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FEATURES OF THE PROCESS OF INDUSTRIALIZATION IN THE MODERN STAGE OF ECONOMIC RELATIONS

ОСОБЛИВОСТІ ПРОЦЕСУ ІНДУСТРІАЛІЗАЦІЇ НА СУЧАСНОМУ ЕТАПІ ЕКОНОМІЧНИХ ВІДНОСИН

The article presents re-industrialization issues in developed countries (EU and US), as well as in developing countries. The paper deals with the strategy of "new industrialization", which nowadays is in high-priority of economic policy in most countries of the developed world. It claims that the post-industrial economy can no longer act as a reliable basis for economic development, since it requires a material production. Moreover, the demand for innovation forms in the material production and ensures the dynamic development of the innovative economy. It is determined that the main content of re-industrialization is the process of spreading "breakthrough technologies", which cover both the formation of new industries, sectors of the economy and industry, as well as their spread in traditional sectors of the economy. Analyzing world experience in the field of developing and implementing modern industrial policy, it is worth noting that the conceptual approaches, content and tools of industrial policy are fundamentally changing towards a new industrial that is replacing the traditional policy. The analysis provides a description of the structural changes that have already occurred and projections for future developments in the European and US states concerning the problem of the revival and development of their own industry. The research gave an opportunity to discover that the fundamental importance is the rethinking of the role of modern industrial development and for Ukraine, which can not dynamically develop beyond the global trend of world development - a new industrialization. The generalization of theoretical and practical experience on this issue provides an opportunity to determine the most important directions of its implementation, since today, the restructuring of the national economy and the modernization of the technology base of the transition to a new technological basis become especially relevant. The solution to these problems is due to the formation of a new innovative model of development that can overcome the consequences of the global financial and economic crisis and reach the path of sustainable economic growth.

Keywords: re-industrialization, economic policy, new technologies, new industrialization, scientific and technical potential.

У статті розглядаються питання реіндустріалізації в розвинених країнах (країнах ЄС та США), а також в країнах, що розвиваються. Досліджено стратегію «нової індустріалізації», яка сьогодні стає пріоритетом економічної політики більшості країн розвиненого світу. Доведено, що постіндустріальна економіка більше не може виступати в якості надійного підґрунтя економічного розвитку, оскільки для нього необхідний базис - матеріальне виробництво, саме в матеріальному виробництві формується попит на інновації, що забезпечує динамічний розвиток інноваційної економіки. Визначено, що основним змістом реіндустрілізації стає процес поширення «проривних технологій», які охоплюють як формування нових галузей, секторів економіки та промисловості, а також їх поширення в традиційних секторах економіки. Аналізуючи світовий досвід в області розроблення та реалізації сучасної промислової політики, варто відзначити, що концептуальні підходи, зміст та інструменти промислової політики в корені змінюються в напрямку нової промислової політики, яка приходить на зміну традиційної. За допомогою проведеного аналізу подано характеристику структурних змін, які вже відбулись та прогнози на майбутні зміни в державах Європи та США, що стосуються проблеми відродження та розвитку власної промисловості. Проведене дослідження надало змогу визначити, що, ураховуючи різноманітні чинники, можна зазначити, що країни, що розвиваються є безперечними лідерами за рівнем вартості робочої сили, витрат на електроенергію, але значно поступаються передовим країнам в розвитку інноваційного потенціалу, ефективності економічної політики, а також у формуванні законодавчої та нормативно-правової системи в промисловій сфері. Принципове значення має переосмислення ролі сучасного індустріального розвитку і для України, яка не може динамічно розвиватися поза глобальним трендом світового розвитку - нової індустріалізації. Узагальнення досвіду з цього питання надало можливість визначити напрями її упровадження, оскільки сьогодні, особливо актуальним стає структурна перебудова національної економіки та модернізація технологічної бази на основі переходу на нову технологічну основу.

