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## FORMATION OF METHODOLOGICAL SUPPORT ASSESSMENT OF NEOINDUSTRIAL MODERNIZATION

The beginning of the XXI century is the era of the rise of crisis tendencies, and as a result, many imbalances of economic development. The instability of the current economic model, which led to talk about the general crisis of capitalism has necessitated the development of new models of economic policy of the West. Reindustrialization is the concept of the new industrial policy, which focused on strengthening the industrial base of the economy on qualitatively new basis. It has become one of the measures to ensure the steady growth of national economies of developed countries and to strengthen their economic security within unstable global economy. As a measure of the new industrial policy of reindustrialization is seen mainly within political economy analysis, but detection of conceptual frameworks is beyond purely economic issues, and allows to correlate reindustrialization with modern modernization process [1; 2]. Modernization of developing countries, led to them formation of the neoindustrial economic base and model of society that is built the last one. This society has value and ideological installations inherent to developed modern. This caused a movement of industrial capacity of developed nations of the West to the newly industrialized countries with technologies of mainly 4th technological generation. The reduction of the industrial base at the expense of technologies of 3rd and 4th generations, "deindustrialization", was explained by the necessary of transformation of the economic foundation of society, within the period of development "after modern". In addition, the permanent scientific-technological revolution as a "driver" of socio-economic development began to shift from industrial to post-industrial areas, from the production of material goods to the production of information and services. The described changes have been conceptualized in post-industrial scheme of public transformation and in some way reflect a loss of material production role of its driving force.

However, "without such manufacturing - even modern, highly efficient, minimizing the use of human labor and material resources, but manufacturing - the state, even the most highly developed, can not rely on the fact that for a long period to retain the commanding heights of world politics and economy" [3, p. 31]. Post-industrial transformation of developed countries have not led to the formation of a sustainable model of crisis-free development; conversely, the need to over-

come further degradation and destruction of industrial infrastructure have arose. The solution to this problem is possible only within the framework of reindustrialization – a process which is a reproduction of a new industrial base of the economy and giving it the role of the driving force of economic and social development. Reindustrialization not imply the mechanical repetition of traditional industrialization, which was the driver of the former previous stages of the modernization: it is in fact the new wave of modernization that happens on a new long wave of scientific and technological progress. The development of high technology begins to make transformative effect on industrial and preindustrial manufacturing methods by improving their means. Analogies of this process can be found in the past when industrial development started making direct effect on the agricultural sector and other pre-industrial sphere through revolutionary upgrade of traditional tools and technologies. Thus, successful reindustrialization presupposes the existence of developed postindustrial sector in the economy. Technological groundwork created by this is a prerequisite for neoindustrialization, because allows upgrades based on the prevalence of high-tech industry. At the same time, post-industrial transformation does not necessarily imply neoindustrialization in its historically specific forms - as a new industrial policy of developed countries, which carried out within the framework of their national economies. In the presence of an open world globalized economy postindustrial progress can go to any place in the world which has developed industrial base. However, the new wave of modernization has great opportunities to realize where the previous one is completely finished; the process of de-industrialization is actually a historical precondition for the "new industrialization".

Consideration of neoindustrialization as a phenomenon that occurs primarily within national economies, requires ascertaining of some contradictions between its ideology and the ideology of globalism. First of all, unlike globalization, neoindustrialization has a subject: it is the state that conducts a deliberate policy of not return of lost industry, and creation of a new one. The literature stands out a range of measures of industrial policy, as wide (import, export support, increase of credit resources, reform of the tax system) as well sectoral [4, p. 27]. There is another contradic-

tion, also. This contradiction is between active role of the state, which involving the creation of optimal conditions for its industry, and the principles of free market and international competition.

