

INTELLECTUAL CAPITAL OF THE SOCIETY AND ITS FUNCTION IN THE REPRODUCTION PROCESS

The substance and function of an intellectual capital in social reproduction are considered in the paper. Intellectual capital is treated in unity with its properties — as an element of public (national) wealth, production factor capable of reproducing extensively, provided dynamic regulation by the government is secured. Resources to generate an intellectual capital at all levels of management and administration are substantiated.

Sustainable, balanced and socially-oriented development of the Russian society requires involvement of all available resources — mineral, human and intellectual — in the economic turnover on an efficient and systemic basis. The resources mentioned are at present groundwork for social development of any state, and efficiency of their utilization, or more specifically, capability to benefit from their utilization, appears as the most objective indicator of an intellectual level of control over social development.

Over 20 years ago the then US President R. Reagan, responding to the enquiry by a group of Congressmen regarding the causes of boost of state outlays for scientific research, said: “We lay out so much money for scientific research not because we are so wealthy <...>, but we are wealthy, because we lay out much money for science...” As applied to Russia, American President could say realistically: “The Russian budget permanently reduces expenditure for science and education not because of lack of money, but because the budget developers fear greatly intellectual, well-educated and wealthy population of Russia”. It is perfectly convenient for budget developers that there are the richest oligarchs and self-sufficient officials in Russia. All the rest are

“Instead of primitive raw material economy, we will create intelligent economy that is capable of producing unique knowledge, new goods and technologies”.

D. A. Medvedev. On the new time and new country. Annual President's message to the RF Federal Assembly [9]

work of the devil and they do not fit the standards of liberal market primitivism.

Substance and function of an intellectual capital in social development

Out of the resources mentioned above (mineral, human and intellectual), it is the intellectual capital that is of the greatest interest for researchers. There are a lot of reasons for that, the following being the most significant:

— intellectual capital is still the least known and narrowly applied resource to substantially improve the situation in terms of socio-economic and socio-political development (Table 1).

As applied to the Russian economy, a single conclusion can be drawn in reference to the given table: when other countries involve intellectual capital and new knowledge in economic development, the Russian government keeps on persistently “developing” through exploitation of mineral resources, restricting thus opportunities of future generations;

— intellectual capital, in contrast to natural (mineral) and human ones, is considered as a reproducible and constantly growing resource. There an objection could rise as to the fact that the human

Table 1

Innovation development dynamics of particular countries as of January 1, 2009, %

Countries	Rates					Number of patents per 1 million citizens
	Innovation factor share in GDP growth	Share of innovation-oriented enterprises	Innovation level of production	Innovation production share in		
				export	import	
Russia	8–12	41,3	27,9	3–5	46,0	1,3
USA	75–80	65,8	66,7	41,3	27,6	261,7
Germany	70	86,8	74,2	59,6	13,7	206,3
France	65–70	78,4	70,1	44,7	26,9	171,9
Finland	80–83	86,9	75,3	63,5	12,3	250,3
Japan	75	79,4	69,2	57,8	11,3	213,0
China	≈40	63,4	38,4	11,0	28,6	0,9
Taiwan	—	—	—	—	—	270,4

resource is also reproducible. That is right, and the natural resource could be considered as restrictedly reproducible under certain circumstances (geological surveyance, creation of artificial materials, saving etc.). Nonetheless, it is precisely the intellectual capital, as formerly iron and electricity, that is the major source of sustainable, balanced and socially-oriented development of Russia and the regions;

— intellectual capital, being smartly used, is the most efficient resource capable of acting as an “active supplement” both to the human, and natural resources. Professional development, use of more efficient technologies for production and reprocessing of resources are nothing but “intellectual enrichment of the human and natural resources”. Therefore, the intellectual capital, in contrast to other resources, possesses a universal property of increasing efficiency of all resources at all stages of the reproduction cycle, and providing socio-economic development with an opportunity for sustainable, balanced and socially-oriented extended reproduction on an intensive basis;

— intellectual capital is a source of not only socio-economic, but also general socio-political and global development. To put it differently, the intellectual capital is an impetus to development of the national and global systems. The given fact is acknowledged and shared by many researchers and experts engaged in the problem of intellectual capital and its extended reproduction [17, p. 45–53; 11, p. 8–15; 3. p. 7–8].

