РОЗДІЛ 2

Інноваційні процеси в економіці

EU Economic and Legislative Policies for Industries 3.0 and 4.0 Promotion

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The article analyses socio-economic and legislative mechanisms for ensuring the Third and Fourth Industrial Revolutions incorporating the EU experience. It tackles the studies of the origin of the Third and Fourth Industrial Revolutions. It overviews research progress in changing means of production, economic relations, human life style, basic needs and occupations, as well as many other attributes of life caused by the Third and Fourth Industrial Revolutions. These transformations demand legal bases of relevant laws and directives which are already adopted in the EU. The article explains how legislative instruments help ensuring the Third and Fourth Industrial Revolutions. It analyzes the most important functions that the cyber-physiological systems will have to perform without human intervention. The article shows the legislative framework for sustainable transport, agriculture, and construction. It investigates the EU experience on the creation of a pan-European transport space and sharp reduction of the negative environmental effects of transport, achieving by 2050 reduction of greenhouse gas emissions by 60 %. It explains how total bans on the use of motor transport by 2050 for such fuels as gasoline, diesel and other carbon fuels may foster green economy and sustainable development. The research demonstrates how sustainable agriculture integrates three main goals – environmental health, economic profitability, and social and economic equity. The article tackles the issues of sustainable settlements affects, which are realized through the creation of a livelong-friendly environment for ensuring a healthy human existence and its development, including social development; and reduction of the negative impact on the natural systems of the processes of creating and operating the settlements themselves.

Keywords: economic and legislative policies, EU, Industry 3.0, Industry 4.0, green economy.

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Introduction. Currently, human society is rapidly entering the Third and Fourth Industrial Revolutions (T.i.r. and F.i.r.), which are also called Industry 3.0 and Industry 4.0. These rapid transformations must solve an important issue of transition to a "green" economy, which implies inevitable radical social, economic and environmental transformations.

Not only technological basis will be completely changed. Scientific research proves an unprecedented phase transition, which can be compared in scope and significance with the Neolithic revolution, which marked the beginning of the transition of man to work. It is expected that all aspects of the existence of human civilization will change, including means of production, economic relations, human life style, basic needs and occupations, as well as many other attributes of life. These transformations demand legal bases of relevant laws and directives.

Problem. The world of the Third and Fourth Industrial Revolution can be framed by new sets of legal rules. At the end of 2017 the EU launched a blockchain study to look into regulatory intervention, which the European Commission should take. The goal was to identity the "right conditions for an open, innovative, trustworthy, transparent and EU compliant environment" [19]. It means that legal design is a hot topic in building a new generation of products and services and new legislative mechanisms must appear to ensure the Third and Fourth Industrial Revolutions

Recent research. Dufva M. [9], Kabat P. [12], Galindo-Martína [11], Schwab K. [15, 16] discuss some aspects of transformation processes during the T.i.r. and F.i.r. Little attention is paid to the legal aspects of the transformation processes to ensure T.i.r. and F.i.r.

Goal of the article. The research distinguishes socio-economic and legislative mechanisms for ensuring the Third and Fourth Industrial Revolutions incorporating the EU experience for achieving green economy implementation.

The use of socio-economic instruments. Economy is the key sphere of the society, which ensures the implementation of production and consumption processes. Therefore, economy entirely depends on the basic technologies of production of material resources and energy.

The T.i.r. appeared as a reaction of the production system to environmental problems that cannot be solved by the existing socio-economic formation. Apparently, it is impossible to give a simple definition of the T.i.r. as it is a complex, multidimensional phenomenon. Taking it into account the T.i.r. can be determined through the formulation of its basic distinctive features.

The Third Industrial Revolution is a phenomenon of radical qualitative transformation of the socio-economic system, characterized by the transition to renewable energy and raw materials, the massive introduction of additive technologies and network production systems, the digital basis of fixation and transmission of information, the formation of horizontal production and consumer structures and corresponding solidarity forms of economic relations. The Fourth Industrial Revolution is the phenomenon of the introduction of cyber-physical systems in the processes of production and consumption of products, in which there are fully automated networks that operate without any human participation [10, 15].

The essence of these definitions becomes clear only with a more detailed consideration of the content of its components.

The Third Industrial Revolution can solve these and other contradictions, which could not be solved within the framework of an industrial society of the twentieth century. Its main components (digital technologies, mass computerization and networking of the population) originated during the final wave of industrial transformations of the second industrial revolution (S.i.r.).