The very existence of such contradictions shows that the ideology of reindustrialization has significant differences from the old liberal ideology of industrial modernization in the West. Inherent in it ideologemes of open borders, free markets and the rejection of protectionism contribute to the establishment of a global economy which frameworks make modernization waves are not confined within national economies and facilitating the movement of capital and industries where this created the best conditions. On the one hand, overcoming deindustrialization, which became one of the consequences of globalization entails the partial rejection of liberal ideology. But on the other hand – the reproduction of production potential once de industrialized countries is essentially a manifestation of the same logic that once led to deindustrialization: a capital moves followed by favorable business. At the same time there are some differences between modern neoindustrialization or reindustrialization and the socialist model of traditional industrial modernization: the active role of state in the "new industrial policy" is not imply centralized planning the modernization process in all various of its manifestations. Despite the focus on the "closure" of production chains within the national economies, the talk about withdrawal of neoindustrialized countries from the network of world economic relations which have developed in the global capitalist economy does not occurs.

It seems that specifying sign of ideology of neoindustrialization can be described with the words of Daniel Bell "subordination of economic function to social objectives" [5, p. 22]; and this is also a contradiction with the ideology of globalism, which opposites "the imperialism of economic component" to social policy [6, p.24]. Deindustrialization has played a negative role in the ability the states to fulfill their social obligations, that is why aims and objectives of a social nature can not fail to be taken into account when developing the new industrial policy from now. In this context positive social effects of neoindustrialization include: increased employment, increased incomes, improvement of the business climate, budget support of different areas across the financial capacity of the state and so on., which greatly increased. At the same time, as A. Andreev notes, "the successful implementation of industrial policy becomes a cause of social problems itself" [4, p.28]. Thus, the new wave of modernization which is related to neoindustrialization leads to increase in labor productivity and, as a result, dismissal of the traditional industrial workers. The change in the structure of employment and the development of new types can be a one way to solve the contradiction between the creation of new jobs and layoffs due to the

modernization of manufacturing. The coincidence of industrialization with new post-industrial shifts allows to use postindustrial type of employment in industrial manufacturing: industry that do not require a large number of employees, may be formed on the basis of some innovative technologies and development, or even individual manufacturing functions. Thus, the development will boost small and medium-sized industrial business, which can be the bearer of such values as freedom of entrepreneurship, private initiative, the ability to succeed at their own competencies and others. The former traditional industrial modernization led to the establishment of state-monopoly capitalism, then turned to deindustrialization and gradually washed away social base of such values. However neoindustrialization able to contribute to its strengthening, despite the increased role of the state as regulator and supervisor of economic and social processes.

«The industrialization of the XIX-XX centuries, which experienced all the developed industrial countries (even as recently said - highly developed countries), the phenomenon is more or less clear: the extrahuman and extra-animal energy (the coal and steam, the oil and internal combustion engine, electricity with current that running through the wires); metal, machinery, machine tools, parts, unearthly engines; mechanized factories, mines; partial worker, who also is an appendage of the machine, machine tool, line, conveyor; machinist, mechanic, technician, engineer; self-propelled land, water and air transport; railways, highways, airports, underground and elevated metro; wired and wireless communications; large industrial or with the industry, or simply industrially equipped city; industrialized agriculture. The equipped industrial living space, industrial and lifestyle related and industrial landscapes correspond to the industrialization. Nice and all welcomed industrial revolution with the industrial revolution of all earthly existence: from nature to nonnature, from natural to art, from naturality to artificiality!

There is harder with neoindustrialization, because, on the one hand, it is continued industrialization, and with another - its negation. Considering with negation together, not only in terms of conservation of all, or nearly all, or just a lot of industrial - as the basis of (positing), but also in terms of additions for already old industrial by qualitatively new industrial, which is already not quite industrial - not metalline, not machinine, not heavy, not weight not visible namely, chemical, biological, microworld, countably informational, automatic, timeless, spaceless, unearthly (cosmic) megaworld, already largely extra-human (instead-human). A sort neoindustrial industry, or may be, at least in part of its - and simply neoindustry, but rather - " technation" technologism, technum. And it so happened that in the last quarter of XX century highly industrialized countries have definitely move on to

neoindustrialism which was presciently named even post-industrialism, which, in general, is correct, but in conjunction with the reality still is not quite, because the industry has remained, and post-industrialism have enough of industrialism – the common to the whole of the industrial age, not only the "iron" industrial age. And in the early XXI century it became quite clear that the advanced countries have become countries with a powerful post-industrial neo-industrial moment.

