and transparent processes, enterprises always have an overview and can respond flexibly and quickly to market changes. If, for example, the supplier fails or the raw material is scarce, production and delivery volumes can be adjusted.

Personnel.

– the proportion of routine activity will decrease. They are increasingly switching to intelligent machines. The convergence of digital communication technologies with automated machines increases the technological and organizational complexity.

– production's flexibilisation through industry 4.0 will require much more skills in all workflows for all employees. Skilled workers will be more in demand in the future for making decisions that cannot be replaced by any algorithm. At the same time, employees must be trained and qualified for new jobs.

Changes create problems that need to be considered when designing future work models:

– the boundaries of working and life worlds are blurred. Rapid rates of technical development increase the pressure

on workers who are more responsive to the requirements and, thus, are constantly available. This leads to an increase in psychological stress for workers? What framework conditions can prevent this?

– IT applications and sensors control production processes. There is obvious concern that employees will also be subject to this monitoring and control in the future. What solutions ensure the security of employees and at the same time guarantee the necessary network of information flows?

– Work in project structures also often means work in short-term, non-social insurance. What legal adjustments give companies the necessary opportunities for action, while guaranteeing workers fair labor relations and social security?

– New skills are needed. How can employees learn from current practice-related knowledge? How to prevent the exclusion of low-skilled workers?

A new culture of education – the company needs strong partners. For a successful path to Industry 4.0, there are a variety of opportunities for lifelong learning and organization of work that contributes to learning. Both professional and academic training and training require a continuous dialogue between industry, politics and society to constantly evolve and adapt.

Klaus Schwab believes that the transition from simple digitization (third industrial revolution) to technology-based innovation (fourth revolution) forces companies to rethink their attitude to how they work.

It is expected that the fourth industrial revolution will radically transform production as a driving force for global development.

According to a survey of 800 technology leaders held specifically for the forum in Davos, the key drivers of change will be cloud technologies, development methods for collecting and analysing Big Data, crowdsourcing, shrinking economy and biotechnology. Among other forecasts of experts are leading "smart" clothing, Internet-connected, unmanned cars and medicine, based on 3D-printing. In addition, 45% of respondents believe that in 2025, the board of directors of large companies may have an artificial mind [6]. Already only by name can be enriched as far as these technologies are Ukrainian industrial enterprises. We are already so far from the world's achievements, which has no time to catch up with traditional means – the development of innovations, we must radically change the approach to the functioning of the enterprise, focusing on world achievements.

CONCLUSION

The Fourth Industrial Revolution is steadily moving. It will change the world, because there were no analogues, and Ukrainian enterprises in order to ensure their econo-

mic security need to prepare in advance. Nevertheless, there are still some challenges that need to be addressed to make the fourth industrial revolution successful: organization of work, IT security and data protection should be discussed at an early stage with all relevant stakeholders, such as the skills of skilled workers and the development of common standards and standards a digitized economy is needed.

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