The main tasks that must be solved (T.p.r.) are fundamentally different from the tasks of its two predecessors – the First and Second industrial revolutionaries. During the F.i.r. and especially the S.i.r. mankind was trying to increase its material and energy power competing with nature. In the 1950s in many countries there was the motto: "everything that is great is beautiful!"

Historically another goal was set for T.i.r: in the new wave of social and energy development return to harmony with nature through the transformation of production systems, the ecologization of social structure, the lifestyle and the environmentally oriented transformation of the person himself. Under such conditions, it is not necessary to strive to increase the scale, capacities and forms of social production, but rather to minimize them, which is usually accompanied by increased productivity, functional capacity, and efficiency of economic systems.

As in the two previous industrial revolutions, in the Third – all three groups of system-forming factors of economic systems are subject to a transformational shift: material and energy, information and synergetic. However, at the present stage synergetic factors dominate. These factors are called to integrate separate components of local economic systems into a single system – the global economy of the "space ship" Earth. Such integration processes occur in nature, where separate local ecosystems unite to form a single biosphere of the planet.

During the T.p.r. the preconditions for the formation of a "green" economy are laid through the triune system of interaction of material and energy, information and synergetic factors. As we have mentioned any system is formed through the interaction of three principles (basic groups of factors): material, informational and synergetic. Conditionally (symbolically) their functions can be expressed as follows: material – move (do work); informational – direct (form the information algorithm of development); synergetic – combine (provide consistent behavior of individual subsystems) [3].

Necessary basic preconditions for the implementation of the T.p.r. anticipate, firstly, the availability of efficient (fairly cheap per unit of work performed) technical facilities (in particular, installations of alternative energy and 3D-printers); secondly, providing a unified ("digital") basis for the fixation and transmission of information (for the implementation of communications: a person with a person, a person with a machine and a car with a machine), as well as the formation of a global system of memory and a peculiar all-planetary "brain center" on the basis of "cloud" technologies; thirdly, the formation of a single communication basis on the basis of the Internet and network systems.

The Fourth Industrial Revolution (also called "Industry 4.0") logically continues the trajectory of the Third Industrial Revolution, in which the synergetic base is the driving force behind the development of socio-economic systems.

The Fourth Industrial Revolution received a significant resonance after the speech by the Swiss economist Klaus Schwab at the International Ecological Forum in Davos. He is one of the main theorists of the "Industry 4.0" phenomenon. He described this phenomenon as blurring the boundaries between physical, digital and biological spheres [15].

On the basis of the analysis of a number of publications [4, 10, 15] the authors formulate the most important functions that the cyber-physiological systems will have to perform without human intervention:

- exchange of information (peculiar "communication" with each other) in real time;
- control of the environment and their own parameters;
- self-activation and stopping with certain information signals;
- self-adjustment for optimal operating modes;

- predictable (preventive) self-service systems;
- interaction with produced products (in the case of production systems);
- adaptation to new consumer needs;
- identification of the equipment necessary for the production of the necessary goods or meeting new needs;
- self-education for new methods of work.

The key principle of the F.i.r. is the identification of the materials from which things are composed with the help of special labels. Any detail will contain information about production place, materials, purpose of use, etc. Such labels will allow communication between items that could not "communicate" before.

Speaking about the inheritance of the T.p.r., without which it would not be possible to implement Industry 4.0, one cannot but mention automatic machine, robots, 3-D printers, artificial intelligence and renewable energy sources. One more important detail must be mentioned. Processes occurring during the T.i.r. and F.i.r. represent a metasystem transition, when a new reality of the supersystem level – a single global socio-economic system is formed from individual economic agents and local communities. The actions of the cyber-physic systems that are formed during the R.i.r. will also be combined within a single global system. A characteristic feature of metasystem transitions (i.e, transformations, when systems form a new supersystem level) are the formation of some "brain" centers, which provide through the processes of information processing, the coordination of all forms of motion. "Cloud" – the system of supercomputers that form the all-planetary system of memory and information processing helps to implement "Industry 4.0".