Such an extensive analysis into the causes of increased attention to the intellectual capital was required exclusively to estimate its socio-economic substance, and also its enhanced role in socio-economic and socio-political development as objectively as possible. So far, the intellectual capital is considered in a restricted way, chiefly as a complex of “scientific ideas and developments”

embodied in goods and technologies [4. p. 31; 5. p. 7–9], “the result of integrated cooperation of business and scientific institutions aimed at enhancement of science linkage of production and competitive growth” [17. p. 60–63; 4. p. 201] and others [23. p. 42; 26. p. 5–7]. In our opinion, such a limited interpretation of intellectual capital distorts its substance, restricts its potential for social development and hinders implementation of its potential to enhance life standard of the Russian population.

We shall not go deep into detail in analyzing the existing definitions of an intellectual capital, and we offer our own interpretation of its substance. We refer to the intellectual capital as *a system of relations in terms of production of new or enriched (updated) knowledge and intellectual abilities of individuals, groups and a society as a whole to secure sustainable, extended and balanced reproduction of the national wealth on an intense basis for the purpose to improve life standard for the population and maintain integrity of the Russian Federation.*

The suggested definition of intellectual capital differs from the existing ones in terms of several fundamental attributes:

1. A system of socio-economic relations “worker — collective — society” and “society — collective — worker” as a substantial basis for the intellectual capital is suggested that it be considered in terms of, first, production of new or enriched knowledge; second, generation of intellectual (innovative, according to J. Schumpeter) abilities of the society, collectives and individuals for securing sustainable, extended and balanced reproduction of the national wealth on an intense basis; third, improvement of life standards with regard to the whole population, not a selected minority of oligarchs and government officials; and preservation of territorial integrity of the Russian Federation. The suggested triune

description of the intellectual capital substance is of backbone importance, so far as any failure at any stage may paralyze the whole process of generation and utilization of the intellectual capital, and minimize the effect of its utilization for the benefit of social development.

2. Intellectual capital is a category of reproduction (extended or simple) under any conditions. President's Message to the Legislative Assembly of the Russian Federation includes a challenge of "intellectual economy" generation; however, the given task cannot be solved without extended intellectual capital reproduction. Intellectual capital exists where and in a scope it is able to reproduce at an individual, collective and social level; where it is able to reproduce efficiently for the benefit of material and (or) intellectual enrichment of the population.

3. Intellectual capital is a national wealth category, which is multi-subject (individual, collective and society) and multiple-factor; its dynamics is influenced by both inter-subject factors (interests and demands by an individual, collective and society), and external environment.

Conditions required for generation and utilization of the intellectual capital

Active utilization of the intellectual capital assumes that all the levels of generation (individual, collective and social) are involved in the given process, and the most favorable external and internal conditions are secured. The latter exert their positive influence on enhancement of the role of the intellectual capital in socio-economic development in the most consistent way by creating an adequate macroeconomic environment. State economic policy and a level of control over socio-economic processes through fiscal, budget, credit policy, combination of liberal-market and government regulators, market and administrative institutions and mechanisms are commonly considered as central links of macroeconomic environment.

Macroeconomic environment may encourage (judging by the research conducted [25. p. 5–9; 19. p. 5–46]) generation and efficient involvement of individual, collective and social resources in the economic turnover, securing extended reproduction of the output aggregate and national wealth. However, it may restrain the processes of generation and utilization of the intellectual capital for the benefit of social development, in case if particular links of the macroeconomic environment are directed toward other priorities, for instance, primary resources exporters.

Among macroeconomic activities capable of substantially influencing the processes of generation and utilization of the society's intellectual capital, a level of education, scientific research state and a number of researchers, state of public administration regarding socio-economic processes, are of particular importance.

Level and dynamics of science development in the society are determined by a lot of indicators, such as: amount of financing of science in the GDP, personnel capacity index referred to those engaged in research and development per 1000 people of the employed population; by a status value of scientific work in the society, etc. In particular, personnel capacity index referred to those engaged in research and development per 1000 people of the employed population has considerably been reduced in the last few years, which is an evidence of lowering interest of the Russian state administration to the intellectual capital utilization for the benefit of sustainable, balanced and socially-oriented development of the economy and the whole society (Table 2). On the one hand, the table data confirm the national trend for "restricted" utilization of the intellectual capital and innovation potential of the society for the benefit of socio-economic development and life standard improvement. Therewith, the global community "exploits" an intellectual capital in the interests of social development with growing persistence. Yet, the Russian government follows the false practice of search for opportunities to enhance an efficiency of scientific research under limited financing and permanent reformation.