Ключові слова: реіндустріалізація, економічна політика, нові технології, нова індустріалізація, науково-технічний потенціал.

Introduction. Recently, the developed countries of the West increased interest in industrial development, as the expected results of the post-industrial society overestimated for them. Thus, there is an urgent need to find the ways of economic growth, combating unemployment, reducing budget deficits, many countries began to realize that the post-industrial economy can no longer act as a reliable basis for economic development, since it requires a basis - material production, traditional employment on enterprises that produce a material product. It is in material production that the demand for innovation created, which ensures the dynamic development of an innovative economy.

It is important to note that the revival of industrial potential and the development of the manufacturing sectors of the economy has the greatest multiplicative effect in all spheres of the economy. Modern industrial production stimulates the demand for highly skilled labor, promotes job creation, as each additional workplace in the industry provides the opportunity to create up to two jobs in other sectors [1, p. 57].

Concentrating 60-80% of private R & D investment, the industrial sector has a positive impact on the intensity of research, thus spreading new knowledge to the rest of the economy. In addition, this sector, which currently creates more than 70-80% of exports, determines the competitiveness of developed countries' economies.

However, solving the problem of re-industrialization, the developed countries of the West associate it not only with the return of industrial production, previously exported abroad, but with the revival of industry on a new high-tech basis. It is a strategy of "new industrialization", which today becomes a priority of economic policy of most developed countries. The main content of the new industrialization is the proliferation of "breakthrough technologies" that embraces the formation of new industries and sectors of the economy and industry that reproduce these breakthrough technologies and their spread in traditional industries and sectors of the economy.This issue was of particular relevance at the peak of the crisis in 2009. As a result, the main task was to secure, in the medium term, a new technological revolution capable of putting into operation another innovation and investment cycle in the economy, to increase the knowledge intensity of the national system and to form the basis for further scientific and technological breakthroughs [1].

Recently, several scientists have proposed their theories in this field, among which worth noting: BajalY., Geets V., Aleksandrova V., Gurzhij A., Danko M., Odotyuk I., Amosha A., Kindzersky Y., Fedulova L., Goddina D., A. Chukhno and others.

Setting objectives. Paying attention to the wide resonance, which a new reindustrialization hasin the world, as a problem of the revival and development of its own industry, the task is to check the appropriateness of the strategy for the world economyrealities.

The aimof the research is to analyze and substantiate the strategy of "new industrialization" taking into account the peculiarities of the economic development of individual states and the possibility of its implementation in the national economy of Ukraine.

Methodology. The theoretical and methodological basis of the work are the works of domestic and foreign scientists in the field of re-industrialization of economic processes. For achieving this goal, it was usedgeneral scientific and special research methods, such as system approach, methods of analysis and synthesis, method of economic-mathematical modeling, method of scientific abstraction, methods of logical generalization.

Research results. The study shows that the phasing out of the industrial sector has led to a sharp decline in the share of industry in GDP, which today estimates as an extremely negative fact that prevents the stabilization of the socio-economic situation (Table 1). It is no coincidence that, at present, developed countries are seriously active in the development and adoption of urgent measures for the rapid re-industrialization [2].

Table 1 - The share of industry in GDP in some developed countries of the EU and the USA

Country	The share of industrial production, %									
	1960	**1980**	**1990**	**1995**	**2000**	**2009**	**2011**	**2012**	**2015**	**2016**
Germany	29,8	26,2	24,8	19,9	20,0	17,4	20,3	20,0	20,6	20,3
Ireland	11,5	14,9	19,3	20,6	23,1	19,5	21,4	21,0	28.1	26.4
Spain	14,8	23,7	18,8	16,4	16,2	11,4	12,2	12,2	13	12,9
France	22,2	18,4	15,8	14,4	13,6	9,6	9,2	8,9	9.2	9.1
Italy	23,8	26,2	20,5	19,4	18,0	14,3	14,8	14,0	14.8	15.1
Austria	26,7	20,7	19,1	17,5	18,1	16,2	16,7	16,4	15.8	15.4
Portugal	20,3	21,5	19,7	16,0	15,0	11,1	12,0	12,2	13.3	13.3
Great Britain	26,2	19,9	17,3	17,1	13,8	9,3	9,1	8,9	10.4	9.6
USA	25,2	20,0	16,3	15,8	14,3	11,1	11,6	10	10.1	9