In the EU countries there are three major groups of instruments used to ensure the T.i.r. and F.i.r. goals:

- *hard law* – orders and directives, prohibitions, restrictions or licensing procedures;
- *economic instruments* (market-oriented laws) – green taxation, environmental payments, certificates (trade permits) or liability, green subsidies and promotion schemes, as well as disclosure of subsidies that are harmful to the environment (for example, subsidizing fossil fuel prices);
- *soft law* – information, management systems, exchanges of experience or binding agreements between government agencies and private business associations ("green" agreements or unions).

Social and economic instruments are designed to ensure the goals of the T.i.r. and F.i.r. to create the incentives to achieve sustainable development goals. The main directions of the formation of such motivational instruments are used in the EU and the rest of developed countries (Table 1).

We analyze the EU legislative framework for sustainable transport, agriculture, and construction in the era of the T.i.r. and F.i.r.

Legislative framework. *Priorities of the EU transport policy*. The European countries set two ambitious goals: on the one hand, to build a single transport market (now the transport sector of the EU consists of weakly integrated national segments), on the other hand – to increase the level of social mobility while reducing harmful emissions into the atmosphere. For this purpose, the European Commission plans to make radical transformations in the continental transport system. The Union 2030 energy and climate framework, including the Union's binding target to cut emissions by at least 40 % below 1990 levels by 2030 is an important part of the package of measures needed to reduce greenhouse gas emissions [7, 8].

Table 1

Socio-economic instruments for ensuring the T.r. and F.i.r.

Type	Content	Example
Direct regulation instruments	Limit and regulate behavior in the market in terms of environmental policy	Prohibitions, recognition and registration procedures; environmental standards, guarantees, resource quotas; deductible quotas; ecological regulation of advertising; limitation; consumer commitment, etc.
Economic instruments	Used in the market by establishing economic incentives that should promote environmentally sound products and act against environmentally harmful products	Ecological taxes and tariffs on products; payments; financial assistance; market licenses; payments, transfer of ownership forms
Binding instruments	Obligate the producer to inform the consumer about certain environmental characteristics of the product	Mandatory ecological marking, declaration of substance content
Nonbinding instruments	Provide information on the environmental characteristics of products on a voluntary basis	Publication of environmental reports, eco-labeling of products, environmental quality marks
Voluntary environmental agreements	Settled up between economic entities to differentiate between different powers of interest (usually agreements between the government and trading or manufacturing enterprises). Directed on the guarantee of certain environmental conditions; may have more or less legitimate binding character	Signed agreements; advertisement; self-commitments
Unconventional institutional agreements	Increase the sphere of responsibility of firms by establishing new relationships between producers and consumers, regarding the responsibility for environmental consequences, and, extending the very concept of "products"	Eco-leasing, distribution of environmental responsibility and environmental costs, formation of joint ecological funds
Consumer environmental protection instruments	Include measures of consumer unions, advisory centers; provide for consumer sanctions	Economic and moral sanctions, public pressure
Forms of unconventional cooperation	Form a connection between different agents in order to achieve bilateral benefits	Cooperation between production and environmental organizations, between trade and environmental organizations

Adopted on March 28, 2011 "White Paper 2011" foresees the transition to a single European transport space – through the creation of a competitive and resource-efficient transport system [17, 18]. It is another conceptual document on the basis of which the EU will determine the policy of developing European transport for the coming decades.

The White Paper puts a two-way goal. First, it is planned to complete the creation of a pan-European transport space and sharply reduce the negative environmental effects of transport, achieving by 2050 reduction of greenhouse gas emissions by 60 %. Secondly, the document provides a total ban on the use of motor transport by 2050 for such fuels as gasoline, diesel and other carbon fuels. The document defines the main tasks [2, 20]:

1) double reduction of petroleum cars in cities by 2030; with complete exclusion by 2050; release urban freight logistics from CO_2 by 2030;

2) ensuring the use of environmental aviation fuel in the amount of 40 % of their total consumption by 2050; also by 2050 reduce the toxicity of CO2 from marine fuels by 40–50 %; all measures taken should reduce the amount of harmful emissions into the atmosphere by 60 % compared with the beginning of the century;

3) ensuring by 2030 a 30 % (and by 2050 – 50 %) road transport for more than 300 km for rail and water transport through the creation of efficient and green transport corridors;

4) completing the creation of a European high-speed rail network by 2050; triple its length by 2030; providing transportation of the main part of passengers traveling on average distances by rail by 2050;

5) ensuring by 2030 the creation of a major multimodal transport network of the EU, having completed its creation by 2050 with the necessary information support;