The USSR clearly missed its large-scale neoindustrialization in its recently. Of course, something was, but not widely, not volume, not sequentially. It was possible even to plan industry, but ne industry, its creation - already no. This is wrong world, this is not planned, because it is very much closed, unknown, undefined, independent, willful, capricious, and even insidious. It was possible to design it, at least for target-posited funding and incentive, but it was no one to do it for, because scheduled agents - is not agents at all, they are only artists, but the great initiators are required here, that is not so accountable servicemen as their own acting agents, which was not exist, as it was no an effective self-organization at the bottom coupled with an innovative initiative from below, because all this was foreign for the total planned system, and it could not to adjust itself to the stimulative design, and... could not. The "plan - planning - planning" dogma won the reality, which required only orientation-assisting design at the top, and a great creative activity of all possible neoindustrialization agents that seem to have been technically, but was not economically, at the bottom. As a result, the country was left without the necessary neoindustrialization, and then, without a lot of industrialism, as the result of the "reforms" of the 1990s - both died in accordance with "say-so" from above and do not withstand the competition from the outside - from abroad. And what is today? And today, the problem of self (a) neoindustrialism, and possibly that with some recovery of industrialism, faces just before the country at least for the sake of national security.

Is not to say that we have no our neoindustrialism, that all of it is borrowed, but it can be certainty said that it is clearly not enough, and not so for the reproduction of this being, as for its all-round development, but not in breadth, not quantified as it was under industrialism, but depth and quality - as it should be under neoindustrialism. Now it is important not so equip society industrial base, although its quality improving is expected, as to equip a society of new techno-technological system, which qualitatively changes the whole way of life, not only in the direction of its intellectual and the operational complexity, but also in the direction of its economy, and about the nature and most human. Do not limitless consumption of man and nature, but their full savings - with a parallel attaching to being of an existential responsibility,

behavioral modesty and vital proportion. Neoindustrialism - is not mere material and technical facilities update, and this is not only update the material and technical bases of life, this is also the renewal of man, of his consciousness; society and its organizations; culture, and its formal expression; civilization, and its mechanism. Neoindustrialism – is essential (and even essential) changes in the outlook, in categorical equipment of knowing, meditating, and displays projecting intelligence, in discourses, in languages, in communications, in sociability (net-like, netium), as well as, of course, in the man as in the subject of being (human-computer instead of just a human; computerhuman instead of just a computer). Hence the indispensable novelties in the upbringing, education, enlightenment, formation of the person and his personal world, already least of all socially sustainable - closedcell, family, collective, but above all individnyh, standalone, atomic, but, nevertheless, very mobile. One way or another, but neoindustrialism - is another part of being, additional, riser, but also advanced, leading, influential, if not dominant.

The pure intellect with free intellectualism owned a special place in the neo-industrial society-netium. Life, management, organization, updating - now it is a big intelligence-game in which the main prize is... this very game! Something like a modern cosmopolitan football, but just without terrible dimensionless fees. All the same who all the same where, all the same for which - if only the process-game - continuous and entertaining! Neoindustrialism against not only tradition, but also of any permanence. It against all the bases, bases, roots and attachments. All the same which one the Fathers, "native", regional, country, folk, national, continental, and even the earth. Like it to someone or not, but neoindustrialism – is a sort of sub-system is not only the highest, but also... high anti-system - corrosive, facilitating and devastated the existence of any stable, although it parasite need. Neoindustrialism is so creative in virtual-intellectual sphere, as so destructive in real-life. Neo-industrial revolution - albeit a need and an inevitable measure, but at the same time and quite a dangerous game - a life and death! Neoindustrialism has more death than life! That is why there needs understanding, discernment and anxiety, leading to control and curb neoindustrialism: neoindustrialism leads to the final alteration human posthuman, and society posthuman mass. Neoindustrialism – perhaps, without knowing, - involuntarily calling out to the instinct of universal security, which able to realize itself within the framework of reasonable neoindustrial policy.