Source:[2]

The true flourishing of industrial development observed in the United States. This trend considered as a progressive and modernization aimed at securing the country's benefits in the global economy. The ideology of American administration has changed dramatically - obsolete leading ideas of the previous century are the placement of job vacancies abroad (job outsourcing), the priority development of the service sector, including the information, supposedly the most productive [1, art. 54]. According to researchers from the Boston Consulting Group (BCG - a leading international company specializing in management consulting), more than 50% of American companies with an annual turnover of more than $ 1 billion begin to return production capacities from China to the US or actively study this issue [3].

Such a technological revolution is connected, first of all, with the development and use of new promising production technologies, which have the potential for qualitative upgrading of production processes, methods for their organization and the attraction of labor resources. These technologies contributenot only to increased productivity and to competitiveness of individual industrial sectors and national economies in general, but also the creation of new markets and industries, acting as drivers of economic growth [3, p. 17].

Thus, countries seek to ensure a qualitative upgrade of the technological base in various sectors of the national economy, and above all in the manufacturing industry, through which the main emphasis placed on new production technologies and their integrated application. The innovative ability plays a primary role in maintaining competitiveness and the development of both a particular business and the national economy as a whole. For a more meaningful movement forward, they form a state industrial policy, an integral part of which becomes an innovative, scientific, and technological policy. Such a three-way approach solves the issue of comprehensive

modernization of the modern economy, ensuring the dynamic growth of its competitiveness. At the same time, the scientific and technical policy provides the development of new technologies (the formation of a technological base) for all sectors and sectors of the economy. Innovation policy ensures both the formation of a "new economy" based on breakthrough technologies and the technological renewal of traditional industries and sectors of industry.

Realization of such a course reflected with a number of program documents adopted in developed countries in recent years (Table 2). Almost all of them are aimed at increasing the competitiveness of a country, by increasing the scientific and technical potential, improving national innovation systems and strengthening industrial potential.

Table 2 - National plans and strategies in the field of science, technology and innovation development, adopted in some developed countries and the EU countries

Country	**Title of the document**	**Period**
France	National Plan of Studies Industry Restoration Plan Innovation 2030 National Higher Education Strategy	2013-2018 From 2013 2014-2018
Germany	High Technology Development Strategy	2006-2013
Italy	NationalResearchPlans Industry 2015 Strategy of Internationalization of Italian Studies Research infrastructure for the benefit of Italy Italy in the direction of Europe: technological alliance	2014-2016 2006-2025 2010-2015 2010-2012 2011-2014
Japan	Comprehensive strategy of science, technology and innovation 4th basic development plan of science and technologies	2013-2030 2011-2016
Great Britain	Strategy for Industrial Development Strategy for Innovation Development research	from 2012 from 2011
USA	Strategy of innovation development	from 2009
EU	ropean Framework Program: research and innovation Horizon - 2020 European Advanced Innovation Initiative For the European Industrial Renaissance	2014-2020 2012 2014

Source: [7]

After the end of the acute phase of the financial and economic crisis of 2007-2009, the United States began actively discussing the development of a nation-wide strategy for industrial development whose key tasks are reindustrialization of the economy on a new technological basis, reorientation of the economy from external demand in the domestic [11]. In this case, production is a major impetus to the development of the economy.