6) connecting all the basic airports with the railway network, preferably high-speed by 2050; ensuring connection of the main seaports with the freight rail network and, where possible, with inland waterways;

7) introducing upgraded air traffic management infrastructure by 2020 and complete the creation of a single European airspace; introducing similar systems of traffic control on ground and water transport; implementing the European system of global satellite navigation Galileo;

8) creating the basis for the formation of a single European multimodal information-management system and the system of mutual settlements by 2020;

9) reducing practically to zero mortality as a result of accidents (road traffic accidents) by 2050; reducing the number of accidents by 2020; providing EU leadership in the field of transport security and transport security in all modes of transport;

10) making full use of the "user pays" and "polluter pays" principles to prevent imbalances and subsidize those types of transport activities that cause environmental damage; providing sufficient income for future investments in the transport system;

11) town centers are planned to be completely deprived of cars with gasoline and diesel engines, with an emphasis on hybrid and electric.

To address these problems, the White Paper identifies a list of 40 initiatives (including legislative), that is, the directions of concrete actions; among them – the further strengthening of environmental standards, the introduction of environmental priorities in the system of payment for infrastructure services, stimulating innovation and rationalization of transport, giving an ecological result, etc.

After the adoption of the White Paper, the development of the normative legal acts package, which provides the basis for its implementation starts. It is planned to allocate about 1500 billion euros for infrastructure for the period 2010–2050.

The development of road transport in the EU is moving fast. About 40 % of goods are transported in the EU by highways. Every year, the number of personal vehicles increases. EU residents like to travel by their own cars. The road transport market is almost completely liberalized. This is a highly competitive sector.

Despite the free movement within the EU, it should not be forgotten that in the Union countries there are significant differences in the norms concerning the use of motor vehicles (maximum speed and maximum weight of cars, permitted level of alcohol in the blood of the driver, etc.). There are currently around 100 examples of driving documents in the EU. In 2006, the EU Member States reached an agreement on the introduction of uniform driver rights in the European Union. By 2032, only plastic cards with a microchip, which will contain the necessary information, will be used as a driving license. They have been issued since 2012.

The European project for the deployment of the GALILEO global satellite navigation system was scheduled to be implemented in 2008, but due to financial and technical contradictions, the implementation was delayed until 2020. At present, the EU countries managed to overcome the contradictions of distributing industrial orders between national companies and find funding. The EU ministers of transport managed to find a compromise that Spain blocked, dissatisfied with the fact that it had only a small center for monitoring the GALILEO signals, while Italy and Germany will receive a normal coordination center. The distribution of industrial orders and functions between the EU countries means that the project will be launched. This is facilitated by the EU's previous agreement to cover the missing 2.5 billion euros from European funds. The GALILEO project is being built as an analogue of the American Gi-Pei-EU.

Sustainable agro-production. The main purpose of any agricultural production is to provide people with food. In addition, agrarian production largely provides raw materials (leather, wool, cotton) for secondary industries, energy (biogas) and transport (bioethanol and biodiesel) industries. Sustainable agro-production can be defined as agricultural production, which ensures the achievement of sustainable development goals. Sustainable agriculture integrates three main goals – environmental health, economic profitability, and social and economic equity.

The analysis identifies the following groups of sustainable agro-production goals:

- providing the population of the planet with food and industry resources sufficient in quantity and quality (balanced);
- ensuring the environmental safety of food products in terms of consumers health (including genetic consequences);
- ensuring ecological safety of food products and industrial resources in terms of producers health (including genetic consequences);
- ensuring the ecological safety of food production in terms of preserving the ecosystems of the planet and the biosphere as a whole;
- ensuring the social quality of life of producers and consumers of agricultural products and society as a whole.

Currently, there are two key approaches to the definition of organic farming in the world. According to the first, organic farming means any ecologically safe system of agricultural production, in particular, which: banns for synthetic chemicals (fertilizers, pesticides, antibiotics, etc.); minimal processing of soil; banns for the use of genetically modified organisms (GMOs). It refers to various fields: plant growing, horticulture, stockbreeding and poultry farming, etc.

On 1 June 2018, the European Commission presented legislative proposals on the common agricultural policy (CAP) beyond 2020. Based on 9 objectives, the future CAP will continue to ensure access to high-quality food and strong support for the unique European farming model (Fig. 1) [13, 14].