Neo-industrial policy can not fail to include not only incentives of neoindustrialism, but also and control over it. In general - a holistic comprehensive regulation by the responsible for the human survival regulatory center. Neo-industrial imperialism, not to mention fascism - not only virtual, but very real possibility! That is why the need comes up as a tactical developing neoindustrialism as its strategic sequencing, even limiting, central dirigisme, and in this particular case – neodirigisme. Neodirigisme – is the dirigisme of era of neoindustrialism: flexible, discrete, motivating, game (something like a referee at a football field). This is dirigisme, combined with neo-liberalism, which, unlike the industrial liberalism, is no stranger to some self-

restraint and do not reject limits and guidelines given by dirigisme» [7].

For each stage of modernization we defined a set of indicators, the share of which is universal, and their reference (standard) values (Tab. 1). Reference values for indicators modernization vary depending on the stage of modernization, the assessment of which they are used.

 $Table\ 1$  The indicators of assessment of modernization stages and their reference values

The indicator's name  Reference value							
	:	Reference value					
(specification of used parameter)	industrial	post-industrial	neoindustrial				
	modernization	modernization	modernization				
Economic indicators							
Gross regional product (GRP) per capita, UAH.	34746,571	$200000^2$	200000				
The share of value added in agriculture in GRP, %	15 <sup>3</sup>	X	X				
The share of value added in services in GRP, %	45	X	72				
The share of value added in the material sphere (the share of		28	X				
agricultural and industrial added value in GRP), %			Λ				
The share of people employed in agriculture, %	30	X	X				
The share of employment in services, %	X	X	72				
The share of labor in the material sphere (the proportion of peo-	v	28					
ple employed in agriculture and industry), %	X	20	X				
The share of recycled waste	X	X	100				
Social indicators							
The share of urban population (urbanization level), %	50	78	78				
Medical services (number of doctors per 1,000 inhabitants), ‰	1	3	3				
The infant mortality rate (number of deaths per 1000 live births),	20	2					
%0	30	2	X				
Life expectancy, years	70	79	79				
	Indicators of knowledge and innovation in knowledge						
The level of literacy among adults, %	80	Х	X				
The share of persons with secondary education (the proportion of							
students in secondary schools, the population of the correspond-	X	100	X				
ing age), %							
The share of people with higher education (the proportion of							
students receiving higher education among the population of the		67	67				
relevant age), %							
Financing innovation in knowledge (the cost to R&D and GRP),		2	2				
%	х	3	3				
The human contribution to innovation in knowledge (the number							
of scientists and engineers in R&D underemployed, population		50	X				
10,000), people.							
Patents for innovation in knowledge (the number of people that		77.4	77.4				
apply for patents per 1 million. Inhabitants), people.	х	774	774				
The prevalence of the Internet (the number of Internet users per			70				
0 inhabitants), people.		70	70				
the proportion of those who raised the qualification and got a			25				
new profession	x	X	25				

x – the indicator is not used for the estimation of modernization stage.

<sup>&</sup>lt;sup>1</sup> The default value is accepted at the level of 6399 USD for 2000. In these calculations, the default value provided by NBU is 5.43 UAH to 1 USD for 2005.

<sup>&</sup>lt;sup>2</sup> In determining the arithmetic mean of the indicator used values of the United Kingdom, Germany, China, Italy, USA, France and Japan for the correspondent year. Source: Organization for Economic Co-operation and Development / www.oecd.org. - 2013. - Access:http://stats.oecd.org/Index.aspx?datasetcode=SNA\_TABLE4.

<sup>&</sup>lt;sup>3</sup> This and other default values suggested by the authors of The Overview report [8].

All indicators are divided into two groups - stimulants and destimulants. Stimulants (positive indicators) – are indicators, the increase in which value accelerates the modernization. The inverse indicators (destimulants) are indicators which values are holding back growth processes of modernization. The destimulants of industrial modernization is the infant mortality rate, the proportion of value added and employment in agriculture; for post-industrial modernization – this is the infant mortality rate, the proportion of value added and labor in the material (industry, along with agriculture) sector. All other indicators are stimulants. Destimulants are not used for calculating and integrated the modernization.

Each indicator is weighing by comparing it to the baseline (standard) value. Weighing of indicators carried by the formula:

a) for positive (stimulants) indicators:

$$I_i = (RV_{IND} / BV_{IND}) \times 100$$
 (1)

b) for inverse (destimulants) indicators:

$$I_i = (BV_{IND} / RV_{IND}) \times 100$$
 (2)

where  $I_i$  – is development index of the i-th indicator;

RV<sub>IND</sub> – real (actual) value of i-th indicator;<sup>1</sup>

BV<sub>IND</sub> – basic (standard) value of i-th indicator.