In the period of 2009-2013, the manufacturing industry in the US increased by 18%. In 2013, this sector brought in GDP 1 trillion dollars and ensured the creation of 11,3 million jobs. Over the past two years, manufacturing has outpaced the growth

rates of other sectors of the economy. According to the forecast of the American Industrial Alliance "For Productivity and Innovation", with growth in 2014. US GDP by 2.8%, manufacturing in processing industries increased by 3,2%, and in 2015. - by 4%. At the same time, a faster growth expected in high-tech sectors, which, by 2015, amounted to only 5% of the industrial sector, should have increased by 7,2% [1, p. 59]. The dynamic growth of the manufacturing industry will also contribute to the growth of employment. It is expected that in 2015-2024, 2,5 to 5 million jobs will be created in this sector.

In 2016, the US industry ranked second in the world and amounted to 2 775,8 billion dollars. The share of US industry in the world was 17,4%. Industry per capita amounted to $ 8615,7 at the industrial level per capita in Denmark ($ 8666,0), in Japan ($ 8608,5), in Australia ($ 8597,2), in Sweden ($ 8584,2), in Austria (8,5328 dollars), in Iceland (8,023.8 dollars). Per capita industry in the United States is larger than the world's per capita industry ($ 2137,7) at $ 6476,0. In January-February 2017, the index of industrial production, ISM PMI, rose to 57,7 and reached its highest level since August 2014 [12].

The reasons for the US's increased interest in the restoration and development of national industrial production are due to several factors. First, it is a "shale revolution", which has allowed increasing oil and gas production in the country, which in turn contributed to lowering energy prices in the domestic market. Currently, Canadian and American industrial companies and have an energy advantage by buying them 30-40% cheaper than their competitors in China, Japan, South Korea or Europe [8]. The long-term prospect of low prices is attracting industrial companies to invest in expansion of industrial facilities in the United States.

Secondly, the revival of interest in the organization of industrial production within the country is due to the disappearance of benefits in the cost of cheap labor in developing countries, in which, in the main, they were transferred to production. In addition, with rising rents, land values, increased environmental requirements and other factors for the return of industrial production from China, it is quite justified.

Thirdly, possessing a high level of scientific and technical potential and a serious development in the development of advanced manufacturing technologies, the United States has all the prerequisites for increasing the capacity of national industrial potential, turning it into intellectual production, which integrates information technology, robot construction and new materials, thereby revolutionizing the basis of production.

The Brooking InstitutionsAmerica's "Advanced Industries" report attempted to highlight industry-leading industries that are actively involved in the scientific and technological process. The evaluation was carried out according to two criteria: selected industries in which the cost of R & D was more than $ 450 per one worker, and those industries in which highly skilled personnel (researchers, technologists, engineers, managers, etc.) accounted for more than 20%. As a result, nearly 50 technology industries with high potential for innovation growth were selected. According to experts, such a dynamic of development has a positive effect on the future recovery of the American economy and ensuring sustainable growth [5]. It should be noted that such advanced industries include not only high-tech, but also

many energy industries, which are characterized by high R & D expenditures, as well as a high proportion of highly skilled jobs.

Today, this process deeply integrated into the scientific and innovation policy of the state. The administration of the US president and a number of government agencies involved in this initiative are working to create a national network of industrial innovations through the creation of specialized national innovation institutes, which must disseminate advanced manufacturing technologies throughout the country. [1]

EU countries are also concerned about the problem of the revival and development of their own industry, knowing that powerful industries have a need to overcome the effects of the global financial and economic crisis and ensure sustainable growth. In the document "For Industrial Renaissance" adopted in 2014, the European Commission set a target to increase the share of the industrial sector in GDP from 16% to 22% by 2020 [13].

However, it should be noted that the solution of this problem within the EU is extremely difficult, since the starting positions and opportunities for increasing the competitiveness of the industrial sector for different European countries vary greatly. The relatively stable situation remains in Germany and in certain countries of Central and Eastern Europe, where the share of this sector of GDP declined marginally.