Figure 1. The 9 objectives of the future CAP [13]

Today, more and more consumers around the world understand the benefits and prefer the goods and services with improved characteristics regarding the impact on the environment and human health. A reliable benchmark for choosing such products is environmental certification and labeling. They are carried out in accordance with the principles and methods of the international ISO 14020 standards. It takes into account certain environmental characteristics of products. The use of environmental labeling has been recommended at the 1992 UN World Conference on Environment and Development in Rio de Janeiro.

Formation of sustainable settlements affects two important aspects; firstly, creation of a livelong-friendly environment for ensuring a healthy human existence and its development, including social development; and secondly, minimization of the negative impact on the natural systems of the processes of creating and operating the settlements themselves. The construction industry and utilities consume more than 30 % of energy, and taking into account the full cycle of production of necessary materials and energy, this figure can reach 50 %. They also generate 20 % of greenhouse gas emissions and about 50 % of discharges of contaminated water [5].

Therefore, it is so important that the creation and operation of modern settlements must be not only beneficial for people, but also safe for nature.

The construction industry can solve some most important economic problems:

- minimization of the energy consumption of production processes and operation of infrastructure of settlements;
- minimization of material resource consumption, including water;
- minimization of the ecological damage to natural systems for creating and exploiting settlements, including post-exploitation stages.

One of the main directions in construction is the creation of energy-efficient residential and industrial buildings. The basic principle of designing an energy efficient home is to maintain a comfortable internal temperature and necessary processes of life with the minimum use of fuel resources or without them at all – due to effective insulation and the use of alternative energy sources.

To ensure the functioning of energy-efficient buildings, modern technologies are used [1], including photovoltaic effect (solar cells) use; use of the principle of "heat pump"; use of other alternative energy sources: bioenergy generators, wind turbines, solar collectors; effective insulation with the use of progressive materials and equipment of buildings; ventilation of air with the use of heat recovery (i.e. waste heat utilization); effective glazing and progressive window designs; use of "smart" systems for managing the processes of functioning of buildings.

Speaking about a "zero energy building" (ZEB) two technologically different directions should be distinguished:

- buildings connected to the power grid can consume a certain amount of electricity from the grid at increased demand, compensating for the same or even more energy at excess of its production by alternative sources of the building itself;
- autonomous buildings, which do not have a connection to a centralized electricity grid, are forced to solve their technical problems of self-sufficiency in energy; in this case, they should, as a rule, have sufficient accumulation potential to balance peaks and declines in production and energy consumption.

The 2010 Energy Performance of Buildings Directive and the 2012 Energy Efficiency Directive are the EU's main legislative instruments promoting the improvement of the energy performance of buildings within the EU and providing a stable environment for investment decisions to be taken. As Directives, they needed to be transposed by Member States into national legislation.

The 2010 Energy Performance of Buildings Directive has made it possible for consumers to make informed choices that will help them save energy and money, and has resulted in a positive change of trends in the energy performance of buildings. Following the introduction of energy efficiency requirements in national building codes in line with the Directive, new buildings today consume only half as much as typical buildings from the 1980s.

On 30 November 2016, as part of the Clean Energy for All Europeans package, the Commission proposed an update to the Energy Performance of Buildings Directive to help promote the use of smart technology in buildings, to streamline existing rules and accelerate building renovation. The Commission also published a new buildings database – the EU Building Stock Observatory – to track the energy performance of buildings across Europe. In order to direct investment towards the renovation of building stock, the Commission also launched the Smart Finance for Smart Buildings initiative, which has the potential to unlock an additional €10 billion of public and private funds for energy efficiency and renewables uptake in buildings.

On 19 June 2018 Directive (2018/844/EU) amending the Energy Performance of Buildings Directive was published. The revised provisions will enter into force on 9 July 2018. This revision introduces targeted amendments to the current Directive aimed at accelerating the cost-effective renovation of existing buildings, with the vision of a decarbonised building stock by 2050 and the mobilisation of investments. The revision also supports electromobility infrastructure deployment in buildings' car parks and introduces new provisions to enhance smart technologies and technical building systems, including automation.

Member States will have 20 months to transpose its provisions into national law (namely by 10 March 2020) [6].