An opposite side of the problem is considered in artificial diversion of the Russian scientific potential from the intellectual capital extended reproduction and utilization for the benefit of social development in a more intense and efficient way, and improvement of the life standard by means of various weakly developed reforms, restructuring and modernization. The outcome of those "reformist initiatives" is well-known: diversion of scientific workers from the research in order that they drew up unnecessary and unread "explanations", "substantiations" and reports. There is scientific evidence and practical confirmation to the fact that making economic agents get accustomed to live and work efficiently under permanent scaled changes and restrictions is hopeless. It is obvious that there is a point in adopting the policy of the American administration regarding science and conditions for it to function well. "Now that the new administration has come, — said the US President Barack Obama, — the time when science followed ideology has ended. Success of our country, as well as our national values, is

Table 2

Personnel capacity index referred to those engaged in research and development per 1000 people of the employed population

Level	Year					
	2000	2002	2005	2007	2009	2015
Russian Federation	0,2752	0,2656	0,2435	0,2312	0,2238	0,2461
Ural Federal District	0,1779	0,1835	0,1670	0,1526	0,1369	0,1636
Sverdlovsk region	0,2773	0,2695	0,2395	0,2327	0,2189	0,2410
Chelyabinsk region	0,2070	0,2566	0,2131	0,2043	0,2007	0,2105
Tyumen region	0,0579	0,0576	0,0581	0,0673	0,0604	0,0600
Kurgan region	0,0881	0,0740	0,0583	0,0497	0,0471	0,0524

rooted in liberty and independence of research. To disrupt scientific ethics is to disrupt democracy...” [13. p. 193]. There is nothing to add to the above said, since the President also voiced the operating mechanisms of implementation of the suggested course in his speech: direct intervention of science in the state policy (by way of expanding the Advisory Council on science and technology), development of cooperation with scientific communities of other countries, increasing state financing of mathematical and natural science education, integration of fundamental sciences and education, etc. [13. p. 193–197].

In order to enhance intellectual capital efficiency, an operating efficiently national innovative system that is comprehensively thought out is required; it should include regional sub-systems capable of functioning autonomously with peculiarities of regional socio-economic development taken into consideration. The objective of the national innovative system is considered to be in solving two interrelated problems. First, all-level participants of the innovation process are supposed to be integrated into a single managerial-economic system with functional responsibilities being allocated among the participants, and staff, and financial support is secured. Educational, fundamental and applied science institutions, business producers and innovation production consumers are called for support of production and implementation of innovative solutions in a coordinate way under the bidding of state authorities. Second, coordinated efforts by innovation activity agents are to be oriented to the challenge of an innovation level of economy enhancement, and, based on that, competitive growth of the national produce and solving the problems of social development.

Generation of an innovation climate that is currently far from the desired requires close attention. Many good words are said at all levels of the power regarding the necessity to generate such climate promptly in Russia in general and in reference to all the subjects of the innovation process. Unfortunately,

good and necessary work is being done too little and in a rather timid manner. For this reason, financing of the science constantly decreases, science financing share in the GDP is at the lowest (1.08 %), and the GDP growth share is secured by innovations only at 8–12%. To compare, from 40 to 85% of such growth is secured by innovations in the developed countries. Inconsistency of the innovation policy pursued by the government gives some authors the reason to state that domestic commodity producers are not ready for introduction of innovations and scientific developments neither in terms of technologies, nor in terms of organization and staff [24, p. 9].

The degree of innovation education of schoolchildren and students, future participants and champions of innovative ideas and solutions, is of great concern. The results of interrogation of school-leavers from 2 schools and 3 colleges and graduates of 3 higher educational institutions of the Middle Urals and 2 high schools of a culture education profile are indicative of large «failures» in professional training of key and average-skill workers for the national economy of Russia in terms of the innovation level of education. School-leavers estimated the innovation level of education by 7–11%, colleges — 9–14%, high schools — 17–31%. The innovation level of education is estimated at the highest by the graduates of chemical, physical and technological departments provided with modern equipment and scientific and academic literature. But the most shocking estimation of the level of innovative education was given by the graduates of the Academy of Arts and the Conservatory. By their estimate, only 3% of school hours are concerned with innovative education, and 97% of the interrogated estimate the role of mass-media and culture facilities as anti-innovative.