Despite the fact that the EU countries have long implemented "high technologies" in the medium and low-tech industries, the problem of deep technological modernization of the industrial sectors of the economy continues to be relevant to them. At present, the industrial profile of the EU countries defines traditional industries such as metalworking, food processing, and machinery. High-tech sectors occupy a much smaller share - no more than 12%.

The only exception to European countries is Germany, which has managed to maintain its industrial core and which owns 30% of industrial production in the EU, twice the share of Italy and almost three times the share of France. The structure of the German industry today is determined by such industries as mechanical engineering, electrical engineering, automotive, and the chemical industry, including pharmaceuticals, which account for about 55% of the entire industry [12].

At present, the EU Commission pays enough attention to the development of high-tech industrial sectors, calling for increased public and private sector research spending, a sound tax and energy policy, eliminating administrative barriers to creating new businesses, encouraging more active participation of small and medium-sized enterprises firms in foreign economic activity.

However, many experts are skeptical of the possibility of solving the problem of new industrialization within the entire European community. In particular, Deutsche Bank experts, assessing the reindustrialization of Europe, note that the ways of solving this problem have not worked out so far [11].

As noted above, the revival of European industry requires its deep technological upgrading with a focus on high-tech segments in which the competitiveness of the final product. It can be determined by novelty and uniqueness, not by the cost of labor and energy, the level of which European countries are seriously inferior to the countries of Southeast Asia, and the United States. To such

high-tech segments, the European Commission includes computer and telecommunication technology, pharmaceuticals, medical technology, optical devices, aircraft engineering, space technology, the production of new materials and robotics.

In the process of "new industrialization" actively involved and dynamically developing - China, Brazil, India and less developed countries - Argentina, Vietnam, Chile. All of them today are developing national strategies for industrial development and innovation aimed at diversifying economies and mobilizing innovation to enhance national competitiveness.

For example, in China, the priority task of the last development plan is to accelerate the growth of national innovation. For solving this problem it is planned to allocate approximately 17 trillion RMB (2,8 trillion dollars) in the form of various tax privileges and incentive schemes for private companies, implementation of a number of large-scale state programs (primarily in the field of infrastructure modernization) [9, p. 48]. The Science and Technology Development Plan, which aims to stimulate eleven sectors of the economy, including pharmaceuticals, energy technology, food industry and civil aircraft, is adopted.

Analyzing world experience in the field of developing and implementing modern industrial policy, it is worth noting that the conceptual approaches, content and tools of industrial policy are fundamentally shifting towards a new industrial policy that is replacing the traditional one. It should be recalled that traditional industrial policy was associated with the prioritization and development of certain sectors, the choice of future "champions", the active use of direct support measures, the creation of preferences and benefits. In essence, it was a vertical industrial policy. However, in recent years there has been a shift in emphasis - there was a clear rejection of rigid instruments in favor of a milder policy related to improving the business environment, creating conditions for the transition of capital into separate sectors of the economy by increasing their investment attractiveness. The new industrial policy is no longer focused on compensating statistical market failures, but for gaining momentum, supporting innovation and developing education, with a special emphasis on learning [10, p. 9].

The new content of industrial policy has also reflected in its definitions, adopted by the international organizations of UNIDO and the OECD. Industrial policy defined as a state policy aimed at improving the business environment or the structure of economic activity in sectors and technologies, which is expected to provide more favorable prospects for economic growth and social welfare [11]. Consequently, the study provides an opportunity to characterize the industrial policy as follows:

– science, technology and innovation policy become an integral part of industrial policy;

– formation of scientific and technological priorities; concentration of attention on the development of specific technologies and the implementation of large projects; special attention is given to "green" and energy-saving technologies (as a rule, governments also actively support the development and use of advanced production technologies);

– support of entrepreneurship; creating conditions for a rapidly growing small innovative business;

– the involvement of foreign companies and the strengthening of the role of national companies in the formation of global reproductive chains (governments are aware that international relations are crucial for the development of modern industry, and technological flows today are global in nature);

– Continuous monitoring and appraisal of the results of programs implemented within the framework of industrial policy (such an assessment should be independent and effective, permit rapid response to ineffective decisions, and, if necessary, close or re-orientate programs).