Conclusions. The Third and Fourth Industrial Revolutions, which we can observe today, are objective. They are conditioned by the aspirations of human civilization to overcome the environmental instability of the existing socio-economic formation, which put humankind on the brink of survival. The way out can only be achieved through the progress and rise of humanity to a new higher level of socio-economic development. As a result, these processes form the basis of a new type of economy. The Third and Fourth Industrial Revolutions changes all aspects of the existence of human civilization, including means of production, economic relations, human life style, basic needs and occupations, as well as many other attributes of life. These changes demand legal bases of relevant laws and directives. The EU legislative framework for sustainable transport, agriculture, and construction shows directions for radical transformation changes in Ukraine for the nearest future to achieve sustainable development goals.

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Экономическая и законодательная политика ЕС
для стимулирования Третьей и Четвертой индустриальных революций

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В статье анализируются социально-экономические и юридические механизмы обеспечения третьей и четвертой промышленных революций, с учетом опыта ЕС. В работе обосновано причины возникновения третьей и четвертой промышленных революций; представлен обзор современных способов производства, экономических отношений, быта человека, основных потребностей и профессий, а также многих других атрибутов жизни, вызванных третьей и четвертой промышленными революциями. Эти преобразования требуют формирования и

принятия соответствующих законов и директив, которые уже действуют в ЕС. В статье объясняется, юридические инструменты помогают обеспечить третью и четвертую промышленные революции. В статье изложена законодательная база формирования сестейнового транспорта, агропроизводства и строительства. В работе исследованы опыт ЕС по созданию общеевропейского транспортного пространства и проанализированы результаты резкого снижения негативных экологических эффектов транспорта и достижение к 2050 году сокращения выбросов парниковых газов на 60 %. В статье объясняются последствия полного запрета до 2050 года на использование автомобильного транспорта на таких видах топлива, как бензин, дизельное топливо и другие углеродные виды топлива, что в свою очередь будет способствовать обеспечению зеленой экономики и достижения целей сестейнового развития. Проанализированы эффекты сестейнового агропроизводства, объединяющего три основные цели – экологическое здоровье, экономическую прибыльность и социально-экономическое равноправие. В статье рассматриваются проблемы развития сестейновых поселений, создания жизнеблагодатной среды для обеспечения здорового существования человека и его развития, включая социальное развитие, а также минимизацию негативного воздействия на природные системы процессов создания и функционирования самих поселений.

Ключевые слова: экономическая и законодательная политики, ЕС, индустрия 3.0, индустрия 4.0, зелёная экономика.

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Економічна та законодавча політика ЄС для стимулювання Третьої та Четвертої промислових революцій

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У статті аналізуються соціально-економічні та юридичні механізми забезпечення третьої та четвертої промислових революцій, з урахуванням досвіду ЄС. В роботі обґрунтовано причини виникнення третьої та четвертої промислових революцій; представлено огляд сучасних способів виробництва, економічних відносин, побуту людини, основних потреб та професій, а також багатьох інших атрибутів життя, спричинених третьою та четвертою промисловими революціями. Ці перетворення вимагають формування та прийняття відповідних законів та директив, які вже діють в ЄС. У статті пояснюється, які юридичні інструменти допомагають забезпечити третю та четверту промислові революції. У статті викладена законодавча база формування сестейнового транспорту, агровиробництва та будівництва. В роботі досліджено досвід ЄС щодо створення загальноєвропейського транспортного простору та проаналізовано результати різкого зниження негативних екологічних ефектів транспорту та досягнення до 2050 року скорочення викидів парникових газів на 60 %. В статті пояснюються наслідки повної заборони до 2050 року використання автомобільного транспорту на таких видах палива, як бензин, дизельне паливо та інші вуглецеві види палива, що в свою чергу буде сприяти забезпеченню зеленої економіки та досягнення цілей сестейнового розвитку. Проаналізовано ефекти сестейнового агровиробництва, що об'єднує три основні цілі – екологічне здоров'я, економічну прибутковість та соціально-економічну рівноправність. У статті розглядаються проблеми розвитку сестейнових поселень, створення життєблагодатного середовища для забезпечення здорового існування людини та її розвитку, включаючи соціальний розвиток, а також мінімізацію негативного впливу на природні системи процесів створення та функціонування самих поселень.

Ключові слова: економічна і законодавча політика, ЄС, індустрія 3.0, індустрія 4.0, зелена економіка.

JEL Codes: K23, F63 Table: *1*; Figure: *1*; References: *20*

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