For industrial modernization  $i = 1 \div 10$ ; post-industrial modernization  $i = 1 \div 16$ ; for integrated modernization  $i = 1 \div 12$ .

The indices indicators groups and index of integral stage of modernization are defined after indicators weighing. Indices of the industrial and integrated modernization are based on three groups of indicators, indices of post-industrial modernization - are based on four ones. The formula used to modernization indexes is as follows:

a) for post-industrial stage of modernization:

$$I_{PM} = (I_K + I_{KT} + I_{LQ} + I_{EQ}) / 4$$
 (3)

where  $I_{PM}$  - postindustrial modernization index;

 $I_K$  – knowledge innovation index ( $I_K = \sum I_i/3$ ,  $i = 1 \div 3$ );

 $I_{KT}$  – knowledge transfer index ( $I_{KT} = \Sigma I_i/4$ ,  $i = 4 \div 7$ );

 $I_{LQ}$  – life quality index ( $I_{LQ} = \Sigma I_i/5$ ,  $i = 8 \div 12$ );

 $I_{EQ}$  – economy quality index ( $I_{EQ} = \Sigma I_i/4$ ,  $i = 13 \div 16$ );

b) for industrial and integrated modernization:

$$I_{IM} = (I_{EI} + I_{SI} + I_{KI}) / 3$$
 (4)

where I<sub>IM</sub> – industrial / integrated modernization index;

 $I_{EI}$  – economic indicators index ( $I_{EI}$  =  $\Sigma I_i/4$ , i = 1÷4);

 $I_{SI}$  – social indicators index ( $I_{SI} = \Sigma I_i/4$ ,  $i = 5 \div 8$ );

 $I_{KI}$  – knowledge indicators index (for industrial modernization  $I_{KI} = \Sigma I_i/2$ ,  $i = 9 \div 10$ ; for integrated modernization  $I_{KI} = \Sigma I_i/4$ ,  $i = 9 \div 12$ ).

The industrial and post-industrial stage of modernization comprises the following phases of evolution: beginning, development, prosperity and the transition to the next stage of modernization. The instruments used to determine the stage of modernization phase involves the use of indicators of relevant stage only. The result of the final assessment is the total indexes and integral values of phases of each modernization stage. Indicators of industrial modernization phases are shown in Tab. 2, postindustrial — Tab. 3. Phases and phase values of integrated modernization are not considered.

Table 2
Classification of phases and values of the signal indicators of the industrial modernization

	mateutors of the maastrait model meation					
Phase	The ratio	The ratio	The ratio	The ratio		
	of value	of value	of agricul-	of agricul-		
	added in	added in	tural em-	tural em-		
	agricul-	agricul-	ployment	ployment		
	ture to	ture to	to total	to indus-		
	GRP	value	employ-	trial em-		
		added in	ment	ployment		
		industry				
Transition-	<5%	<0,2	<10%	<0,2		
al phase	/3/0	\0,Z	<1070	<0,2		
Blossom-	≥5%,	≥0,2;	≥10%,	≥0,2; <0,8		
ing phase	<15%	<0,8	<30%	≥0,2, <0,8		
Develop-	≥15%,	≥0,8;	≥30%,	≥0,8; <2,0		
ment phase	<30%	<2,0	<50%	≥0,8, \2,0		
Initial	≥30%,	≥2,0;	≥50%,	≥2,0; <5,0		
phase	<50%	<5,0	<80%	≥∠,0, <b>\</b> 3,0		
Traditional	≥50%	≥5,0	≥80%	>5.0		
society	≥3070	≥3,0	<b>∠</b> 0070	≥5,0		
		-				

The following values assigned for each phase of industrial modernization: traditional society -0; initial phase -1; development phase -2; blossoming phase -3; transitional phase -4. The calculation of the development phase of industrial modernization ( $P_{IM}$ ) is carried out by the formula:

$$P_{IM} = (V_{VAA} + V_{VAA/VAI} + V_{EA} + V_{EA/EI}) / 4, (5)$$

where  $V_{VAA}$  – phase set value determined based on the ratio of value added in agriculture (0÷4);