An increasing restraining influence on innovation and socio-economic development of the Russian Federation is exerted by the system of government regulation of all economic and social processes. We shall single out the most discussed claims for the quality of government regulation at all levels out of the long list:

— Excessive enthusiasm for generation of a rigid executive chain of command, which substantially restricts capabilities of regions and municipalities for self-development taking local particularities and potential into account;

— Lack of serious, scientifically studied and socially perceived priorities regarding socio-economic development as a whole, so far as they are often substituted for “appeals without relevant actions” and actions that do not correspond to the logic of socio-economic development (for instance, annual rate increase for state corporation services until 2020 deprives the majority of market agents of an opportunity to reduce costs and raise competitiveness, and the population — to raise the living standard);

— Reduction of the scientific level of decisions made, and removal of the scientific community from decision-making and appraisal;

— Limited and irregular development of the social sphere by means of permanent reformation and restriction of access of the population to free social benefits, as it is provided for by the Constitution (the Basic Law) of the Russian Federation and in the way it is realized in other countries.

The list can be continued, though the items listed are already convincing that a certain dialogue between the power and society is necessary, regarding reaching a consensus, a strategy of social development and priorities, increasing a role of public institutions, science, education, culture in terms of acceptance and implementation of priorities and administrative decisions. The XXI century is a century of globalization and accelerated change of socio-economic and political guidelines. It will be increasingly difficult to solve the tasks set single-handed or in limited groups. Risks considerably increase, and their minimization can be secured only by way of expansion of public and scientific sources in making state decisions. Necessity to involve scientific and public institutions to administrative decision-making and social compliance become a requirement of the present stage of global development.

Classification of an intellectual capital of the society

Like any resource, an intellectual capital of the society has an internal structure and logic of intra-structure interrelations.

Intellectual capital of the society includes intellectual resources of particular citizens — individuals, intellectual capital of collectives (scientific, industrial), particular communities (academies, ministries or departments, creative unions, etc.). Particular territories and territorial

entities can act as carriers of an intellectual capital: closed and semi-closed cities, special economic areas, technopolises, innovation areas and the whole regions.

In terms of the substance, an intellectual capital can be represented as an obtained and accumulated knowledge, registered discoveries, inventions, rationalization proposals, patents obtained, licences, copyright certificates, and abilities (obtained or accumulated) of a person, collective, society to use scientific and practical knowledge and experience for the benefit of socio-economic and global development. To put it differently, it is important not only to obtain and register new or updated knowledge in an appropriate way; it is much more important to use it for the purpose of development, and benefit from it in terms of a copyright, as well as to get commercial, social, ecological or political advantages.

Assessment of a condition of Russia in terms of production and commercial use of new or updated knowledge allows asserting that the given stages already afford great opportunities not only to considerably increase the intellectual capital of the society, but also to involve it more deeply in the reproduction process for commercialization of its production capabilities. It is no accident that “Russia is a country of Kulibins, and America is a country of Edisons”. It is quite demonstrative that Kulibin died in poverty, and Edison earned millions on his inventions. Generation of a functioning national innovation system that provides comprehensive support to an innovation process at all stages, legislative basis for efficient property rights for an intellectual capital and a product, involvement of state and private industrial structures to its commercialization will allow starting the engine of innovation development and directing it towards solving the problem of the rate and quality of socio-economic growth. And thus, if not all people will become millionaires, then at least Kulibins will not die in poverty.

In Figure 1 the structure of an intellectual capital of the society is schematically presented in terms of its carriers — subjects. It is important that generation of an intellectual capital always and under all conditions represented a system process of social generation by all participants of social reproduction. The society generates a certain amount (complex) of general and specific knowledge perceived by the population through an education system and training, financing of the science and formation of scientific abilities of the population; through public and state funds, councils, competitions. The latter are realized by the population in the process of labour

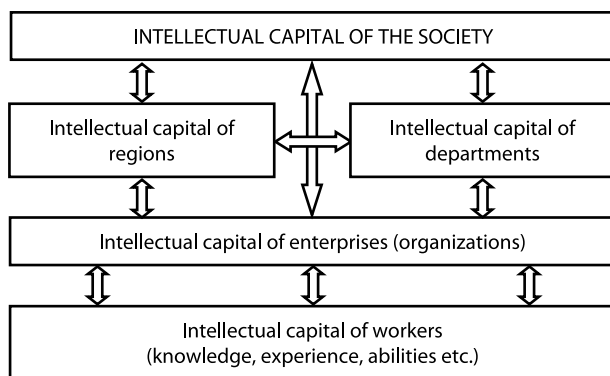


Fig. 1. Classification of the intellectual capital in terms of its carriers (subjects)

activity at enterprises and establishments, taking into account branch-wise and regional industrial, social, ecological and other requirements to workers and features of their participation in a production process (regional or branch system of training and retraining of personnel, motivation of workers to innovation activity and increase of the innovation activity, regional or branch-wise competitions, exhibitions, etc.).