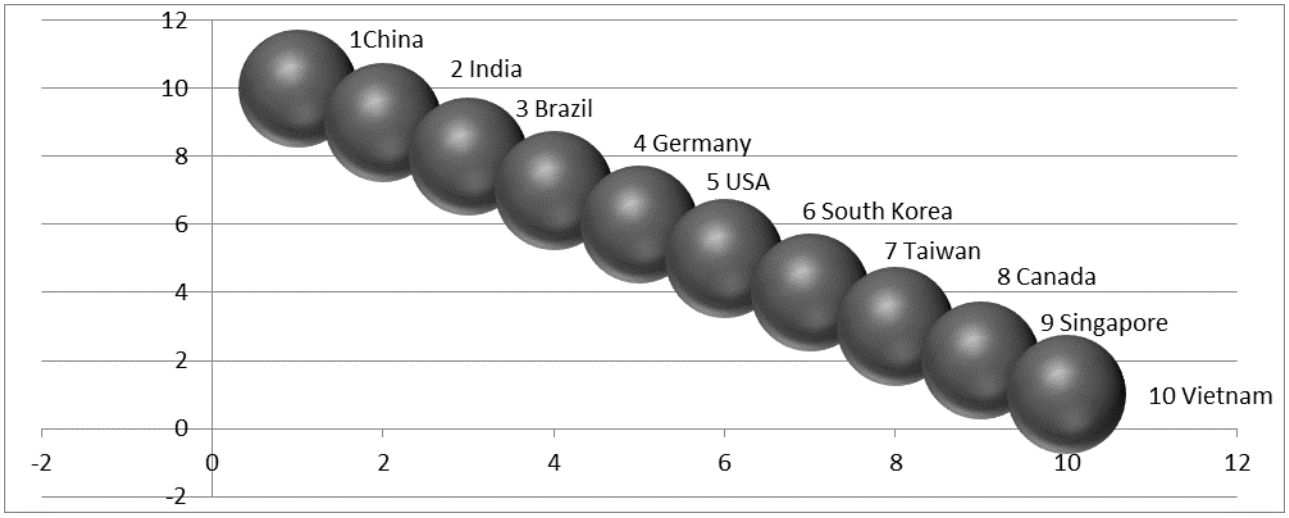

Figure - Ranking of countries by global index of industrial development
Source: [6]

Undoubtedly, the implementation of new approaches to industrial policy will largely determine the prospects for solving the problem of "new industrialization" in both developed and developing countries. However, expert opinions about who will retain the status of world leader in industrial production in the nearest future vary (Figure). Despite the serious technological gap between the US and Germany, these countries are already inferior in terms of dynamically developing China's industrial production.

Conclusions. Taking into account various factors, it can be noted that developing countries are indisputable leaders in terms of labor costs, electricity costs, but considerably inferior to advanced countries in the development of innovation potential, efficiency of economic policy, as well as in the formation of the legislative and regulatory system in industrial sphere.

Fundamental importance is the rethinking of the role of modern industrial development and for Ukraine, which can not dynamically develop beyond the global trend of world development - a new industrialization. The generalization of theoretical and practical experience on this issue provides an opportunity to determine the most important directions of its implementation, since today, the restructuring of the national economy and the modernization of the technology base of the transition to a new technological basis become especially relevant. The solution to these problems is due to the formation of a new innovative model of development that can overcome the consequences of the global financial and economic crisis and reach the path of

sustainable economic growth. Ukraine, of course, must rely on global trends in scientific and technological development, taking on the most effective tools and mechanisms of interaction between the state, private business and science in this field. Consequently, the scientific novelty of the results obtained is the study of the strategy of "new industrialization" taking into account the peculiarities of the economic development of individual states and the possibility of its implementation in the national economy of Ukraine.

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