 $V_{VAA/VAI}$  – phase set value determined based on the ratio of value added in agriculture to value added in industry (0÷4);

 $V_{EA}$  – phase set value determined based on the share index of agricultural employment in the total employment structure (0÷4);

<sup>&</sup>lt;sup>1</sup> In this calculations, the publishing of The State Statistics Service listed on the website under "Publications"\"Regional Statistics" and printed sources [10, 11] was used as sources of the real (actual) indicators. Access: http://www.ukrstat.gov.ua

 $V_{\text{EA/EI}}$  – phase set value determined based on the ratio of employment in agriculture to employment in industry (0÷4).

 $Table\ 3$  Classification of phases and values of the signal indicators of the post-industrial modernization

mateutors of the post maustrial model meation					
Phase	The share of	The share of em-			
	value added in	ployment in mate-			
	the material	rial sphere			
	sphere				
Blossoming	<20%	<20%			
phase	~2070	<2070			
Development	≥20%, <30%	≥20%, <30%			
phase	≥2070, \3070	≥2070, \3070			
Initial phase	≥30%, <40%	≥30%, <40%			
Preparatory	≥40%, <50%	≥40%, <50%			
phase	≥4070, \3070	<u>≤4070, \3070</u>			

The following values assigned for each phase of post-industrial modernization: initial phase - 1; development phase - 2; blossoming phase - 3. The calculation of the development phase of post-industrial modernization ( $P_{PM}$ ) is carried out by the formula:

$$P_{PM} = (V_{VAMP} + V_{EMP}) / 2,$$
 (6)

where  $V_{VAMP}$  – phase set value determined based on the real value added of material production (0÷3);

 $V_{EMP}$  – phase set value determined based on the real rate of the share of employment in material production in the structure of total employment (1÷3).

The index of industrial or classical modernization represents a progress of socio-economic system in the transition from an agrarian to an industrial-type of manufacturing. There is a departure from primitive forms of manufacturing, which developing primarily in the areas that provide the extracting, primary processing of resources and require workers with low qualifications. The manufacturing of a wide range of pre-defined products that provide increasing skills comes instead of extraction of natural resources.

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# Жихарєва Ю. І., Котов Є. В. Формування методології оцінки підтримки неоіндустріальної модернізації

У статті розглянуто поняття реіндустріалізації, умов її виникнення, існування та переходу до поняття "нової індустріалізації". Виявлено позитивні соціальні ефекти неоіндустріалізації, умови розвитку дрібного і середнього промислового бізнесу. Для кожної стадії модернізаціїї визначено набір

індикаторів. також формули зважування цих індикаторів та інтегральні значення фаз кожної стадії модернізації.

*Ключові слова:* реіндустріалізація, неоіндустріалізація, неоідустріальна модернізація, інтегральна модернізація.

## Жихарева Ю. В., Котов Е. В. Формирование методологии оценки поддержки неоиндустриальной модернизации

В статье рассмотрено понятие реиндустриализации, условий ее возникновения и существования и переход к понятию «новой индустриализации». Обнаружены позитивне социальные эффекты неоиндустриализации, условия развития мелкого и среднего промышленного бизнеса. Для каждой стадии модернизации определен набор индикаторов, а также формулы взвешивания этих индикаторов и интегральные значения фаз каздой стадии модернизации.

*Ключевые слова:* реиндустриализация, неоиндустриализация, неоидустриальная модернизация, интегральна модернизация.

### Zhykhareva Yu. I., Kotov E. V. Formation of Methodological Support Assessment of Neoindustrial Modernization

In the article the concept reindustrializatsiyi, the conditions of its occurrence, existence and transition to the concept of "new industrialization". The positive effects neoindustrializatsiyi social conditions of small and medium industrial businesses.

For each stage of modernization of the defined set of indicators formulas weighing these indicators and integral values of phases each stage of modernization.

*Keywords:* reindustrialization, neoindustrial economic, neoindustrial modernization, integrated modernization.

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