When taking part in a production process at an enterprise or carrying out labour activity at a scientific, educational or other organization, a worker generates certain abilities for scientific or industrial creativity and innovation. Or, on the contrary, a collective (macroeconomic) environment quenches the slightest spark of creativity and innovation by a worker due to the lack of moral and material support, proper motivation for generation and use of an intellectual capital of the society.

The given classification of an intellectual capital allows drawing two fundamental conclusions based on its carriers. On the one hand, the existing delineation of powers between the subjects in terms of generation of workers' knowledge and skills to be applied in labour and production activity allows asserting that the basis for the national innovation system exists. The problem is only to provide particular forms and institutions with an innovative substance and involve market institutions for innovation system development, having targeted them at an end result (public, social, commercial). The latter is important, so far as by present the problem of account for an end result in terms of an innovative system functioning and intellectual capital application is discussed and estimated only at a level of comparative results (share of enterprises engaged in innovations, share of innovation production in output, exports, etc.). Actual end results of the innovation process subjects in the form of an income of a worker with an intellectual capital, commercial income of a collective that applies an intellectual capital and

proper production potential, are either not allowed for by the state structures, or allowed for only at a level of statistical comparison, without involving them in the innovation system.

On the other hand, an intellectual capital is a specific resource, which is generated and applied in the most efficient way only by way of close coordination of efforts of the Government and state bodies for education, science, market agents and the population in terms of innovation training, mass innovation education of the population and setting conditions to implement innovative solutions in practice by way of their commercialization.

At parliamentary hearings "Generation of an innovation market: legislative aspect", which took place in April, 2010, the issues related to generation of an intellectual property market in Russia by way of legislative registration of intellectual property owners' rights and specification of mechanisms regarding introduction of intellectual activity results in commercial turnover were discussed. The task was set as to define and involve mechanisms of introduction of intellectual activity results (IAR) based on the state budget in commercial turnover [12. p. 4]. Until present scientific and project designing institutions and organizations, despite having an exclusive right for the intellectual activity results, they were still deprived of a possibility to get commercialization and sales income in a legitimate way. Lack of relevant legislative acts and their inconsistency become a factor restraining commercialization of scientific ideas and increase of the intellectual capital contribution to the national wealth growth.

Introduction of innovation development institutions, generation of specific organizational and legal tools, motivation mechanisms (tax, credit, organizational, etc.) to involve an intellectual capital of the society in a reproduction process, become an essential condition for intellectual capital generation and its commercial use. For instance, generation of the "Titan valley" cluster on the basis of the Verkhnyaya-Salda Metallurgical Association of the Sverdlovsk region allowed not only involving a lot of small and average enterprises in the production process, expand a system of cooperation links between the enterprises, science, educational institutions and power structures of different level. Activation of the intellectual capital commercialization was a considerable success, already at the initial stage, which coincided with the crisis years. It was only in 2008–2009 that the share of innovation production of the Association increased by over 18%, and an added value established by the cluster association increased by almost 22%.

In March, 2010 cooperative agreements in the context of intellectual capital market development and investment generation targeted at regional innovation programmes were signed under the auspices of the Russian Federation Council between the Moscow Interbank Currency Exchange and six subjects of the Russian Federation — the Republic of Tatarstan, the Krasnoyarsk and Stavropol territories, the Kaluga, Omsk and Tomsk regions. A specific ground for high-technology production and companies established by the Currency Exchange becomes a business form of implementation of the agreements concluded. The main objective is to attract investment to small innovative enterprises by placement of securities on the capital market with application of exchange technologies and listing, providing credit guarantees.

Establishment of innovation enterprises and scientific idea transfer centers, technologies and the best commercialization practices at high schools and academic institutions of the Russian Academy of Sciences may have a positive influence on intellectual capital generation and its practical use in the reproduction process. In actual practice, establishment of innovation enterprises and centers is capable of providing:

- enhancement of an intellectual level of experts by introduction of new unique equipment in the educational process, and arousing individual and collective interest for creativity and innovation. Long-term agreements between high schools and industrial enterprises and companies, academic institutions, as well as establishment of joint centers for joint use of unique equipment and technologies can contribute to that;

- involvement of maximum possible participants in the innovative process, from scientific and academic collectives, the government, business and public institutions, which will allow providing mass innovation renewal of socio-economic development;

- conspicuous enhancement of the innovation activity efficiency in the economy for account of a greater scale of intellectual capital commercialization. By expert estimations, only 10% of the finished research and development projects financed from the state budget, are patented. Only 1–2% of the patented results are involved in the commercial turnover [24, p. 5];

- transformation of the intellectual capital into a socio-economic development determinant. It is not raw materials and primitive technologies, but new knowledge of workers and experts engaged in all branches and scopes of activity, embodied in equipment, technologies, organization and

administrative decisions, institutions of development and relationship culture, is to become a source of steadily accelerated, balanced and socially-oriented economic development of the country, every region, municipality and market agents;

- formation of a full-fledged national market of the intellectual capital and consolidation on the world market as an innovative (intellectual) power capable of continual socio-economic development for account of reproduction and commercialization of the intellectual capital of the population, collectives and the society as a whole;

- structural «turnaround» in terms of socio-economic development of the country from barbarous exploitation of mineral and human resources to expanded intellectual capital reproduction.

Functional role of an intellectual capital in the reproduction process

The role of the intellectual capital in reproduction of the Aggregate Social Product (ASP) is studied very little and basically from the point of view of its influence on the GDP dynamics. The most conspicuous publications related to the role of an intellectual capital in the reproduction process and its impact on other reproduction factors, appeared at the end of the last century. For instance, T. Stewart in the work “Intellectual capital is a new source of wealth of an organization” considers intellectual capital as the most real, available and socially secure source of business development, and its mass use opens a new page in postindustrial development of economy of the Western countries [18]. In the work by E. Brooking intellectual capital is considered as a relatively independent factor of any business [2, p. 6–8] along with labour, capital and land, although it can be presented as an “increment” in terms of the operating factors [2, p. 39].

The functional role of an intellectual capital in economic development is studied by Russian authors as well. The research is conducted in three basic lines: the role and potential of an intellectual capital in socio-economic development of Russia is studied [1, 4, 6, 9, etc.]; techniques and guidelines referred to the intellectual capital cost estimate at different stages of reproduction process are suggested [7, 14, 15, etc.]; possibilities of legal regulation of rights for an intellectual capital and its use in the interests of market agents are considered [1, 5, 8, 10, 20].

A functional role of the intellectual capital is reduced by many authors to a function of intangible assets of organizations that contribute to labour productivity growth by way of skill, knowledge and practical experience of workers, innovative and organizational abilities of managers and other forms

of productivity growth and labour and production activity effectiveness [15, p. 9–26; 14, c. 120–121]. In particular, measures (administrative decisions and improvement of equipment and technologies, organization of labour, production and management structure) aimed at enhancement of equipment productivity, optimization of an intra-firm structure, improvement of an image and business reputation of a company, creation of new or updated product samples, extension of commercial activity scopes and others are attributed by the authors to the structure of intangible assets.

It is suggested that registered efficiency proposals, scientific researches conducted, organization and holding competitions and festivals, skill sharing and professional development, enhancement of production intellectual level in companies are included in the structure of intangible assets [8].

It is considered that the functional role of an intellectual capital in the reproduction process being reduced to the status of an intangible asset does not reflect the reality of the present stage of social development. There are two cases for the given statement.

The first one is based on mass recognition of science and scientific research as an immediate productive force of the society aimed at application of scientific knowledge in the interests of development, and regarding it (even in accounting) only as an intangible asset and, consequently, a capital that does not create value, is basically not logical. It appears that such a wrong belief is due to the Accounting Regulations 14/2000 (PBU 14/2000) “Intangible asset accounting” and the international standard of financial reporting 38 (standard) “Intangible assets”, which suggests that intangible assets include “...an identified non-monetary capital with no physical representation, and supposed to be used for production or rendering services or goods, for leasing or administrative purposes”.

The second case follows from the first one and it can be defined as follows: Accounting Standard requirements are to be accepted and executed universally. However, the requirements to execute the Accounting Standard cannot suspend or restrict the scientific search for the truth — the essence of an intellectual capital and its functional role in reproduction of the aggregate social product, and in sustainable, balanced socio-economic development. And if an accounting function of the intellectual capital, as well as of an information one, is reduced to the status of an intangible assets, it by no means signifies that theoretically its functional role in the reproduction process cannot be other — more active, large-scale and socially significant.

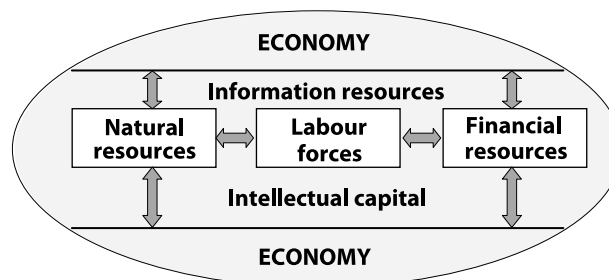


Fig. 2. Interrelation of production and reproduction factors of the aggregate social product

A stand by the authors who suggest considering an intellectual capital as the fifth factor of the reproduction process [16, p. 11–12; 22, p. 27–32], along with land (natural resources), labour, financial and information resources, is of interest. Schematically, interrelation of the resources can be presented in Figure 2. A peculiarity of the functional role of the intellectual capital in the reproduction process is considered to be as follows:

- intellectual capital increases efficiency of the major production factors and productivity of each factor involved in reproduction by way of improvement of a use value and optimization of an exchange value of goods. Regarding natural resources (a material factor), new and advanced knowledge contributes to higher productivity and equipment reliability, use of progressive technologies, better organization and conservation of material resources, development of new product manufacture etc. Labour forces are concerned with advanced training, development of scientific organization of labour and production, reduction of days lost, labour motivation for an end result. Financial capital can be used more efficiently under the influence of the intellectual factor at all stages of the reproduction cycle, supporting, not disturbing production balance etc.;

- intellectual capital maintains reproduction process' systemacy and provides recommendations referred to maintaining an optimum proportion between the production stage and circulation stages, as well as material, personal and financial factors of production in the interests of sustainable, balanced and efficient development. One of the paradoxes regarding negative impact of the intellectual capital on the reproduction process development is considered to be in the fact that heads of many firms and companies reject maintaining the required dependence between the production demand and financial and resource supply, «exclusion» of the depreciation fund and production development capital in the scope of speculative trading. The given steps ultimately caused financial and resource restriction of production activity, development of

speculative (not secured with goods and services) sectors and became one of the reasons of frequent financial and economic crises;

— intellectual capital application makes it possible to maintain strategically steady relationship between production of goods (supply) and solvent demand both at a macrolevel, and at a level of single regions and territorial entities. Constant monitoring of the consumers' and other commodity market condition at all economic and management levels and taking timely and effective measures aimed at their stable functioning, should become, in our opinion, a basic standard of behaviour of scientific and academic collectives under the patronage of relevant authorities. Suggestions referred to closer integration of the power and science in terms of development of intellectually founded decisions will not only strengthen authority of the State power and scientific community, but they will also have a practical impact on the socio-economic development results;

— intellectual capital becomes in present conditions a basis and a source of restructuring of the economy and its modernization. Attempts to implement the given processes under limited financing of scientific institutions and high schools, imposing a status of independent organizations on them at minimal and limited budget financing will again result in “lack of both a result, and actual guilty”. Hope for help by developed countries and a possibility to buy the modern equipment and technologies abroad will hardly favour restructuring and modernization in the interests of the Russian society and the majority of the population, as was demonstrated by almost twenty years' practice of market transformation. Our naive faith for disinterested aid has long become a way to transit the means and resources of Russia in the economies of the «helping» countries.

Summarizing the above said, it can be asserted that the intellectual capital acts as a source of constant perfection of material and personal factors of production and, based on that, maintains extended reproduction of an aggregate product on an intense basis.

Role of the State in generation and reproduction of the intellectual resources

The present global financial and an economic crisis gives grounds to hope that the state authorities of all levels have learned the lessons regarding the role of the state in socio-economic process regulation in national and world development. The crisis has provided an additional motive to revise the existing postulates of the liberal market theory

and exclusively market mechanisms of regulation of socio-economic relations in all the spheres and levels of the social life. We shall not discuss it in detail and consider various approaches to assessment of state and market regulators, but we shall pay attention to three factors. First, whether someone likes it or not, however, regulation of the social sphere in terms of pension provision, social security of the needy population, organization of general and vocational education, organization and financing of fundamental research of high priority in terms of social development and some other, cannot function stably and efficiently without involvement of the State.

Suggestions and arguments by single authors as to minimization of social expenditures by the State and recognition of social budget-funded entities and fundamental science establishments as independent institutions with minimal budget financing guarantees do not rule out a regulating role of the State in the context of social development at different stages.

Second, a regulating role of the State can neither be reduced, nor restricted under plausible pretexts “not to break liberal market standards and rules” in the interests of sustainable, balanced and socially-oriented development. It is hard to disagree with the statement that any surplus “state regulation of contradictions” does not correspond to current flexible and dynamic productive forces, and postindustrial period challenges” [11, p. 18]. There is no denying that surplus State regulation is counter-indicative for flexible and dynamic development of productive forces in the same way as excessive enthusiasm for market regulators naturally contradicts (and is counter-indicative) to stable social development. The latter is constantly interrupted by crises, disbalance and development ratio failures, which inevitably require reasonable restriction and supplement of market self-regulators with State regulators to preserve, restore and maintain sustainable balance of development.

Finally, third, development of globalization and involvement of Russia in the global system of links and relations inevitably require enhancement of a role of the State in terms of regulation of socio-economic and particularly international economic relations. It is unlikely that opponents will have objections against an increase of a regulating role of the State in the context of growing globalization. The matter is in State regulation scope.

In this respect, there is an opinion expressed by us in a number of Russian journals [for instance, 21, p. 52–72]. It consists in the fact that the world financial and economic crisis has not only uncovered

all defects of market regulation and requirements of “withdrawal of the state from economy”. The crisis has required more flexible and reliable combination of market and state regulators for sustainable, dynamic and flexible development of the national and world economies. The suggested pendular model of regulation is based on constant monitoring of socio-economic development by the state structures with representatives of the science and public being involved. In case if signs of sustainable development failure are exposed, the State is supposed to remove disbalance by consolidation and expansion of the regulating impact. It particularly concerns those scopes of social development, which predominantly depend on the State.

Regulating influence of the State on generation and commercialization of an intellectual capital of the society becomes vital in the present conditions of considerable reduction of development factors and aggravation of competitive struggle for intellectual capital reallocation in favour of the developed countries. By expert estimates proved by the practice of state-market regulation of the intellectual capital reproduction in China, Vietnam, Finland and other countries of the world community, it is a State that is capable of initiating the given processes, turning them in the directions required for social development, securing high research risks in terms of financing and organization, contributing thus to solvent demand formation for the intellectual capital, and establishing a full-fledged national market scientific ideas, developments and innovative (competitive) goods.

Forms of regulating influence on the processes of generation and utilization of the intellectual capital are generally subdivided into direct and indirect influence forms. Their correlation, as well as dynamics, is defined by the existing socio-economic situation in the society and social development priorities in a long-term strategy.

Direct influence of the state on the processes of generation and utilization of the intellectual capital is exerted in two ways. On the one hand, the State, acting as the market agents, establishes scientific and research institutions, high schools and other establishments directly or through the State structures, in order to generate an intellectual capital.

Forms of budget financing of scientific organizations may vary; it can be direct budget financing of the whole research activity targeted at research and development project approved by the Government, and subsidy financing of basic items of expenditure, giving scientific organizations more opportunities to involve additional sources of development (grants,

government orders, economic treaties, participation in Joint Use Centers and other forms of financing).

On the other hand, the state develops a contract form of financing of intellectual activity along with execution of the state target programmes referred to scientific idea implementation (Rosnano, Rosatom, Roskosmos, etc.). The given direction of State regulation of intellectual activity is based on contract financing of the state target programmes by means of setting fixed prices for an intellectual product (object) or compensation of actual production costs and development.

Creation of optimum conditions by the State for development of market agents by means of applying indirect methods of socio-economic process regulation is still specific of the market economy. Generally, indirect methods include state regulation of tax load on business, determining a list of goods and services, with the prices being regulated by the state, the customs and amortization policy, state participation in the development of an infrastructural complex and solving social problems of workers etc. However, indirect methods are in any case to be considered as the methods of state regulation of socio-economic processes in the interests of the majority of the population or the minority, a scenario of social development concerned either with innovations or raw materials.

The government regulation theory lacks a method of account for alternative costs, or lost profit for business and the population in case of rejection or minimization of the state regulation of the intellectual sphere. The fact that it is still more efficient and advantageous for private capital to preserve the old, than to search and introduce the new and more risky. At least, such a desire exists until competitors will pull away from the majority, using the intellectual potential of the company. That is the reason why the State role in regulation of extended reproduction of the intellectual capital of the society is to be inviolable and efficient.

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